REPUBLIC OF UZBEKISTAN

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Electricity Sector Transformation and Resilient Transmission (ESTART)Project (P171683)

Environmental and Social Management Framework (ESMF)

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Prepared by the Joint-Stock Company «National Electric Grid of the Republic of Uzbekistan» for the World Bank (WB).

This Environmental and Social Management Framework is a document of the Receiver. The views expressed herein do not necessarily represent those of WB's Board of Directors, Management, or staff, and may be preliminary.

ABBREVIATIONS AND GLOSSARY

A C N A	Ashastas Containing Metavials			
ACMMD	Asbestos Containing Materials			
ACMMP	Asbestos Containing Materials Management Plan			
APCS	Automated process control systems			
ARAP	Abbreviated Resettlement Action Plan			
C-LMR	Contractor's Labor Management Procedures			
CAP	Corrective ActionPlans			
CC	Civil Code			
CEDAW	UN Convention on the Elimination of All Forms of Discrimination			
CIC	against Women			
CIS	Commonwealth of Independent States			
CPF	Country Partnership Framework			
CSC	Construction Supervision Consultant			
DDR	Due Diligence Report			
DEIS /PZVOS	Draft Environmental Impact Statement			
DMS	Detailed Measurement Survey			
DPs	Displaced Persons			
EA	Environmental assessment			
ECAPDEV	Europe and Central Asia Capacity Development			
EHS	Environment, Health and Safety General Guidelines			
EHSPs	Environmental Health and Safety Procedures			
EIA	Environmental Impact Assessment			
EIC	Electrical Installations Code			
EIS / ZVOS	Environmental Impact Statement			
EMRA	Energy Market Regulatory Authority			
ERP	Enterprise Resource Planning			
ES	Environmental Specialist			
ESA	Environmental and Social Assessment			
ESC	Environmental Screening Checklist			
ESCP	Environmental and Social Commitment Plan			
ESIA	Environmental and Social Impact Assessment			
ESIRT	Environment and Social Incident Response Toolkit			
ESMF	Environmental and Social Management Framework			
ESMP	Environmental and Social Management Plan			
ESP	Environmental and Social Policy			
ESS	Environmental and Social Standards			
FDI	Foreign Direct Investments			
FGFOs	Foreign Governmental Finance Organizations			
FIS	Financial Intermediaries			
FS	Feasibility Study			
GBV	Gender-based violence			
GHG	Greenhouse gases			
GosSIAK	State Specialized Inspection of Analytical Control			
GoU	Government of Uzbekistan			
GM	Grievance Mechanism			
H&S	Health and Safety			
HH	Household			
IA	Implementing agency			
IAEA	International Atomic Energy Agency			
IBA	Important bird areas			
ICWC	Integrated Commission for Water Coordination			
ICWC	Interstate Commission for Water Coordination			

IFIs	International Financial Institutions			
IFRS	International Financial Reporting Standards			
IP	Indigenous People			
IR	Involuntary Resettlement			
IRENA	International Renewable Energy Agency			
IVM	International Kenewable Energy Agency Integrated vector management			
JSEA	Job Safety and Environmental Analysis			
kV	Kilovolt			
LAR	Land Acquisition and Resettlement			
LC	Land Code			
LMP	Labor Management Procedures			
LRSCD	Land Resources and State Cadaster Department			
M&E	Monitoring and Evaluation			
MCA	Makhalla Citizen's Assembly			
MES	Main electrical system/network			
MIFT				
MIS	Ministry of Investments and Foreign Trade Management Information systems			
MoE				
MoF	Ministry of Energy			
	Ministry of Finance			
MoH	Ministry of Health			
MPC	Maximum Permissible Concentrations			
MPD	Maximum Permissible Discharges			
MPL	Maximum Permissible Level			
MW	Megawatt			
NEGU	Joint-Stock Company "National Electric Grid of Uzbekistan"			
NGO	Non-governmental organization			
O&M	Operations and maintenance			
OHS	Occupational Health and Safety			
OHTL	Overhead transmission lines			
OIPs OM	Other interested parties			
OPGW	Oliy Majlis			
PAP	Optical Ground Wire Project Affected Persons			
PIU	,			
PLR	Project Implementation Unit Performance and Learning Review			
POM	Project Operational Manual			
PP	Presidential Decree			
PPE	Personal Protective Equipment			
PPP	Public Private Partnership			
R&R	Resettlement and Rehabilitation			
RP	Resettlement Plan			
RCF	Republican Centralized Fund			
RCM	Resolution of the Cabinet of Ministries			
RE	Renewable energy			
RENU	Regional Electrical Networks f Uzbekistan			
RPAE	Relay Protection and Automatic Equipment			
RF	Resettlement Framework			
RPIU	Regional Project Implementation Unit			
RTUs	Remote Terminal Units			
Ruz	Republic of Uzbekistan			
SanPiN RUz	Sanitary rules and regulations of the Republic of Uzbekistan			
SBS	Substation			
SCB	Substation control building			
SCEEP	State Committee for Ecology and Environmental Protection			
JULLI	plate committee for Loology and Environmental Fiblection			

State Environmental Expertise				
Statement of Environmental Effects				
Stakeholder Engagement Plan				
Sanitary Epidemiological Service				
Social Impact Assessment				
Sequencing of Events				
Specially protected natural areas				
Safeguards Specialist				
Solid waste management				
Tax Code				
Terms of Reference				
United Nations Country Team				
United States dollar				
Uzbek Sum				
Videoconferencing				
World Bank				
World Bank Group				
Women's Committee of Uzbekistan				
World Economic Forum				
World Health Organization				

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1. EXECUTIVE SUMMARY

- 1. This Environmental and Social Management Framework (ESMF) has been prepared for the Electricity Sector Transformation and Resilient Transmission (ESTART) Project. The project is implemented by NEGU (National Electric Grid of Uzbekistan) under the Ministry of Energy of Uzbekistan and funded by the World Bank (WB).
- 2. Environmental and social management framework (ESMF) is an instrument that examines the risks and impacts when a project consists of a program and/or series of subprojects, and the risks and impacts cannot be determined until the program or subproject details have been identified.

The ESMF sets out the principles, rules, guidelines, and procedures to assess the environmental and social risks and impacts. It contains measures and plans to reduce, mitigate, and/or offset adverse risks and impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project risks and impacts, including on its capacity to manage environmental and social risks and impacts. It includes adequate information on the area in which subprojects are expected to be sited, including any potential environmental and social vulnerabilities of the area; and on the potential impacts that may occur and mitigation measures that might be expected to be used In addition, the framework describes the institutional roles and responsibilities for environmental and social risk management within the project, as well as feedback and grievance mechanisms through which citizens and other stakeholders can engage with the project.

3. **Project Objective.** The Project development objective is to strengthen the performance of NEGU and improve the capacity and reliability of the power transmission system to integrate large scale renewable energy sources. The proposed project will consist of the following four components:

(i) Digitalization of the electricity transmission sector:

This component will take advantage of modern digital technologies to support the enhanced monitoring, automation, and control of the power system in Uzbekistan. Digital technologies to be deployed under this component would comprise SCADA, EMS, and substation Remote Terminal Units (RTUs). The component will also support an upgrade of NEGU' digital telecommunication network to enable those systems to be fully functional.

(ii) Power grid strengthening and renewable energy integration:

This component will finance a portion of the NEGU priority investment program for 2021–2026, including upgrade and modernization of existing high-voltage substations and construction of a new transmission substation with related to this substation overhead lines. According to a technical audit conducted by the GoU, 62 substations and over 60 percent of transmission lines require rehabilitation and modernization, out of 78 high-voltage (220–500 kV) electricity transmission substations and about 9,000 km transmission lines in total currently operated in Uzbekistan. Those aged substations and lines have deteriorated reliability, quality, and efficiency of electricity supply and hence increased losses and maintenance costs.

This component will accordingly support :(a) modernization of 22 priority substations that were identified for rehabilitation across the country; (b) construction of a new substation "Koltsevaya" to release overloading on neighboring substations and to meet growing demand in the respective regions; (c) construction of related 500 kV and 220 kV transmission lines to connect the aforementioned substation to the national transmission network. During the project preparation and appraisal, a list of priority financing plan would be prepared for the first year of implementation, while the scope, sequencing and implementation of the remaining investment needs would be detailed during the project implementation. The proposed Project will also support the grid connection and

- creation of (shared) infrastructure for clean RE and private generation projects, as prioritized and requested by NEGU (scope, modality and selection criteria would be developed as the proposed Project advances). Potential application of digital solutions/elements such as a digital substation will also be discussed with NEGU and the Ministry of Energy during the project preparation.
- (iii) COMPONENT 3: NEGU Institutional Development and Project Implementation Support (transmission utility): This component will support developing and improving the institutional capacity, financial substantiality, and technical capabilities of NEGU to ensure it can effectively carry out its functions of reliable operation of the transmission system and electricity market in Uzbekistan. It will also support the preparation of feasibility studies, environmental and social assessments, and preparation and implementation of priority investments, especially for integration of renewable energy sources.
- (iv) Electricity Market Development: This component will provide technical assistance for the design and implementation of the electricity sector's transition plan toward the establishment of a wholesale electricity market and will include preparation of secondary legislation, market rules, institutional capacity building, and design and implementation of systems required for market operation and management. The specific activities will include (a) establishment of the Energy Market Regulatory Authority (EMRA); (b) development of a Wholesale Electricity Market; (c) establishment of a Central Buyer; (d) establishment of a Balancing Market within NEGU; and (e) implementation support to Ministry of Energy and its Project Office.
- 4. **Project location.** The project will be implemented in 10 regions of the Republic of Uzbekistan, (Andijan, Fergana, Tashkent, Syrdarya, Samarkand, Bukhara, Navoi, Kashkadarya, Surkhandarya, Khorezm) and in Tashkent city. Uzbekistan is one of the largest countries in Central Asia, sharing its borders with Kazakhstan (north), the Kyrgyz Republic (east), Tajikistan (southeast), Afghanistan (south), and Turkmenistan (southwest). Covering an area of 447 000 km², it extends 1 425 km from east to west, and 930 km from north to south. Uzbekistan's physical environment varies markedly: from mountain peaks in the east, to the flat, desert topography of central and western areas that comprises the majority of the nation's lands. Overall, Uzbekistan's climate is classified as continental, with generally hot summers, often exceeding 40°C, and cool winters of around -2°C but sometimes below -30°C. The nation is extremely arid, with annual precipitation of only 100-200 mm, mostly falling during winter and spring. The nation's water supplies are provided through a number of rivers, lakes and reservoirs, with two rivers, namely the Amudarya and Syrdarya, being essential to the nation's agricultural sector.
- 5. **Project potential environmental and social risks and impacts.** The environmental risk rating is '**Substantial**' due to the nature and scale of activities supported by the Project. Environmental risks and occupational health and safety hazards will mostly originate from activities under Component 2, with some minor, expected risks from digital hardware works including through installation of new optical ground wires (OPWG) overhead along new transmission lines and laying of some optical cables under Component 1 during the planned modernization and upgrade of NEGU communications network. Component 2 with big physical works is expected to support the construction of a new greenfield substation Koltsevaya with related construction/expansion of total length 285 km of 500 and 220kV of overhead transmission lines: and the upgrading (modernization) of 22 existing substations. Most of the expected impacts (occupational health and safety hazards, generation of solid waste, air pollution and noise, disruption of traffic, and so on) are likely to occur during the construction phase). There will be some potential significant operational phase EHS impacts/risks, including potential risks due to fires, explosions etc. at substations, T-line magnetic radiation and right-of-way vegetation control.
- 6. Even if the number of investments is defined, this may be revisited during project preparation and the decision on locations is not final and will be phased. According to the Project PAD the following actions will occur:
- Two site-specific ESMPs (for Koltsevaya 500 kV greenfield substation and for

modernization of Tashkent 500 substation) have also been prepared and disclosed incountry on March 31st, 2021 and consulted on April 7, 2021 with stakeholders before the project appraisal;

- -The new Koltsevaya substation will be sited in an agricultural area in the Kuyichirchik district of Tashkent region, 50 km southwest from the center of Tashkent City. A new land area of approximately 30 ha has already been acquired for the new substation.
- For the new T-Lines An experienced local design institute was hired to prepare a feasibility study, which confirmed the technical and economic feasibility of the proposed new substation.

Final versions of the E&S documents with the results of stakeholders' consultations will be re-disclosed on NEGU website and disclosed for further reference on WB Infoshop.

- 7. **Relevance of WB Environmental and Social Standards.** The Project will be implemented in accordance with the WB Environmental and Social Framework (ESF) including the ten ESS. All ESSs, with the exception of ESS 7, are relevant to the project (more detailed description is given in Section 4 of this ESMF). All investments to be financed by this Project will apply national environmental laws and regulations as well as the relevant WB's ESS.
- 8. **Environmental and Social Management Framework.** The ESMF analyzes the overall environmental and social situation related to the Project, including details on which Environment and Social Standards (ESS) are relevant; identify risks and appropriate mitigation measures; provide screening criteria that spell out the scope of site-specific ESIAs/ESMPs for the proposed Project activities; and suggest templates for a simplified ESMP checklist for small-scale rehabilitation construction works (including digital hardware related works), environment and social monitoring and reporting requirements; a section on proposed capacity-building activities to help the PMU comply with the Environmental and Social Framework; and expected costing implications. The Receiver will ensure that the preparation and implementation any associated facilities (to the extent known or potential) are carried out in a manner consistent with the World Bank's Environmental and Social Framework.
- 9. The ESMF will guide the ESIA process and in this regard covers the following: (i) rules and procedures for environmental and social screening of project activities and subprojects to be supported under the project; (ii) guidance for conducting subprojects ESIA and/or preparing simple ESMP or ESMP Checklist which including monitoring plans; (iii) mitigation measures for possible impacts of proposed subprojects; (iv) requirements for preventing risks and impacts related to biodiversity; (v) implementation and monitoring arrangements for ESIA/ESMPs; (vi) overview of the capacity of NEGU for environmental and social risk management and measures to fill any gaps in capacity, (vii) detailing labor management requirements and labor relations and conditions; (viii) identification of stakeholders and description of stakeholder engagement; (ix) quantification of costs and benefits of alternatives; (x) consideration of estimated costs of implementing ESIA/ESMP.
- 10. The ESMF serves also to provide details on procedures, criteria, and responsibilities for subproject environmental and social screening, preparing, implementing and monitoring of subproject specific ESIAs.
- In addition to the ESMF and two site-specific ESMPs (as mentioned above), the following documents have been prepared by NEGU in accordance withthe WB ESSs:
- 12. **Resettlement Framework.** The project will avoid to the extent possible adverse impacts on private or privately used land and property and will clearly document all efforts made to avoid land restriction and displacement impacts. Where such impacts are unavoidable, they will be minimized to the extent possible, and the project will follow the procedures laid out in the RF to ensure that adequate compensation and rehabilitation measures have been provided to the project affected people. The RF defines the procedures for: (i) acquiring land (after all technical alternatives have been exhausted), (ii) dealing with any residual impacts from land acquisition (i.e. identifying, establishing the valuation of, and

compensating people that suffer economic losses or loss of private property, (iii) monitoring and verification that policies and procedures are followed, and (iv) grievance mechanisms.

- 13. The RF is based on relevant National laws and Decrees as well as the WB ESS 5: Land Acquisition, Restriction on Land and Involuntary Resettlement. Particular attention will be paid to the needs of vulnerable groups among those women headed household, low-income household, a household headed by elderly with no support and household headed physically challenged people.
- 14. Subproject-specific RPs will be prepared in accordance with the RF, where required. The corresponding safeguards document for other social and economic impacts not associated with land acquisition and restrictions is the ESMF.
- 15. **Labor Management Procedures (LMP).** The LMP identifies the main labor force, requirements related to labor and working conditions, and risks associated with the project, and helps the Receiver to determine the resources necessary to address and manage project labor issues. The LMP is a living document, which is initiated early in project preparation, and is reviewed and updated throughout development and implementation of the project.
- 16. Mainly two type of workers are expected to be involved in the project implementation: Direct workers and Contracted workers. Total number of NEGU employees as direct workers, dedicated to this project, is estimated to be approximately 20 people: 9 residing in Tashkent City. The precise number of project contracted workers who will be employed by Third parties are not known as of now. However, preliminary estimation is about 200 workers may be involved in total in all contracted works under the project.
- 17. It is estimated that women would represent about 5-10 percent of the workforce, and those would likely be technical (engineering) and/or staff working in the operation offices. Based on the experience under previous projects implemented by NEGU, all workers will be over 18 and will be on average 30-40 years old. No direct and contracted workers under 18 will be recruited.
- 18. No child, forced, involuntary or unpaid labor will be used in any construction, contracted by or directly associated with the project. This will be monitored by NEGU and will be included in the training to be provided to NEGU staff, local government officials in participating regions.
- NEGU will develop a Grievance Mechanism (GM) for its employees (key workers) as part of the project in accordance with the LMP. Contractors will develop Contractor's LMP including provision for establishment and maintenance of GM for their employees. NEGU will incorporate requirements of the LMP into contractual agreements with Contractors, together with appropriate non-compliance remedies. NEGU will monitor the performance of Contractors vis-a-vis LMP requirements. Stakeholder Engagement Plan. By design, the project envisages possible negative impacts on a number of stakeholders, such as farms that may be affected by land reallocation, as well as employees of these farms who may temporarily or permanently lose their jobs, etc. At the same time, the project can also have a positive impact on the activities of various stakeholders. All project-affected or potentially affected parties should be identified as project stakeholders along with other interested They should be engaged with as early as possible in the project development process and throughout the life of the project. The project will provide stakeholders with timely, relevant, understandable and accessible information and to allow stakeholders to understand the risks and impacts of the project and potential opportunities. The project will implement stakeholder engagement activities to ensure that these groups' views and concerns are taken into account in project design and environmental and social performance, that they are not disproportionately affected and have an equal opportunity to participate in project benefits. Such stakeholder engagement activities will include awareness-raising campaigns, including targeting women and vulnerable groups, and makhalla-level meetings that community members of all backgrounds can join, dissemination of information materials through multiple channels such as the media, social media and through makhalla leaders, focusing on the rules and principles of equality and non-discrimination, for example in relation to employment opportunities in all training and consultation activities. Activities envisioned

under the Stakeholder Engagement Plan aim to enable stakeholder views to be taken into account throughout the project life, promote and provide means for inclusive engagement, ensure that appropriate project information is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format, provide citizens with accessible and inclusive means to raise issues and grievances and enable the NEGU to respond to and manage such grievances. Details on the stakeholder engagement and information disclosure activities are provided in the Stakeholder Engagement Plan. The Stakeholder Engagement Plan will also describe the project's grievance mechanism, describing different ways in which complainants can submit their grievances, and the procedures and response-time for addressing grievances, as well as applicable appeals procedure (see below).

- 20. **E&S supervision and reporting.** The status of the compliance with the ESMPs' requirements shall be provided by the contractors to the NEGU, and then NEGU will send it to the WB in form of their semi-annual report. Environmental and social monitoring during subprojects implementation should provide information about key environmental and social aspects of the sub-projects, particularly its environmental impacts, social consequences of impacts and the effectiveness of taken mitigation measures. Such information enables the NEGU to evaluate the success of mitigation measures as part of project supervision and allows corrective action(s) to be implemented in a timely manner, when needed.
- 21. Project Implementation Units (PIU)/Regional PIUs will carry out regular monitoring of sub-projects during construction and operation to ensure that ESMP/checklists are properly implemented. If PIU/Regional PIUs notices any problems in implementation, it will inform the relevant contractor and agree with him on corrective action to be taken. The PIU will present its findings to the WB in the project progress report twice a year or more frequently and bring issues to the attention of the WB as necessary. The WB project team will also visit the sub-project sites as part of the project supervision, as appropriate and appropriate.
- 22. Integration of the ESMP into the project documentation. All sub-project bidding documents shall include a requirement for implementation of the ESMP/checklist and OHS terms and conditions, and the documents shall be attached to the bidding documents and then to the construction contracts. The ESMF requirements will be integrated in the Project Operational Manual while the ESMPs requirements will be included in construction contracts for all sub-projects, both into specifications and bills of quantities, and the Contractors will be required to include the ESMP implementation cost in their financial proposals Based on the ESMF, the roles and responsibilities of all parties involved in the ESA process will be identified. Lastly, based on the ESMF and ESMPs requirements, monitoring and evaluation of mitigation/avoidance measures identified in the site-specific review and in the ESMPs will constitute integral part of the subproject implementation, including into the contracts binding the contractors who will need to carry out the environmental and social obligations during civil works. Furthermore, all contractors will be required to use environmentally acceptable technical standards and procedures during carrying out of works. Additionally, as specified in the **ESMF**, the contract clauses shall include requirements towards compliance with all national construction, health protection, safeguard procedures and rules as well as on environmental protection.
- 23. **ESMF implementing arrangements.** The NEGU is responsible for monitoring and approving the project feasibility studies including the ESMF with supportive parts. The NEGU will establish a central PIU within its present structure and will use its regional units in all areas to facilitate the day-to-day implementation of the project together with the implementing partners. NEGU will work closely with the implementing partners who will be responsible for the implementation of specific project activities. Regional units shall be instructed to ensure an OHS responsible to ensure the implementation of requirements during construction and operation of project infrastructure.
- 24. In addition to already working Environmental Specialist in NEGU, the PIU will hire one social safeguards specialist (SS) who will maintain supervision over the overall coordination of the RF of the **ESMF**. Both specialists will inform NEGU and the WB regarding safeguards issues, as well as integrate the safeguards requirements into the tender and

contract documents.

- 25. The ESMF implementation requires special knowledge from the beneficiaries and all project participants at each stage of the project. To ensure the effective implementation of the project and a clear understanding of the requirements for safeguards of the project, a capacity-building program is proposed under this project (the ESMF budget). Indicative capacity building activities and their tentative budget is provided in Table 21.
- 26. The project will be implemented at the local level through the regional offices (RO) of NEGU in regions which will cooperate closely with the respective regional khokimiyats. Regional Specialist will besides his/her overall project coordination in region be responsible for assurance of implementation of project activities in accordance with the procedures of the WB Environmental and Social Framework and national rules and procedures for environmental assessment.
- 27. District khokimiyats and local communities (makhallas) are the final beneficiaries of the project implementation; their continuous assistance and presence during all the progress of the project is required. Regional and district khokimiyats will be responsible for the coordination of the implementing procedures and execution of the compensation together with NEGU/PIU.
- 28. The subprojects ESIA and ESMPs implementation will remain under the responsibility of the NEGU, including responsibilities for supervision and monitoring of proposed activities and selected subprojects. Compliance with the ESMPs and monitoring of the impact during the construction phase will be undertaken by the NEGU and Regional Offices' Specialists as part of his/her contractual supervisory duties during project implementation.
- 29. **WB** Assistance in complying with the ESSs. The Bank's environmental and social specialists will provide support to NEGU to ensure smooth implementation of the Project activities in consistency with the applicable ESSs of the Bank. WB supervisory role is to ensure that overall project implementation and monitoring complies with ESMF and ESCP. Quarterly reporting to WB, and ESMPs and RAP will be subject to WB clearance. WB will undertake its own supervisory/project implementation reviews to ensure compliance with E&S docs and legal commitments.
- 30. **Grievance Mechanism (GM)**. The Project Grievance Mechanism aims to enable beneficiaries and citizens to register any grievances on all project-related issues of concern. The GM will operate at a local and national level. At the local level, citizens can submit their grievances first to the local makhalla or to the local NEGU representative. If the grievance has not been considered or the citizen has not received a satisfactory response, he/she may file a grievance to the regional offices. RO's specialist will keep a record of the grievances received. This will be done by establishing multiple uptake channels such as mail, email, phone, project website, personal delivery. Currently, citizens are actively using mobile networks, so the project will open special groups in Telegram and Facebook applications. It is recommended that in makhallas, where sub-projects will be implemented, logs for registration of grievances should be placed.
- 31. Each complaint should be tracked and evaluated if any progress is made in resolving it. The project's monitoring and evaluation information system should also include indicators to measure the monitoring and resolution of complaints as well as analyze the type of complaints submitted.
- 32. **Public consultations and information disclosure.** A series of meetings were held with key stakeholders in several regions (Tashkent city, Tashkent and Syrdarya regions) to develop the **ESMF** and **RF**. Preliminary versions of the **ESMF**, **RF** and **SEP** were presented during the public consultation in Tashkent in Video Conference format at April 7, 2021. Comments received during the public consultation will be reflected in the **ESMF**. The public consultation will take place prior to the finalization of the **ESMF**, **RF** and **SEP**. The public consultation will provide participants with information on project objectives, planned activities, expected environmental and social impacts, as well as proposed mitigation measures, compensatory measures for any impacts and a grievance mechanism. The **ESMF**, **RF** and

SEP documents will be published on the Agency's website in Uzbek, Russian and English languages and subsequently published on the WB's external website.

2. INTRODUCTION

2.1 Scope and objectives of ESMF

At this stage of the project life cycle, the technical assessment (feasibility studies, detailed designs) and specific locations of all activities are still under development and their specific impacts have not been defined, thus adopting a framework approach. At the same time. some priority investments are defined, and some site-specific documents have been prepared (Koltsevaya 500kV greenfield substation and associated TLs and the modernization of Tashkent 500 substation). For other project activities, an Environmental and Social Management Framework (ESMF) has been prepared in accordance with WB ESS 1, defining the principles, the rules, guidelines and procedures to assess environmental and social risks and impacts, e.g. in the form of Environmental and Social Impact Assessment (ESIA) of activities and subprojects. The ESMF also contains measures and plans to reduce, mitigate and/or offset adverse risks and impacts and guidance for the preparation of associated Environmental and Social Management Plans (ESMPs). The main objective of the Environmental and Social Management Framework (ESMF) is thus to identify measures, techniques and mechanisms to prevent, minimize and/or mitigate potential adverse environmental and social impacts that may arise from the project. ESMF ensures that the identified sub-projects are properly assessed from an environmental and social perspective, and adequate mitigation measures to address adverse environmental and social impacts are in place, in compliance with World Bank Environmental and Social Standards along with Uzbekistan's environmental and social laws and regulations. All of the above are necessary to appropriately mitigate any residual and unavoidable impacts.

2.2. ESMF rationale

- 34. In line with the Environmental and Social Framework (ESF), the Environmental and Social Management Framework (ESMF) and associated Environmental and Social Tools such as Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plans (ESMPs), Labor Management Procedures (LMPs), Stakeholder Engagement Plan (SEP), Resettlement Framework (RF) are key tools to ensure initial project compliance with relevant environmental and social standards for projects with a large number of relatively minor interventions such as the Electricity Transmission Modernization and Market Development Project.
- 35. The Environmental and Social Management Framework (ESMF) provides, guidelines and procedures for the implementing agencies in the Project to ensure compliance with the ESS (Environmental and Social Standards). The Environmental and Social Management Framework (ESMF) is expected to provide the Project with integrated environmental and social management in the development and operation of all investments and activities, ensuring effective mitigation of adverse impacts while enhancing the accumulated benefits in line with the environmental and social standards of the ESS.
- 36. The ESMF and RF will establish an environmental and social screening process that will allow the institutions responsible for Project implementation to identify, assess and mitigate the environmental and social impacts of the investments. The ESMF and RF will also identify institutional measures to be taken during project implementation, including capacity building activities.

2.3. Approach and methodology for the ESMF preparation

- 37. ESMF provides guidelines for the development of appropriate mitigation and compensation measures for adverse impact caused by project activities. In this document the background/context, the policy and regulatory framework are described as well as environmental and social impacts of possible subprojects. This includes Environmental and Social Impact Assessment (ESIA) procedures and guidelines, institutional arrangements, consultation and disclosure procedures.
- 38. The ESMF will guide the ESIA process and will cover the following:
 - (i) rules and procedures for environmental and social screening of project activities and subprojects to be supported under the project;
 - (ii) guidance for conducting subprojects ESIA and/or preparing simple ESMP or

ESMP Checklist which would include the monitoring plans;

- (iii) measures to reduce/mitigate possible impacts of proposed subprojects;
- (iv) training program on ESMF and implementation of other E&S instruments;
- (v) main ESIA requirements for modernization and construction of new substations and transmission lines. ESMF will identify criteria for screening these activities and for identifying those that may require an ESIA and/or a simple ESMP / ESMP Checklist; ESMF will also identify opportunities for implementing positive environmental and social alternatives, such as promoting energy efficiency, recycling and reducing waste generation;
- (vi) implementation and monitoring arrangements for ESIA/ESMPs;
- (vii) overview of the capacity of NEGU for E&S risk management and measures to fill any gaps in capacity.

2.4. Project Description

2.4.1. Country and sectoral context

- 39. Uzbekistan is one of the most energy intensive countries in the world. While Uzbekistan's energy intensity declined by about 45 percent during the last 15 years, the country's energy use per unit of GDP is still 3.1 times higher than the average for the Europe and Central Asia region. Despite efforts to improve efficiency, the electricity demand is expected to continue growing steadily in conjunction with the economic growth (projected at about 6 percent over the next 5–10 years). The demand for electricity is expected to grow annually at approximately 4 percent from 2018 to 2030, increasing from 61.2 TWh to 101.6 TWh, respectively. In terms of electricity consumption, the industrial sector represents the largest customer segment (41 percent) followed by residential (24 percent), agriculture (21 percent), commercial (11 percent), and others (3 percent).
- 40. With the obsolete sector infrastructure, electricity losses are high, estimated at 20 percent of net generation. This level is more than double the commercial and technical losses in high-income and some middle-income countries. Unbundled utilities are also incurring additional operations and maintenance (O&M) expenses to source spare parts that are no longer easily available and to cope with frequent outages of equipment. Furthermore, the condition of the electricity networks puts the sustainability and quality of the energy supply at risk. Aged transmission infrastructure is also considered as a bottleneck to materialize the GoU's large-scale renewable energy (RE) development initiative. Both frequency and duration of electricity outages are high by the region's standards. According to the World Bank's 'Growth Diagnostics for Uzbekistan Study', large and small manufacturing firms experienced around 24–29 days of electricity blackouts in 2017/2018. As a result, a large amount of production output, estimated at 24 percent among large firms and 38 percent among small firms, is lost due to interruptions in infrastructure services, including electricity, gas, and water.
- 41. The GoU has prepared and approved an Electricity Sector Reform Implementation Plan (ESRIP), which outlines the priority power sector reform actions, their sequence and timeline, required resources for the effective corporatization and commercialization of the newly unbundled electricity companies, and key areas of electricity sector reform for IFI support. The ESRIP has the following key pillars: (i) utility management and governance, (ii) utility commercialization, (iii) sector financial viability and tariff reforms, (iv) investment program and private sector participation, and (v) reform implementation support. The GoU presented the ESRIP at the first meeting of the Economic Council and at the Energy Sector Reform Roundtable organized with the World Bank's help in July 2019.

2.4.2. Project description and concept

- 42. The basis for the implementation of the Electricity Sector Transformation and Resilient Transmission Project is as follows:
 - Decree of the President of the Republic of Uzbekistan of 23.10.2018. № PP-3981 "On Measures for Accelerated Development and Financial Sustainability of the Electricity Sector" (Appendix № 1, para.11), as well as the Aide Memoire of the World Bank mission conducted from 3 to 13.02.2020.

- Decree of the President of the Republic of Uzbekistan of 09.01.2020 № PP-4563 "On measures to implement the Investment Program of the Republic of Uzbekistan for 2020-2022". (para.18 of Appendix № 6 to the Decree List of investment projects which require development, agreement and approval of pre-project and project documentation in 2020).
- Decree of the President of the Republic of Uzbekistan № PP-4791 of 29.07.2020 "On Measures for Further Improvement of Electricity Supply Sustainability in Tashkent City and Tashkent Region".
- 43. According to the Aide Memoire, the World Bank mission conducted from 3 to 13.02.2020, the project implementation is envisaged by attracting credit funds of the World Bank and own funds of the JSC "National Electric Grid of Uzbekistan".
- 44. The Project development objective is to strengthen the performance of NEGU and improve the capacity and reliability of the power transmission system to integrate large scale renewable energy sources.
- 45. The condition for ensuring timely, efficient and high-quality implementation of the proposed Project is:
 - Maximum use of equipment, components and materials produced in the country, in strict compliance with the requirements of the specifications.
- 46. The project consists of 4 components:
 - Component 1 Digitalization of the electricity transmission sector;
 - Component 2 Power grid strengthening and renewable energy integration;
 - Component 3 NEGU institutional development and project implementation support;
 - Component 4 Electricity Market Development.
- 47. **COMPONENT 1: Digitalization of the electricity transmission sector (estimated cost: US\$125 million).** This component will take advantage of modern digital technologies to support the enhanced monitoring, automation, and control of the power system in Uzbekistan. Digital technologies to be deployed under this component would comprise SCADA, EMS, and substation Remote Terminal Units (RTUs). The component will also support an upgrade of NEGU' digital telecommunication network to enable those systems to be fully functional. Some additional construction activities may occur under Component 1, which will be associated with installation of optical ground wire overhead (OPGW) along the new TLs and laying some optical cables during the planned modernization and upgrade of NEGU's telecommunications network. Even if the number of investments is defined, this may be revisited during project preparation and the decision on locations is not final and will be phased.
- Subcomponent 1.1: Strengthening Power System Control and Dispatch. This subcomponent will finance introduction of a new SCADA/EMS for NEGU' central and regional control centers and installation of RTUs in key transmission substations and power plants. In accordance with the GoU's adopted 'Comprehensive program of digitalization of electric energy sector of Uzbekistan', the introduction of the contemporary SCADA/EMS/RTU is one of the key electric energy sector development directions and critical to ensure reliable and efficient operations of the national power system and the introduction of the wholesale electricity market in the country. The NEGU National Dispatch Center is currently equipped with a completely outdated SCADA system installed during the Soviet era, which does not possess basic functions such as monitoring of the power system conditions and remote control and automation of the system operations. The RTUs will gather and transmit data from each substation or power plant to the control centers to enable the SCADA/EMS functions. The proposed new SCADA/EMS/RTU platform, equipped with real-time monitoring capability and computer-aided analysis, RE forecasting and dispatching functions, scheduling and control functions, will enable the reliable operations of power plants and transmission network, and efficient integration and balancing of higher level of renewable energy resources and regional electricity trades.
- 49. As part of the project preparation, in September 2019, NEGU launched the selection of a consulting firm which will develop a feasibility study (FS) and bidding documents (BDs) for the

SCADA/EMS/RTUs and telecommunication introduction. The FS will examine approaches for sequencing, procurement, and implementation of RTUs, SCADA, and EMS to ensure successful system functioning and integration. This activity will be financed through the World Bank-led Europe and Central Asia Capacity Development (ECAPDEV) Trust Fund. In parallel, the World Bank has supported the development of a pre-feasibility study of the SCADA/EMS/RTU and telecommunication introduction, which helped the GoU and NEGU conceptualize the terms of reference for the FS for SCADA/EMS/RTU and telecommunication introduction.

- 50. **Subcomponent 1.2:** Modernization of Telecommunication Networks. The development of a fast and broad bandwidth telecommunication network at the national level based on optic fiber media is key for successful introduction of modern management systems such as SCADA/EMS. This subcomponent will finance the replacement of existing steel ground wires installed on towers of high-voltage transmission lines with new ground wires that have inbuilt optic fibers in them, namely optical ground wire (OPGW). The establishment of the OPGW network is a prerequisite for the introduction of SCADA/EMS while the network will also be used by various applications and purposes such as relay protection, substation video monitoring, emergency control, and commercial usage.
- 51. **COMPONENT 2: Power grid strengthening and renewable energy integration** (estimated cost: US\$347 million). This component will finance a portion of the NEGU priority investment program for 2021–2026, including upgrade and modernization of existing high-voltage substations and lines and construction of new transmission substations and lines. According to a technical audit conducted by the GoU, 62 substations and over 60 percent of transmission lines require rehabilitation and modernization, out of 78 high-voltage (220–500 kV) electricity transmission substations and about 9,000 km transmission lines in total currently operated in Uzbekistan. Those aged substations and lines have deteriorated reliability, quality, and efficiency of electricity supply and hence increased losses and maintenance costs.
- This component will accordingly support :(a) modernization of 22 priority substations that were identified for rehabilitation across the country; (b) construction of a new substation "Koltsevaya" to release overloading on neighboring substations and to meet growing demand in the respective regions; (c) construction of related 500 kV and 220 kV transmission lines to connect the aforementioned substation to the national transmission network. During the project preparation and appraisal, a list of priority financing plan would be prepared for the first year of implementation, while the scope, sequencing and implementation of the remaining investment needs would be detailed during the project implementation. The proposed Project will also support the grid connection and creation of (shared) infrastructure for clean RE and private generation projects, as prioritized and requested by NEGU (scope, modality and selection criteria would be developed as the proposed Project advances). Potential application of digital solutions/elements such as a digital substation will also be discussed with NEGU and the Ministry of Energy during the project preparation.
- 53. The project plans to modernize and improve 22 existing high voltage substations (110, 220 and 500 kV level) in 10 regions of the Republic of Uzbekistan and Tashkent city. The modernization of substations makes use of existing transport links and communications.
- 54. A list of substations and planned activities for each substation is presented in **Table 1** below.

Table 1. List of substations and planned activities for each substation

	Table 1. List of substations and planned activities for each			ch substation Planned types of work	
Nº	Branch name	Nº	Substation name	Site location	Flatilied types of work
		1	"Khakan" substation 220 kV	Andijan region, Andijan district	- Installation of an automatic fire extinguishing system, with replacement of fire water pipes and installation of pipes from the nearest water source for the fire tank, overhaul of the fire tank, construction of a fire extinguishing pump station;
					- Deep well pump and oil pump repair;
					- Overhaul of substation control house and road to SBS;
					- Construction of checkpoint building, toilets, showers;
					- Partial replacement of the grounding contour.
1	Andijan MES	2	"Fozilmon" substation 220 kV	Andijan region, Khonabod city	- Repair of fire extinguishing pump station, installation of oil collector and replacement of fire water main;
					- Overhaul of auxiliary building, substation control building and fire tank;
					- Partial replacement of the grounding contour;
					- Construction of checkpoint building, toilets, showers.
		3	"Bobur" substation 220 kV	Andijan region, Andijan city	- Construction of a fire pumping station, a 100 m3 fire tank, a fire water pipeline and a checkpoint building;
					- Repair of an oil tank;
					- Partial replacement of the substation grounding loop elements
2	Fergana MES	4	"Paulgan" substation 220 kV	Fergana region, Oltiaryk district	- Repair of main control room, fire pumping station buildings with roof covered with profiled sheeting, fire pond with replacement of system pipes;
					- Construction of a guardhouse with a checkpoint, a sanitary and

Nº	Branch name	Nº	Substation name	Site location	Planned types of work
					amenity building;
					- Asphalting the access road to the SBS;
					- Replacement of cabling and wiring of upgraded outdoor lighting equipment.
		5	"2 A" substation 110 kV	Fergana region, Kuvasoy city	- Construction of a 50 m ³ open fire pond, a guardhouse with a checkpoint, a new control room building of 500 m ² , (12.5 x 40 m), a sanitary building, and repair of the control room building with a roof covered with profiled sheeting;
					- Reconstruction of 110 kV I-II Bus Bars with construction of Bypass bus and bypass breaker 110 kV;
					- Reconstruction of 35 kV I- II Bus Bars with construction of Bypass bus and bypass breaker 35 kV;
					- Replacement of cabling and wiring (for upgraded equipment, LSA and insulators, lighting of main control room, 110/35 kV SWYD, LSA and insulators, grounding contour;
					- Asphalting the access road to the SBS.
		6	"Traktorsoz" substation 220 kV	Tashkent city, Mirzo-Ulugbek district, Tashkent	- Construction of a sanitary and amenity building;
	Tashkent city MES		KV	district, rastikerit	 Repair of main control room, fire pumping station buildings with roof covered with profiled sheeting.
3					- Replacement of grounding contour of smooth fittings (diameter 16 mm), 10 kV support and feedthrough insulators (complete)
					- Perimeter lighting (48 pcs 100W);
					- Install perimeter video surveillance (15 cameras);
					- Water supply (400

Nº	Branch name	Nº	Substation name	Site location	Planned types of work
					meters).
4	Tashkent MES	7	"Toshkent" substation 500 kV	Tashkent region, Parkent district	- Overhaul of substation control buildings, pump house buildings of 1st and 2nd tier, pipelines of 1st and 2nd line from 1st tier pump house to 2nd tier, KPZ 1 and 2, cable ducts in SWYD -220-500 kV, lighting of SWYD -500-220 kV. - Replacement of high-frequency processing (stopper, coupling filter, coupling capacitor, RK-75 cable is required on all high-frequency communication equipment).
		8	"Chinoz" substation 110 kV	Tashkent region	- Reconstruction of I-II busbars 110 kV with construction of Bypass bus and Bypass breaker-110 kV cells; - Reconstruction of I-II SSh-35 kV with construction of Bypass bus and Bypass breaker 35 kV cells;
5	Syrdarya MES	9	"Guzal" substation 220 kV	Syrdarya region, Khavast district	 Update the disconnector operational blocking; Repair of main control room building with roofing with profiled sheeting
6	Bukhara MES	10	"Davlatobod" substation 220 kV	Bukhara region, Alat district	- Overhaul of the main control room -220 KV; - Replacement of 220/110/6 SWYD grounding contour, busbars and insulators of 220/110 kV.
		11	"Kuyu-Mozor" substation 220 kV	Bukhara region, Kagan district	- Overhaul of the main control room -220 KV; - Replacement of 220/110/6 SWYD grounding contour, busbars and insulators of 110 kV.
		12	"Khamza-3" substation 220 kV	Bukhara region, Alat district	- Replacement of grounding contour of 220/110 kV SWYD; - Overhaul of the main control room -220 KV.

Nº	Branch name	Nº	Substation name	Site location	Planned types of work	
	Navoi MES	13	"Navoi NS" substation 220 kV	Navoi region, Kyzyltepa district	- Overhaul of roads for SBS, substation control building, fire tank;	
7					- Construction of checkpoint building, amenity building (locker room, sanitary facilities, canteen), reinforced concrete fencing;	
					- Laying pipes from the nearest water source (200 mm diameter) to the fire tank;	
					- Partial replacement of the grounding contour at substation.	
		14	"Kosan" substation 220 kV	Kashkadarya region, Kasan district	Overhaul of roads;Partial replacement of the grounding contour at substation.	
	Kashkadarya MES	15	"Guzor" substation 500 kV	Kashkariya region, Guzar district	- Overhaul of roads for SBS, substation control building;	
		16	"NS-2" substation 220 kV	Turkmenistan, Lebap region	- Partial replacement of the grounding contour at substation;	
					- Laying drinking water and fire protection pipes.	
8		17	"NS-3" substation 220 kV	Turkmenistan, Lebap region	- Overhaul of roads for SBS, substation control buildings and sanitary facilities (locker room, canteen, toilet);	
					- Partial replacement of the grounding contour at substation.	
		18	"NS-4" substation 220 kV	Turkmenistan, Lebap region	- Overhaul of roads for SBS, substation control buildings and sanitary facilities (locker room, canteen, toilet);	
					- Partial replacement of the grounding contour at substation.	
		19	"NS-6" substation 220 kV	Turkmenistan, Lebap region	- Overhaul of substation control buildings and sanitary facilities (locker room, canteen, toilet);	
					- Partial replacement of the grounding contour at	

Nº	Branch name	Nº	Substation name	Site location	Planned types of work		
					substation.		
		20	"Chupon-Ota" substation 220	Samarkand region, Samarkand district	- Update the disconnector operational blocking;		
9	Samarkand MES		kV		- Repair of main control room building with roofing with profiled sheeting.		
10	Surkhandarya MES	21	"Surkhan" substation 500 kV	Surkhandarya region, Djarkurgan district	- Construction of a sanitary and amenity building.		
11	Khorezm MES	22	"Khazarasp" substation 110 kV	Khorezm region, Khazarasp district	- Construction of a sanitary and amenity building for toilet, shower and locker room;		
					- Overhaul of substation control building.		
	Construction of a new substation						
"Koltsevaya" substation 500 kV, overhead transmission lines 500 and 220 kV		1		Tashkent region, Kuyichirchik district			

- 55. The project envisages the construction of a new substation with related to this substation new transmission lines, namely:
 - 500 kV "Koltsevaya" substation, 500 and 220 kV overhead lines in Tashkent and Syrdarya regions. The new Koltsevaya substation will be sited in an agricultural area in the Kuyichirchik district of Tashkent region, 50 km southwest from the center of Tashkent City. A new land area of approximately 30 ha has already been acquired for the new substation
- 56. Start of construction 2022, end of construction 2026. The operation mode is 24 hours a day, 365 days a year.
- 57. **COMPONENT 3:** NEGU Institutional Development and Project Implementation Support (estimated cost: US\$20 million). This component will support developing and improving the institutional capacity and technical capabilities of NEGU to ensure it can effectively carry out its functions of reliable operation of the transmission system and electricity market in Uzbekistan. The component will include the following subcomponents.
- 58. **Subcomponent 3.1:** Modernization of NEGU business process. The subcomponent will finance the procurement, integration, and supervision of ERP (Enterprise Resource Planning) at NEGU and its subsidiaries as well as support the capacity development of NEGU key staff. Presidential Resolution №PP-4249 dated March 27, 2019, and a recently adopted Power Sector Digitalization Strategy envisage introduction of modern management information systems (MIS) in the electricity sector, including ERP, to improve the companies' financial management and accounting practices, transparency, and accountability. The new ERP will help NEGU streamline and standardize its business processes across the organization, adopt some of the global good practices being followed in similar organizations, and improve its corporate governance.
- 59. **Subcomponent 3.2:** NEGU Financial Sustainability and Preparatory Work to Access Commercial Financing. This subcomponent will build on the financial viability measures, which are described in the Sector Context section, that the GoU plans, to implement in order to

strengthen the financial standing and commercialization of NEGU. Successful completion of those measures would lay the foundation to undertake follow-up key steps required for NEGU to access commercial financing in the long run. Specifically, this subcomponent would support the following: (a) development and implementation of a financial recovery plan for NEGU; (b) strengthening the financial management, transparency, transition to International Financial Reporting Standards (IFRS), and institutional capacity of NEGU, which are essential for its long-term financial viability; (c) obtaining a credit rating for NEGU from an internationally reputable rating agency in the medium to long term; and (d) preparatory work for NEGU to raise commercial financing in the long term to meets its growing financing needs. Details of the priority activities will be defined during the preparation and appraisal of the proposed Project.

- Subcomponent 3.3: NEGU Institutional Capacity Building and Project Implementation Support. This subcomponent will finance project implementation support activities and institutional capacity-building programs, including (a) support for NEGU's institutional strengthening programs such as developing procedures, introducing systems and tools to improve core functions of strategic departments and the company's business process, (b) improvement of NEGU corporate governance and decision making processes, (c) support for development and implementation of transmission key performance indicators (KPIs), (d) capacity development activities on cybersecurity threats and management; (e) support for the implementation of the Gender Action Plan to increase the gender diversity of the work force, and citizen engagement initiatives, (f) support to assess and build capacity on management and disposal of persistent organic pollutants (POPs)—namely the polychlorinated biphenyls (PCBs)—in the electricity transmission sector, (g) support for the Project Management Unit (PMU) including project monitoring and supervision, capacity building in management of social and environmental risks, project and entity financial audit, and training and operating costs, and (h) key feasibility studies for future priority investment projects and other priority studies to support NEGU's operation and planning functions. As the NEGU establishment is progressing, additional areas of support would be explored and included in the scope of the proposed Project during the appraisal jointly with the GoU, and MoE.
- 61. **Subcomponent 3.4:** Technical Supervision Consultancy. This subcomponent would provide support to NEGU with technical supervision of the implementation of digitalization solutions (SCADA/EMS/RTU, telecommunications systems, and ERP) and transmission substation design, supply, and installation contract(s).
- 62. **COMPONENT 4:** Electricity Market Development (estimated cost: US\$10 million). This component will provide technical assistance for the design and implementation of the electricity sector's transition plan toward the introduction of a wholesale electricity market including required policy, regulatory, and market rules and technical codes. It has been agreed with the GoU that MoE and its Project Office, as the key policy focal point and coordinating body for development of the electricity sector and market, would be the main beneficiary of this subcomponent, while the procurement of activities and services would be conducted by NEGU and its PIU. The component scope includes strengthening of MoE's Project Office, support the design and subsequent implementation of transitional electricity market to gradually evolve the single buyer operation to a wholesale electricity market, and establishment of a regulatory body responsible for electricity sector economic and technical regulations and market development.

2.5. Sectoral and institutional context

- Based on previous commitments and sector policy dialogue, the World Bank under the proposed Project will provide lead support to the transformation of the newly established power grid company (NEGU) given its strategic role in the sector. The proposed Project is consistent with the Performance and Learning Review (PLR), Country Partnership Framework (CPF) for Uzbekistan (2016-2020). In particular, it is consistent with and contributes to the following objectives of the Performance and Learning Review (PLR):
 - a) Objective 1.1. Accelerated economic growth and transition to a market economy;
 - Objective 2.1. Strengthening the fiscal institutions and financial sustainability of stateowned enterprises;
 - c) Objective 2.2. Increased access, efficiency and reliability of electricity and heating services;

- d) Objective 1.5: Increased efficiency of infrastructure service provision, including through PPP.
- 64. The Performance and Learning Review (PLR) identifies key priorities for World Bank Group involvement in the energy sector, inter alia (a) Sequencing of Events (SOE) reforms, (b) developing an energy sector strategy, (c) increasing clean energy development and energy efficiency, and (d) strengthening regional energy trade and market development. The proposed project will contribute to achieving these four priorities in the energy sector.

2.6. Institutional arrangements and mechanisms for project implementation

- 65. Under the new energy sector structure, the National Grid Networks of Uzbekistan (NEGU) will be supported as the state utility responsible for planning, design, development, operation and maintenance of the electricity transmission system, and as the sole buyer of electricity in Uzbekistan. The company will also be the operational backbone of the new electricity market to be established in Uzbekistan.
- 66. In addition, due to the rapid expansion of the energy system in Uzbekistan, including large-scale renewable energy and gas projects promoted and financed by the private sector, investments in the modernization, expansion and digitalization of outdated transmission infrastructure will also need to be accelerated. There is a need to keep pace with the expansion of electricity generation and the growing demand for electricity in order to ensure a secure, reliable and affordable electricity supply for households, businesses and industries. Modern digital technology must be built into the transformation of the electricity grid infrastructure and the commercialization of the transmission company.
- 67. The organizational and implementation arrangements of the project were based on the experience of the WB in the energy sector in Uzbekistan. The main institutions involved in the implementation of the proposed project are, Ministry of Energy, Ministry of Finance, Ministry of Investment and Foreign Trade, at national level NEGU and RENU (Regional Electric Networks) and PIU at local level. The regional administrations (khokimiyats) will facilitate the implementation of the project at local level and will be indirect beneficiaries of the project.
- 68. The main initiator and executing agency of the project is the Joint Stock Company "National Grid Networks of Uzbekistan" (NEGU). The NEGU was established on 27 March 2019 as an authorised state body responsible for the efficient development, construction, reconstruction and management of transmission lines and substations in Uzbekistan, as well as for the modernization of existing transmission lines by attracting foreign investment.
- 69. The NEGU is responsible for coordination with key ministries and public authorities, including the State Investment Committee, Ministry of Finance, Ministry of Investment and Foreign Trade, as well as regional and local authorities of the project areas during project implementation.

2.6.1. Implementation mechanisms

- 70. NEGU as IA (Implementing Agency) will establish a PIU with the required staff, including environmental and social specialists. NEGU will be responsible for the selection of the Construction Supervision Consultant (CSC).
 - The Social Safeguard Specialist and the Environmental Specialist in the PIU should ensure that project activities are carried out in accordance with the all WB ES Standards and national policies and procedures. The main responsibilities of the Specialists in the PIU will include:
 - First and foremost is to implement ESMF
 - Screening subprojects for ESHS aspects
 - Others
 - Updating the ESIA/ESMPs;
 - Reviewing/approving contractor ESMPs;
 - Working with operational phase implementing agencies related to OHS management during operation phase;
 - o coordinating all environmental and social issues associated with the project;

- providing oversight and monitoring and evaluating the social, environmental and land acquisition and resettlement (LAR) impact and effectiveness of mitigation measures, and identifying issues of non-compliance or adverse trends in outcomes and implementing programs to correct any problems identified;
- providing guidance to contractors on social and environmental issues where appropriate; and
- reporting to the PIU on the implementation of project activities and the implementation of the Grievance Mechanism.

2.7. Alternative considerations

2.7.1. Absence of a project scenario

As a" zero option", the rejection of the implementation of the project solution is considered. This excludes the improvement of the reliability of electricity supply to the population, developing social facilities and industrial enterprises. Refusal to modernize the energy transmission system in Uzbekistan will not allow the implementation of the most important infrastructure project of strategic importance, will lead to a reduction in sustainable development of the country, and will be contrary to the interests of the Republic of Uzbekistan in the energy sector and other economic spheres. The solutions proposed in the project are optimal and have advantages in terms of environmental and social impact and industry the development due to measures adopted in the project.

3. BASELINE INFORMATION

3.1. General description

- 72. The Republic of Uzbekistan is situated in the heart of Central Asia, between the Amu Darya and the Syr Darya rivers. The country extends 1,425 kilometers from west to east and 930 kilometers from north to south. It borders Kazakhstan to the northeast, Kyrgyzstan and Tajikistan to the east and southeast, Turkmenistan to the west and Afghanistan to the south. The total area is 448,900 km², of which 425,400 km² (95%) is land.
- 73. The landscape of Uzbekistan includes various forms of relief, from mountain ranges to lowland plains and plateaus. The mountain and foothill areas account for 21.2% of the country's territory and the plains account for 78.8%. The plains are situated in the south-west and north-west and comprise the Ustyurt plateau, the Amu Darya delta and the Kyzylkum desert. In the central and southwestern part of this desert there are fairly large mountain uplands. Mountains and foothills, occupying about one third of the territory of the country, are located in the east and southeast, where they join the powerful mountain formations of Kyrgyzstan and Tajikistan. In between are valleys and plains. The largest is the Fergana Plain. It extends over 370 km. The valley is surrounded by mountains on three sides and is open only to the west.

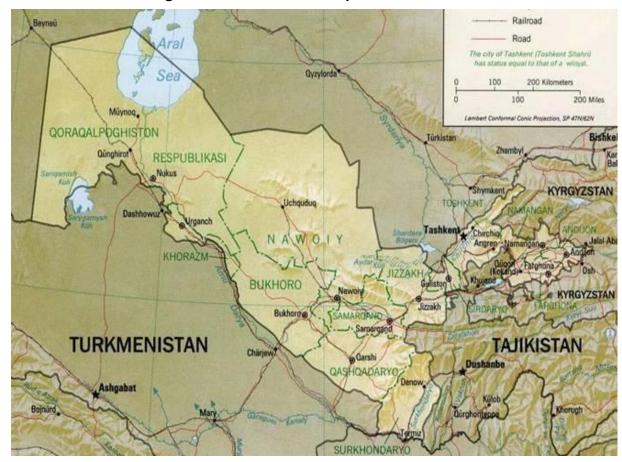


Figure 1: Location of the Republic of Uzbekistan¹

- 74. The climatic characteristics of Uzbekistan are its extreme continental climate, its aridity and the abundance of heat and light which result from its southern location within the vast mainland and its great distance from the oceans. The average January temperature is +3°C in the south (Termez) and -8°C in the north (Ustyurt Plateau). The maximum temperature during the summer months (July) reaches 45-49°C. The annual amount of precipitation is 80-200 mm in the plains, 300-400 mm in the foothills and 600-800 mm on the slopes of the mountain ranges.
- 75. The hydrographic network of the Republic includes about 17777 natural watercourses, most of which are less than 10 km long with rivers drying up almost all year round. The largest rivers are

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¹ https://www.ecoi.net/en/countries/uzbekistan/maps/?page=2

the Amu Darya (2,137 km) and the Syr Darya (1,437 km).

- 76. The nature of Uzbekistan is characterised by high seismicity, with known incidences of earthquakes reaching eight to nine magnitudes on the Ritcher scale,
- 77. A large quantity of minerals has been identified in the territory of the Republic; their list includes about 100 types of minerals, of which more than 60 are already used in the national economy. In agriculture, the main sectors are the cultivation of grain (including wheat), cotton, fruit and vegetable and melon crops, tobacco, sheep breeding, livestock, etc. The leading industries are electrical engineering, fuel, machinery, metalworking, metallurgy, chemicals, light industry, motor vehicles and consumer goods. Each year 52.4 billion kWh of electricity and 18.5 million Gcal of thermal energy, about 3.8 million tons of coal, 3.6 million tons of oil and gas condensate, etc. are produced.
- 78. In accordance with the Decree of the President of the Republic of Uzbekistan No. PP-3981 of 23.10.2018 "On measures to accelerate the development and ensure financial sustainability of the electricity sector", a proposal of the investment project "Modernization and reconstruction of main network substations" was prepared in order to attract of borrowed funds from the World Bank.
- 79. The project plans to upgrade 22 existing substations (110, 220 and 500 kV level) in 10 regions of the Republic of Uzbekistan and Tashkent city. The modernization of substations makes use of existing roads and communications. A list of substations and planned activities for each substation is presented in Table 1 abover.

3.2. Fergana Valley (Andijan and Fergana regions)

3.2.1. Geography and topography.

- 80. Andijan region is located in the eastern part of Fergana valley. Bordering Kyrgyzstan and Fergana region, it has an area of 4,300 km², of which 47% is arable land, about 1% is forest land and more than 5% is pastureland. The western part is an elevated plain; the eastern one is occupied by the foothills of the Fergana and Alay mountain ranges, which protect the valley from intrusions of cold air, so the weather here is more stable in winter than in the rest of Central Asia.
- Andijan, the largest city in the Fergana Valley, is located on the ancient Andijanzai deposits at an altitude of 450 m above sea level. From the east and south-east it is closely approached by the Alamyshik mountain range. It separates Andijan from the Karadarya valley.
- 82. Fergana region is located in the southern part of the Fergana Valley. It shares borders with Tajikistan to the northwest, Kyrgyzstan to the south, and with Namangan and Andijan regions of the Republic of Uzbekistan. It covers an area of 6,800 km², which is equivalent to 1.5% of the total territory of the country. In total, 79% of the region's territory is occupied by plains and the rest by mountains and foothills.

3.2.2. Climate

- 83. The climate of the Fergana Valley is arid, continental and differs by region depending on altitude, proximity to the mountains and distance from the open, arid part of the valley blown by westerly winds.
- 84. The climate of Andijan region is sharply continental, with relatively mild winters and long hot summers. The main climatic feature of Central Fergana is a hot, dry summer and a very cool and wet winter. According to long-term observations, the average monthly temperature in the coldest month of the year, January, is -3.4°C, and the hottest July +26.8°C. The absolute maximum of positive temperatures reached 44°C (in the shade) and the maximum of subnormal temperatures was 29°C. The average year-round temperature is 13.4°C. The average annual precipitation is only 208 mm. Most of them occur in winter and spring months, accounting for 89% of all precipitation. The minimum of precipitation falls in June, July, August and September. March has the highest amount of precipitation, 33 mm. This region is mainly characterized by northerly and northwesterly winds. Heavy dust storms causing wind erosion are normally observed during April and May.
- 85. The climate of Fergana region is also sharply continental, arid, with an abundance of heat and light. The temperature regime is positive, the average annual average annual air temperature is + 13 °C. The coldest month of the year is January with an average monthly air temperature of 3.2 °C and an absolute minimum of -28 °C. And the hottest month is July with an average monthly air temperature of + 26.8 °C and an absolute maximum of temperature + 43 °C. In the remaining

months of the year, with the exception of January, the average monthly air temperature is positive. The frost-free period is 227 days. Summer is hot and dry. Winters are mild with moderate frosts. The freezing depth is 31 cm. The annual amount of precipitation is 172 mm and is almost 7 times less than evaporation.

86. Average monthly wind speeds range from 1.0-1.5 m/s to 2-2.1 m/s, with increases to 10-15 m/s, with occasional gusts exceeding 15 m/s. The main direction of the winds is the western, northwestern, northern, southeastern points.

3.2.3. Surface water and ground water resources

- 87. Main sources of surface water for the Fergana Valley are the Naryn and Karadarya rivers, that form the Syr Darya river after their confluence, and furthermore Sokh and Shakhrikhansay rivers and a group of small mountain streams. All rivers are typical mountainous with snow/ice feeding, low flows in April-May, high flows from end-June till mid-August, with a wide range of discharge during day-and-night. To balance flows with irrigation requirements, main irrigation canals have been constructed, such as Big Fergana Canal (BFC), Big Andijan Canal (BAC) and South Fergana Canal (SFC), to transfer excess water from the rivers to zones with water deficits. In addition, river regulation and storage were provided by the construction of Toktogul, Kampirravat, Sokh, Kurgantepa and other reservoirs. The map showing large rivers and canals of the Fergana Valley is given in Figure 2.
- 88. The Fergana 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 the Fergana Valley is estimated at about 6,500 m3 a day (about 1,900 m3 Andijan region; 1,700 m3 a day Namangan region, other Fergana region). Formation of underground water reserves takes place through infiltration from rivers, canals, streams, and irrigated fields.

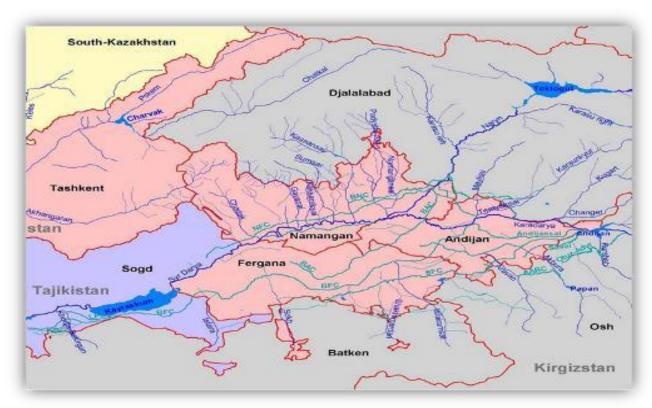


Figure 2: Hydrological network of the Fergana Valley²

89. Orographic features of the Fergana Valley have determined a great variety of hydrogeological conditions. Following zones are differentiated:

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² http://www.eecca-water.net/file/nikanorova_fergana.pdf

- i. submersion zone with stably deep groundwater occurrence and low mineralization (adyrs and upper parts of alluvial cones);
- ii. fringe zone with stably close groundwater occurrence with low and medium mineralization (middle part of alluvial cones);
- iii. dispersion zone with unsecured outflow and unstably close occurrence of groundwater with increased mineralization (lower part of alluvial cone and interconal declines).
- 90. 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.
- 91. Andijan region. The main water artery of the region is Karadarya river that crosses the region from the East to the West, its water is mainly used for irrigation. There are 3 reservoirs and several lakes. Andijan region is famous for its springs, the water of which is very tasty and useful. Thus, there are natural areas of protection in the region's territory, namely Balikchi district, where the springs like Sariq Suv, Kul, Uch Bulok, and Tuzlok Buvi are located. The settlements of Nayman, Bouta Kori, Olim, Dustlik, Imom Ota hold the springs of Kora Bosh Bulok, Olim Buloq, Kirq Bulok, Kambar 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.
- 92. Fergana region. Numerous rivers of the Fergana Valley are having a great importance for irrigation. The main one is the Syr Darya river. Numerous tributaries rush from the surrounding mountains to the Syr Darya Sokh, Aksu, Shakhimardansay, Kasansay, Isfara, Akbura and others. There are several reservoirs and lakes in the region. In the mountainous and foothill areas of the region there are more than 10 springs. The most famous of them are: Kaynar Bulok, located Elashe; Toshbulok, located in the same village on the banks of the Naiman River; Oydin bun, around which a recreation center was created near the village of Mingtut; Kudash, located in the area of the village of Kudash; Chimion, located near the village of Chimion; Satkak, located in the area of Satkak village; Nor Bulok, located in the area of the village of Aval, etc., is visited by numerous tourists throughout the year.

3.2.4. Soils

- 93. Andijan region. At the foothills and in the intermountain valleys of Andijan region, nonsaline light, typical and dark sierozems are developed in good drainage conditions of the upper terraces of river valleys, alluvial cones, and deeply defined loessial terraces.
- 94. Fergana region. The soil cover of Fergana region is composed of soils of desert conditions of soil formation, which, under the influence of a close occurrence of groundwater, were transformed into meadow and desert-meadow.

3.2.5. Biodiversity, Ecological and Cultural Heritage

- 95. Andijan region. The main crop in the region is cotton. In addition to cotton, cereals, grapes, pomegranates, figs, persimmons, peaches, apricots, melons and other types are grown in the region.
- 96. The flora is rich and diverse, a large number of different types of plants grow in the floodplain of the rivers, such as: turanga, tamarisk, chyngyl, reed, licorice, Alhági, etc. Two rare species of Uzbekistan's flora listed in the Red Book grow on the territory of the region: Fergana tulip and Allochrusa gypsophiloides.
- 97. The species composition of the fauna living in the region is diverse. There are species of animals listed in the Red Book of the Republic of Uzbekistan, such as: Luciobarbus capito conocephalus and other fish's representatives, Phalacrocorax pygmeus, white stork, Aythya nyroca and several others. There are some archeological monuments in Andijan region, such as Jami complex and Bobur monument.
- 98. Fergana region. The main crops are cotton, wheat, alfalfa and other crops. In the farms of the region, also grow grapes, fruits and vegetables for sale in local markets, as well as many crops for their own consumption.
- 99. The local fauna consists of species that carry agricultural activities, including birds such as turtledove, oriole, goldfinch, blackbird, woodpecker, swallow, cuckoo, small passerine oatmeal,

crows, common lane, house sparrow and some others. According to official data, foxes, badgers, rodents, hares, turtles, hedgehogs and jackals are found in agricultural areas. It is likely that their existence, as well as some small birds, largely depends on the presence of shrubbery, resulting from the flooding of certain areas, and an increased population of soils. Pastures support domestic animals, i.e. rams and cows.

- 100. In the Fergana Valley, in particular, in Yazyavan district of Fergana region, the State Natural Monument "Yazyavan Chullari" (1994; area 1,962 ha) was created to preserve the unique natural sand massif along with the desert habitat.
- 101. Besides natural protected areas, there are many famous archeological monuments in Fergana region, such as Palace of Khudoyar Khan, Fergana Regional Museum of Local Lore; Modari Khan, Pirsiddick, Tomb of Dahma-i-Shahan mausoleums; Narbut Biya, Said Ahmad Hodja, Emir, Jomi madrassas; Chakar Mosque; Eski- Kurgan; Jami Mosque.

Table 2. Protected Natural Areas of Fergana Valley³

CDNA nama	L	Anna Isra-2		
SPNA name, year of creation	Administrative Geographical conformity location		Area, km²	
Ming Bulok (1991)	Namangan region		10	
Chust (1994)	Namangan region		0,96	
Angren Plateau	Namangan region (Pap district)	Western Tien Shan, in the upper river Ahangaran at an altitude of 2700 to 3420 m above sea level	253,1	
Tugay Mirzaaral	Namangan region (Pap district)	in a large bend of the Syr Darya River on its right bank, 10 km southwest of Pap city.	18,62	

- 102. Among natural protected areas, there are protected sites falling into the International Union for Conservation of Nature and Natural Resources (IUCN) categories III, IV, V. Pursuant to resolutions №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 regions of Fergana Valley:
- Water conservation zones of Naryn river in Namangan region;
- Water conservation zones of Karadarya river in Namangan and Andijan regions; and
- Water conservation zones of Syrdarya river in Andijan region.
- 103. Local khokimiyats, branches of Ministry of water resources, and Forest Administrations are charged with establishing and ensuring security of water conservation zones.
- 104. The Fergana Valley holds underground water stocks, and some of the underground water formation zones in Andijan and Namangan regions were granted the status of natural areas of protection. The location and territory of such zones is presented in Table 3.

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³ https://geosfera.org/aziya/1526-ferganskaya-dolina.html

Table 3. Freshwater formation zones with nature conservation zone status in Andijan region

Nº	Region and district	Deposits	Area, (ha)					
	District-level deposits							
1.	Andijan region	Osh-Aravon	35 294					
	Total		113,321					

3.2.6. Socio-economic conditions

Figure 3: Location map of protected areas in the Fergana Valley⁴

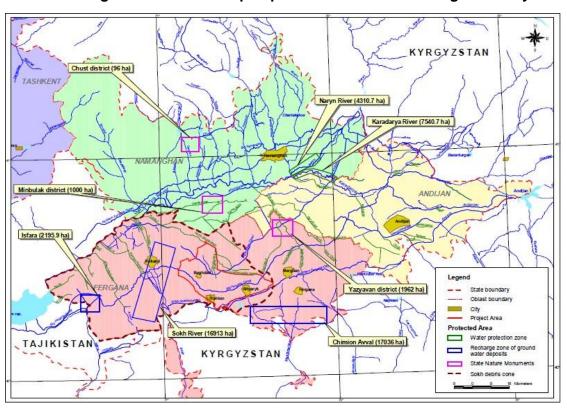


Figure 4: Administrative map of Andijan region⁵

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 $^{^4}$ https://link.springer.com/chapter/10.1007/978-3-319-18971-0_10 5 https://en.wikipedia.org/wiki/Andijan_Region



105. Andijan region. Andijan region was founded on March 6, 1941. It has an administrative center, Andijan city, and the region is divided into 14 administrative districts. The administrative division of Andijan region is presented on Figure 4. The main sectors of agriculture are cotton growing, grain growing, vegetable growing, horticulture and viticulture, meat and dairy farming, and sericulture. The primary industries are mechanical engineering and metalworking, electric power, automotive, and light and food industries.

106. Fergana region. Fergana region was founded on January 15, 1938. It is divided into 15 administrative districts, namely Altarik, Baghdad, Besharik, Buvayda, Dangara, Fergana, Furkat, Koshtepa, Kuva, Rishton, Sokh, Tashlak, Uchkuprik, Uzbekistan, and Yozyovun. The administrative division of Fergana region is presented on Figure 5. The main sectors of agriculture are grain growing, cotton growing, horticulture and viticulture, meat and dairy farming, poultry farming, and sericulture. The primary industries are electric power, machine building, building materials, fuel, (oil and gas), chemical, petrochemical, light and food industries.

Figure 5: Administrative map of Fergana region⁶

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⁶ https://en.wikipedia.org/wiki/Fergana_Region



Table 4. Main socio-economic indicators of Andijan and Fergana $\operatorname{regions}^7$

Name		And	dijan region	Fergana region
Territory, km ²		4300		6 760
•		Popu	lation	
Population densit	y, per/km²	-	713 200	545
Total number of p	eople		3 066 900	3 683 300
Women, total			1 541 600	1 828 300
Men, per			1 552 300	1 855 000
Urban population			1 603 700	2 082 500
Rural population,	total		1 463 200	1 600 800
		cational itutions		
Primary schools			743	920
Secondary professional (colleges)		120		148
Academic lyceums			9	9
Higher education institutions			4	3
	Me	dical	nstitutions	
Hospitals			130	125
State clinics			383	460
			cture, km	
	Motor road	S	2457	4001
Transport	Railways		155.8	228,6
Transport	Airport		International Airport Andijan	International Airport Fergana

⁷ https://en.wikipedia.org/wiki/Andijan_Region; https://en.wikipedia.org/wiki/Fergana_Region

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Name		And	dijan region	Fergana region
Social infrastructure	Gas pipelir km	nes,	33.6	32.4
	Water supp networks, k	oly km	141	279.7

3.3. Bukhara region

3.3.1. Geography and topography

- 107. Bukhara region is located in the central and southwestern part of Uzbekistan, it borders with Kashkadarya, Navoi regions of Uzbekistan and the Republic of Turkmenistan. The total area is 4193.7 hectares, of which about 5% of the area is sown land, almost 8% of the territory is covered by forest, more than 60% of the territory is pastures.
- 108. The territory of the region is a wavy plain, with separate elevations, a significant part of the territory is occupied by the sands of Kyzylkum, only in the south, in the lower reaches of Zarafshan there are small irrigated oases Gizjduvan, Bukhara, and Karakul.

3.3.2. Climate

- 109. The climate is desert, sharply continental, with very harsh winters and dry, hot summers. The absolute minimum is -31-34 °C, the absolute maximum is + 45 + 46 °C. The sum of positive temperatures is 4500-5000 degrees.
- 110. The average duration of the frosty period is 51 days. Relative humidity varies widely throughout the year. Their highest value is observed in the winter months of December, in January its value is 70-80%. The average annual humidity at Bukhara and Karakul stations is 55-53%.
- 111. The long-term average annual rainfall is 186 mm at Bukhara station and 143 mm at Karakul station. During the year, the overwhelming proportion of precipitation falls in the winter-spring period: moreover, in spring their amount is about 50% of the annual amount.

3.3.3. Surface water and ground water resources

- 112. The main waterway of Bukhara region is the Zarafshan river. In its lower reaches it is lost in the sands, forming saline lakes. The Amu-Bukhara, Amu-Karakul and other canals pass through Bukhara region.
- 113. The Amu-Bukhara Machine Canal (ABMC) is designed to irrigate 266.5 thousand hectares of land in Bukhara and 23.2 thousand hectares of the Navoi regions of Uzbekistan by supplying water to the Amu Darya river in an irrigation system previously fed from low-water Zarafshan.
- 114. There is a reservoir and more than 60 lakes with a total area of more than 100 thousand hectares. More than 25 species of fish are found in the reservoirs of the region, five of which are of commercial importance.
- 115. The territory is poorly drained, therefore, on the irrigated territory, groundwater levels lie close to the surface, causing soil salinization. With depth, the salinity of groundwater increases. The mirror of mineralized groundwater on the territory lies at depths less than critical, which leads to the development of an intensive process of soil salinization.
- 116. The almost steady surface (i = 0.0005-0.001) creates difficult conditions for the outflow of groundwater, resulting in the formation of a hydrogeological region "B1" an extremely difficult general inflow and outflow of groundwater with a depth and a regime that depends on local conditions.
- 117. Irrigation is concentrated within the Karakul delta. In the irrigated zone, groundwater with medium and high salinity (5-10 g / l and 10-20 g / l) are located close to the surface, determine the development of salt accumulation in the root zone. The main event in these conditions is the fight against salinization. Given the predominant medium loamy soil texture, a safe groundwater level (when salt accumulation in the upper soil horizons is virtually eliminated) is recommended at about 2.2 m.

3.3.4. Soils

118. The soils of the Bukhara region are mainly represented by meadow-oasis soils of the desert zone, salted mainly loamy, and to a lesser extent - takyr saline, clay and loamy in mechanical composition.

3.3.5. Biodiversity, ecological and cultural heritage

- 119. In the flat territories of Bukhara region ridge-hilly sands are common, fixed on a considerable area with shrubs. Saxaul, calligonum comosum, wormwood and glasswort growshere. Along the canals banks various grassy vegetation and groups of trees grow.
- 120. Arable lands are mainly occupied by cotton. Vegetables and gourds are also grown, there are orchards and vineyards. Pastures are used mainly for the development of astrakhan sheep breeding.
- 121. Besides natural protected areas, there are many archeological monuments, such as: Gaukushan Kosh- Madrasah, Lyabi-house and Poy-Kalyan ansambles, Samanid and Chasma Ayub mausoleums, Abdulla-khan Kulba-Kukeldash, Miri-Arab, Modari-khan, Nadir Divanbegi, Chor Minor, Abdulaziz-khan, Ulugbek's madrasahs and many others.

3.3.6. Socio-economic conditions

122. Bukhara region was founded on January 15, 1938. The administrative center is Bukhara city, and the region is divided into 11 administrative districts. These are: Alat, Bukhara, Gijduvan, Jondor, Kagan, Karakul, Karavulbazar, Peshku, Ramitan, Shafirkon, Vobkent. The administrative division of Bukhara region is presented below.



Figure 6: Administrative map of Bukhara region⁸

Table 5. Main socio-economic indicators of Bukhara region⁹

Name	Indicators
Territory, km ²	40 320
Population	
Population density, per/km ²	303 400
Total number of people	1 835 700
Women, total	963 000
Men, total	917 000
Urban population, total	610 100
Rural population, total	1 225 600
Educational institutions	

⁸ https://en.wikipedia.org/wiki/Bukhara_Region

⁹ https://en.wikipedia.org/wiki/Bukhara_Region

Pre-schools		
Primary schools	536	
Secondary professional (colle	eges)	83
Academic lyceums		6
Higher education institutions		4
Medical instit	utions	
Hospitals		76
State clinics	456	
Infrastructu		
	Motor roads	
		3 969
Transport	Railways	493,5
Transport		International
	Airport	Airport Bukhara
Social infrustructure	Gas pipelines, km	11,5
	Water supply	
	networks, km	706
		796

123. The main agricultural sectors are grain growing, cotton growing, vegetable growing, and sheep breeding. The main industries are fuel (oil and gas), chemicals and petrochemicals, construction materials, light industry (cotton processing) and food industry.

3.4. Kashkadarya region

3.4.1. Geography and topography

- 124. Kashkadarya region is located in the southern part of Uzbekistan, in the Kashkadarya River Basin on the western slope of the Pamir-Alay Mountains. The total area is 2856.8 thousand ha, of which approximately 24% is cropland, 4% is forest, and over 50% is pastureland.
- 125. The region borders Samarkand region in the north, Bukhara region in the northwest and Surkhandarya region in the east and southeast. The state border with Tajikistan runs to the northeast and Turkmenistan to the west. The perimeter of the total border is 795 km, of which 400 km run along mountain ranges.

3.4.2. Climate

- 126. Sharp continental, partly subtropical, dry. Mountain ranges bordering the region from the north-east, east and south prevent the entry of cold air masses. Winters are warm. The lowest recorded temperature in the mountains is -25 -29°C, the absolute maximum is +47- +49°C.
- 127. In summer the prevailing winds are from the north, with speeds of up to 4 m/s, while in spring and autumn there are northwest winds with speeds of 2-3 m/s. In winter, south-easterly winds blow with the same speed. There are 20 days a year of strong winds and 31 days of strong storms.

3.4.3. Surface water and ground water resources

- 128. The Kashkadarya River, which has many tributaries flowing down from the mountains, is the region's main waterway. Reservoirs and irrigation canals create oases of irrigated agriculture: Kitab-Shakhrisabz, Guzar-Kamash and Karshi oasis is the largest. The water bodies and lakes are home to more than 25 species of fish, five of which are commercially important.
- 129. In the mountainous and foothill areas of the region, about 140 springs were recorded, the most famous of which are: Karabulak, located 10 km north-east of the town of Kitaba; Khoja Imkon is located on the southeastern outskirts of the village of the same name, east of Kitaba and others.
- 130. Groundwater forms in cover sediments of the Kashkadarya province, and sub-pressure water forms in the underlying, well-permeable sands. The groundwater level is opened at a depth of 1.5 to 4 m. Mineralization of groundwater varies widely from 3 to 5 g/l, in places 10 g/l. According to the chemical composition, groundwater chloride-sulfate and sulfate, including sulfates

3.4.4. Soils

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

3.4.5. Biodiversity, ecological and cultural heritage

- 133. Artificial tree planting, flower beds and lawns, as well as self-renewing weed groups from mesophytic and halophytic species are combined in the vegetation cover of the Kashkadarya region. Communities of hydrophytes cattail, reed, and rare bushes of combed grass are found along the banks of the reservoirs.
- 134. The fauna of the region is mainly represented by the following species: Asiatic locust, ground toad, Ablepharus deserti Strauch, Eremias velox, watery snake, Pallas' coluber, Orsini's viper, hedgehog, ground squirrel, hamster, jackal, tolai hare, rat, house mouse.
- 135. Of the birds, the most typical are the yellow wagtail, magpie, black crow, hoopoe, rook, Bukhara tit, eagle owl, swallow, small dove, field sparrow, common starling.
- 136. Besides natural protected areas, there are many archeological monuments, such as: Ak-Saray Palace; Memorial complex "Dorut Tilovat"; Statue of Amir Timur; Dorus Saodat Complex; Mausoleum of Dorus Saodat; Tomb of Tamerlane; Kok Gumbaz Mosque; Mausoleum of Khazrati Imam; Maidanak observatory; Langar- Ota Sanctuary.

3.4.6. Socio-economic conditions

137. The date of the foundation of Kashkadarya region is January 20, 1943. The administrative center is Karshi city, and the province's 13 administrative districts are: Chirakchi, Dehkanabad, Guzar, Kamashi, Karshi, Koson, Kasby, Kitob, Mirishkor, Muborak, Nishon, Shakhrisabz, and Yakkabog. The administrative division of Kashkadarya region is presented below.

Muborak

Kasbi Chirogchi Koson

Shahrisabz

Yakkabog'

Qarshi

Oamashi

Nishon

Dehqonobod

Figure 7: Administrative map of Kashkadarya region¹⁰

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¹⁰ https://en.wikipedia.org/wiki/Qashqadaryo_Region

Table 6. Main socio-economic indicators of Kashkadarya region¹¹

able 6. Main socio-economic indicators of Kashkadarya region''				
Name	Indicators			
Territory, km ²		28 570		
Population				
Population density, per/km ²		112,5		
Total number of people		3 213 100		
Women, total		1 589 200		
Men, total		1 623 900		
Urban population,total		1 383 600		
Rural population, total		1 829 500		
Educational ins	stitutions			
Primary schools		1123		
Secondary professional (col	139			
Academic lyceums		6		
Higher education institutions	2			
Medical instit				
Hospitals	81			
State clinics	391			
Infrastruct	ure, km			
Transport	Motor roads			
		3396		
	Railways	492,7		
		International		
	Airport	Airport Karshi		
Social infrastucture	Gas pipelines, km	23,4		
	Water supply networks, km	104,4		

3.5. Navoi region

3.5.1. Geography and topography

- 138. The Navoi region is located in the central part of Uzbekistan. The area of the region is 110.8 thousand km2, or 24.8% of the total area of the republic.
- 139. The region borders in the north and east with the Republic of Kazakhstan and the Jizzakh region, in the west with the Republic of Karakalpakstan, in the south with Samarkand, Bukhara and Kashkadarya regions.
- 140. The north-western part of the region is occupied by the Kyzylkum plateau, the Nurata mountain ranges extend in the east, and the Zarafshan river borders the south of the region.
- 141. The territory of Navoi region is divided into 3 parts: (i) the northwest part of the region is occupied by Kyzylkum desert (Karakatta, Mulyli, Mingbulak depressions) –200 m bsl, (ii) sandy plains and sandy mountains (Ovminzatay, Etimtay, Bokantov, Tomditay and others) between 600 and 1000 m asl, (iii) the southern part of the Nurota mountain range is represented by the low and average altitude mountains (Karatay, Oktay and others) between 1000 and 2000 m asl.
- 142. The northern and western parts of the region are composed of sand dunes and clay rocks. Mingbulak depression is the lowest depression in Uzbekistan (12.5 m below sea level).

3.5.2. Climate

143. Navoi region is located in the Kyzylkum agroclimatic district, which covers the Kyzylkum desert. In terms of the temperature in winter time, the district differs little from the neighbouring

¹¹ https://en.wikipedia.org/wiki/Qashqadaryo_Region

Nizhneamudaryinsky. The average temperature in January varies from -4 to -7°C in the north-west to -1 to -2°C in the south-east. The duration of winter in the northern parts is around 2 months. The absolute minimum temperature is -31 to -34°C.

144. The summers are hot, with average July temperature is 29 to 31°C. Maximum temperatures reached are 44 to 46°C. Annual precipitation is around 100 mm.

3.5.3. Surface water and ground water resources

- Ids. Zarafshan river is the main waterway. The regional territory has some water reservoirs and lakes. The largest lake is Aydarkul. Reservoirs and lakes have more than 30 kinds of fishes, 8 kinds of them are commercial.
- 146. Mountain and foothill districts of region include about 60 springs of descending and ascending types. The most known and often visited of them are Nuratau, Deybalyand, Irlir, Kulkuduk, Avliyo, Jakhangir, Urta-aul, Kurbulok, Zim ota.

3.5.4. Soils

- 147. All desert areas of Kyzlylkum steppe are feature automorphous and hydromorphous soils with certain development of vegetation. Automorphous soils occupying a large area were formed under impact of extremely desert climate, biological and organic factors. These soils are divided into desert grey-brown, sandy, sandy loam, takyr and saline soils.
- 148. Grey-brown desert soil is mainly developed from gypsum gravel-sand, gravel-sand rocks of alluvial and proluvial sediments forming plateaus and high foothill plains.
- 149. Desert sandy and sandy loam soils occupy the periphery of the ancient delta of the Zarafshan river and foothill plains. In certain places, the soils are saline due to surface moistening, or in more cases due to ground moistening, and intensive evaporation.
- 150. Takyr soils are divided into takyr-type soils, takyr and takyr salt marsh. Of these, the first is widespread, while the other two are developed around salt marshes. Takyr-type soils are developed on the relatively lower parts of the ancient delta of the Zarafshan river and dry stream bed of Daryaliksay. The surface of takyr soils is usually of light grey colour and covered with a grid of fine fractures.

3.5.5. Biodiversity, ecological and cultural heritage

- 151. 34 species of plants listed in the Red Data Book of the Republic of Uzbekistan grow on the territory of Navoi region: astragalus silver-colored, Seseli turbinatum, mixed onion, Silene tomentella, Jurinea, Lagochílus inébrians, Lappula nuratavica and others.
- 152. There are 55 kinds of animals inscribed in the Red Data Book of Uzbekistan, 7 of them are endemic, such as Tugay Undewing Moth, Kozhevnikov's Flowerfly, Aral White-eyed Breem, Turkestan Barbel, Aral Goldside Loach, Sleek Gecko and others.
- 153. There are some cultural and archeological monuments in Navoi region, such as: Deggaron, Kasym-sheykh, Shakhimardan, Karavan-Saray Rabati Malik complexes; Tashmechet, Nurat Ensembles; Khodji Khusrava, Mir Sida Bakhrom Mausoleums and others.

3.5.6. Socio-economic conditions

154. Navoi region was founded on April 20, 1982. The administrative center is Navoi city. The region is divided into 8 administrative districts: Kanimekh, Kiziltepa, Khatirchi, Navbakhor, Navoi, Nurata, Tamdy, and Uchkuduk. The administrative division of Navoi region is presented below.

Figure 8: Administrative map of Navoi region¹²

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¹² https://en.wikipedia.org/wiki/Navoiy_Region



Table 7. Main socio-economic indicators of Navoi region¹³

Name		Indicators
Women, total		1 589 200
Men, total		1 623 900
Urban populatio	n, total	1 383 600
Rural population		1 829 500
Edu	cational institutions	S
Primary schools		1123
Secondary professional (colleges)		139
Academic lyceums		6
Higher education institutions		2
Me		
Hospitals		81
State clinics		391
Inf		
Transport	Motor roads	
		3396
	Railways	492,7

¹³ https://en.wikipedia.org/wiki/Navoiy_Region

	Airport	International Airport Navoi
Social	Gas pipelines, km	23,4
infrastructure	Water supply nerworks, km	104,4

155. The main agricultural sectors are cotton growing, grain growing, horticulture and viticulture, meat and dairy farming, sheep breeding and sericulture. The main industries are electricity generation, fuel (oil and gas), chemical and gas chemical, building materials, light and food industries.

3.6. Samarkand region

3.6.1. Geography and topography

Samarkand region is located in the central part of Uzbekistan, in the Zarafshan river valley. It borders with Jizzakh region in the north-east, Tajikistan in the east, Kashkadarya region in the south and Navoi region in the west and north-west. It covers an area of 16,400 km².

3.6.2. Climate

- 157. Samarkand region is completely located in the Middle Zarafshan climatic region, that extends to the Samarqand and Sanzar-Nurata intermountaine basins with facing them mountain slopes. Middle Zarafshan climatic region lays between Kashkadarya (on the south) and Hungry Steppe (on the north) climatic regions. It borders with Lower Zarafshan climatic region (on the west).
- 158. The average temperature in January ranges from 0.5°C to -3°C. Winter lasts from 28 to 71 days. The absolute minimum recorded temperature is -25°C. The average temperature in July is 28°C and the absolute maximum temperature recorded is 42.4°C. Annual precipitation increases from 180-280 mm in the west to 425 mm in the east. Winter-spring rainfall amounts to 33 44% of the annual precipitation. The area is situated between a contour line of 0.15 HTC (hydrothermal coefficient) in the west and a contour line of 0.32 HTC in the east. The flat part of the region has rich thermal resources, ranging from 4500° to 4000°.

3.6.3. Surface water and ground water resources

- The hydrographic network is represented by the Zarafshan River and its tributaries as well as an extensive network of irrigation canals. The Zarafshan River originates near the junction of the Turkestan and Gissar Ranges, on the Zarafshan Glacier at an elevation of about 2,750 m above sea level. The river flows from east to west and is 750 km long. The upper reaches of the river pass among mountain ridges, emerge from gorges and carry water across a wide multi-channel floodplain. In its middle course, the Zarafshan divides into the Akdarya and Karadarya rivers, which merge again to form the Zarafshan River channel.
- 160. The river has no tributaries in Uzbekistan. The lower course of the river is lost in the sands in the middle and lower reaches, including Samarkand region; the river waters are intensively diverted for irrigation by a network of irrigation canals. The flow of the river within the Zarafshan Depression is regulated and varies greatly. More than 60 main canals such as Dargom, Bulungur, Narpay, Eski Angar, Big Right Bank, Shahrud, etc. flow out of the large canals. The Siyab, Obi-Mashat, and Siyabcha canals pass through the city of Samarkand.
- 161. The chemical composition of river water is formed under the influence of pollution from industrial enterprises discharging wastewater in settlements, including Samarkand city, as well as by runoff from agricultural lands. It should also be noted the high level of pollution of the Zarafshan by nitrites along the Karadarya arm and the Siab collector (registered maximum concentrations of 0.241 mg/l and 0.586 mg/l, respectively, with annual average values of 0.167 mg/l), and by copper compounds (1.3 μ g/l), due to discharges from wastewater treatment plants and unorganized city drains.

3.6.4. Soils

- 162. The soils of the study area are represented by grey-loam loess-like rocks. These soils have been significantly changed as a result of irrigated agriculture and have completely lost the structure of the sierozem profile, from which they have moved away. The soils are characterised by an increased thickness and a uniform brownish grey prohumus part of the soil, coloured by soil worms, and the absence of a carbonate horizon.
- 163. Characteristic features and properties acquired during formation of grey-soil oasis soils are pronounced lightening, increase of exchange capacity of absorbed magnesium and mobile ferrous forms of iron, as well as total reserves of humus, nitrogen and assimilated phosphates. Soil-forming rocks of this sub-type of grey-soil soils are mainly loess and loess-like loamy rocks. The thickness of the humus horizon is 10-20 cm. These soils are characterised by high silt content, with particles not subject to salinization.

3.6.5. Biodiversity, ecological and cultural heritage

- 164. The vegetation of the Zarafshan valley is very diverse. The more complex the relief, the richer the vegetation cover and the brighter it reflects an entire ecological complex. As in other areas of Central Asia, xerophyte types of vegetation predominate in the region under study. The distribution of plant groups in the region is determined by the absolute height and terrain conditions, with an important role played by the exposure of slopes.
- 165. The fauna of nearby territories is characterized by species typical of anthropogenic landscapes. Basically, these are rodents: a house mouse, a gray rat, a blindfold, a vole, a long-eared hedgehog.
- Ornithofauna of Samarkand region is represented by 25 species, among which dominates the field and Indian sparrows, the small turtledove, the ordinary starling, the swallow whale, the red-swallow swallow, the black swift and the Maina. In addition, there are black crow, magpie, jackdaw in the region.
- 167. Synanthropic species house mouse (*Mus museums*), gray rat (*Rathis norvegicus*) are a constant human companion, these species are simultaneously found in other anthropogenic landscapes and in the wild. Some species earthen rats (*Nesokia indica*), muskrat (*Ondatra zhibetica*), a number of species of bats (*Chiroptera*), etc. quickly adapt to man-made landscapes and human structures.
- 168. Samarkand region is home to a considerable number of cultural and historical monuments. The list of famous monuments includes: Registan; Ensembles: Khoja Ahrar, Abdi-Darun, Madrasahs: Nadir Divan Ran, Sherdor, Tilla-Kari; Mausoleums: Bibi Khanum, Mazar Khoja Donier, Ak Sarai, Gur Emir, Ruhabad, Mazgum Bobo, Isharthona, Chorsu, Muhammad al-Bihari, Khoja Donier (St. Daniel), Kusam ibn Abbas; Mosques: Makhdumi Khwarazmi, Hazret-Khizr, Khoja Zumrad, Bibi Khanum, Khoja Nisbaddor; the Imam al-Bukhari memorial complex; the Ulugbek Observatory and many others.

3.6.6. Socio-economic conditions

169. Samarkand region was established on 15 January 1938. The administrative centre is the city of Samarkand. Samarkand region consists of 8 administrative districts: Bulungur, Ishtykhan, Jambay, Kattakurgan, Koshrabad, Narpay, Nurabad, Akdarya, Pakhtachi, Payaryk, Pastdargom, Samarkand, Taylak, Urgut. The administrative division of Samarkand region is shown below.

Figure 9: Administrative map of Samarkand region¹⁴

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¹⁴ https://en.wikipedia.org/wiki/Samarqand_Region



Table 8. Socio-economic indicators of Samarkand region¹⁵

N	Indicators	
Territory, km ²		16 770
Pop		
Population dens	sity, per/km²	226,5
Total number of	people	3 798 900
Women, total		1 889 800
Men, total		1 909 100
Urban population	n, total	1 414 700
Rural population		2 384 200
Edu	cational institutions	S .
Primary schools		1220
Secondary profe	essional (colleges)	400
	, , ,	162
Academic lyceu	11	
Higher educatio	n institutions	6
	O	
M		
Hospitals	87	
State clinics		434
	Motor roads	4 084
Transport		4 004
Transport	Railways	282,9
		International
	Airport	Airport
		Samarkand
Social	Gas pipelines, km	67,9
infrastructure	Water supply	
	nerworks, km	340,4

170. The main agricultural sectors are cotton growing, grain growing, horticulture and

¹⁵ https://en.wikipedia.org/wiki/Samarqand_Region

viticulture, meat and dairy farming, sheep breeding and sericulture. The main industries are light industry, food industry, machine-building and metal-working, non-ferrous metallurgy, chemical industry and production of construction materials.

3.7. Syrdarya region

3.7.1. Geography and topography

- 171. Syrdarya region is located in the east of the country, on the left bank of the Syr Darya river, at its outlet from the Fergana Valley. It borders Kazakhstan in the north and Tajikistan in the south.
- 172. In terms of physiographic, the Syrdarya region is surrounded by the Turkestan Range in the south, and the Chatkal Range in the north and east. To the west, the region is bordered by the Kyzylkum desert and the Hungry Steppe, and is open to the penetration of warm air masses, which affects the climate.

3.7.2. Climate

- 173. The climate of Syrdarya region is sharply continental, with relatively mild winters and long hot summers. According to observations made over the last ten years, the average annual air temperature is +15.8°C, the average maximum temperature of the hottest month of July is +36.7°C and the minimum temperature is -1.6°C. A sharp continental climate is characterised by a large temperature amplitude, with an absolute maximum of +42.9°C to +44.0°C and a minimum of 15.5°C to 16.9°C.
- 174. The average annual wind speed is 2.7 m/s. Low winds (0-1 m/s) and winds with a speed of 2-3 m/s are registered most often, the frequency of which reaches 38.2% and 36.8%. High wind speeds of 4-5 m/s and 6-7 m/s (10.2% and 6.2%) have a high frequency.
- 175. The first autumn frosts mostly occur in late October and early November. The frost-free period lasts on average 260-270 days. About 390 mm of precipitation falls, 80% of which occurs in the winter-spring period.

3.7.3. Surface water and ground water resources

- 176. The hydrographic network of the Syrdarya region is represented by a section of the Syr Darya river, which is adjacent to Tashkent region, starting from Bekabad city to the section below the tributary of the Main Irrigation Collector (MIC), irrigation canals and collectors.
- 177. The inflow of transboundary river water to the Syr Darya river is 240 m³/s and the outflow to Kazakhstan is 225 m³/s. The main water supply to the region is made through canals flowing out of Farkhad dam, South-Hungry Steppe canal and Dustlik canal (named after Kirov). Water is supplied to Syrdarya region and partially to Kazakhstan through the main canal Dustlik. The total water consumption of Syrdarya region is 2,700-3,800 million cubic metres per year.
- 178. In the plain areas of Syrdarya region the groundwater table is at a depth of 0.5-1.0 m to 3-4 m. In the foothills, the depth of groundwater occurrence varies from 2 to 5 m. In spring, groundwater is very close to the surface, sometimes it comes out. In autumn and winter most of the groundwater is at a deeper level. The groundwater is highly saline, and when it rises up it causes soil salinization. The distribution of irrigated land depending on the location of the groundwater is shown below separately for each project region.
- 179. Groundwater. The main volume of fresh water is concentrated in the northern and eastern part of the region in the Syr Darya river valley. Ground waters are located in Quaternary and Upper Pliocene sediments. Five fresh groundwater deposits are organized in the region: Syrdarya, Central Gulistan, Upper Pliocene, Khavast and Dustlik.

3.7.4. Soils

180. In the Tashkent-Hungry Steppe depression, light grey desert soils prevail, brackish in some areas. At the periphery of the depression, typical sierozem soils are common. Meadow and meadow-marsh soils are developed in the Syr Darya river bed. Typical dark grey soils prevail in foothill plains and lowland landscapes of the Western Tien Shan, while in the foothills of the

Turkestan Range - light and typical grey soils.

181. Loamy light grey light grey plains soils are irrigated and used for agriculture. The gristly eroded light grey, clayey and loamy soils, formed on loess rocks, are mostly irrigated or can be used for irrigation, a smaller proportion of these soils are used for dry farming and pasture. Meadow soils have been used for farming for a long time.

3.7.5. Biodiversity, ecological and cultural heritage

- 182. The most part of Syrdarya region is occupied by agricultural land. Arable lands occupy 256,061 ha, technical cultures crops (mainly cotton), grain and legumes 75,360 ha and 66,988 ha accordingly.
- 183. Forest zone is consisting of field-protective plantings along the roads and between the fields, plantings in parks and populated areas: Lombardy poplar (Populus nigra) the most wide-spread species in forest shelter belts. Planted trees and bushes in parks and dwelling settlements differ by their diversity and include among others the following: (Acer), plane tree (Ulmus) willows (Salix), elms (Acer), plane trees (Ulmus), willows (Salix), mulberry plantations, gardens and vineyards.
- 184. At the distance of 500 and over meters from left bank of Syr Darya river the following trees and bushes are growing: bluish poplar, oleaster, Californian poplar, Bolle's poplar, southern willow, grey poplar, white poplar, ash tree, elm, arbor vitae, juniper, pine, weeping willow, planetree; bushes: wild tamarisk, wild horn-head, dog rose of medicinal plant kind, cane, Great Club-rush, gisha, licorice medicinal, mint, caper, wormwood.
- 185. Tamarisk bushes of collector-drainage network are the places of cuckoo nesting, on slopes of drainages and on edges of developed sites, where bushes of carelinia and tamarisk are kept, scrub robin and many other species are nesting: black-headed gull, morwennol and slenderbilled gull.
- 186. On left-bank of Syr Darya river the following species of animals and birds are inhabiting: small glassy ibis, white stork, white heron, rare species, yellow heron rare species, small golden eagle, sparrow hawk, pheasant, 9 species of duck, 2 species of teal, little owl, raven 2 species, coot, doves 3 species, viper, water snake 4 species, lizard, reed bunting, quail, wild boar, turtle, muskrat, jackal, vixen, hare, badger, nutria, mouse, hedgehog, bat, snowcock, 2 species of geese, 4 species of cormorants, hoopoe, my-lady's-belt, skylark, blue tit.
- 187. Following species of fish are found in Syrdarya river and off-takes: carp, crucian carp, soma, mudfish, carp, zander, barbel, asp, redeye, Caspian roach, grass carp, pike, sabrefish, bream, Turkestan barbe.

3.7.6. Socio-economic conditions

188. The date of the foundation of Syrdarya region is February 16, 1963. The administrative center is Gulistan city. Syrdarya region is divided into 9 administrative districts: Akaltyn, Bayaut, Gulistan, Khavast, Mekhnatabad, Mirzaabad, Saikhunabad, Sharof Rashidov, and Syrdarya. The administrative division of Syrdarya region is presented below.

Figure 10: Administrative map of Syrdarya region¹⁶

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¹⁶ https://en.wikipedia.org/wiki/Sirdaryo_Region



189. The main socio-economic indicators of Syrdarya region are presented in Table 9.

Table 9. Socio-economic indicators of Syrdarya region¹⁷

N	ame	Indicators
Territory, km ²		4 280
	ulation	
Population dens		193,9
Total number of	people	829 900
Women, total		413 200
Men, total		416 700
Urban populatio		354 800
Rural population		475 100
	cational institutions	
Primary schools		298
Secondary professional (colleges)		49
Academic lyceums		3
Higher education institutions		1
Me	edical institutions	
Hospitals		33
State clinics		144
Transport	Roads	161,5
	Railways	1 447
	Airport	

17 https://en.wikipedia.org/wiki/Sirdaryo_Region

50

Social	Gas pipelines, km	0,9
infrastructure	Water supply networks, km	67,7

190. The main agricultural sectors are cotton growing, grain growing, horticulture and viticulture, meat and dairy farming, sheep breeding and sericulture. The main industries are electricity generation, light and food industries, and flour-and-cereals industry.

3.8. Tashkent region

3.8.1. Geography and topography

- 191. Tashkent region is situated in the north-east of the Republic of Uzbekistan. It borders with the Republic of Kazakhstan to the north, with Kyrgyzstan and Namangan region to the north-east, with Tajikistan to the south, and with Syrdarya region to the west. The area of the region is 15,300 km².
- 192. The north-eastern and eastern parts of the region are occupied by the Chatkal, Kuramin, Pskem and Ugam ranges. Most of the area is a foothill plain, gradually descending to the south and southwest up to the Syr Darya river. There are mountain "steppes" up to 1,200-1,400 metres in the mountains, with juniper forests above, and sub-alpine and alpine pastures at an altitude of 2,000 metres.

3.8.2. Climate

- 193. Tashkent region is characterized by a sharply continental climate with long hot summers (with temperatures up to +35.77°C) and short winters with little snow (minimum temperature 2.18°C). The average annual temperature is 15.26°C, the average temperature in the hottest month of July is +27.67°C and the average temperature in January, the coldest month, is -2.65°C. The sharpest temperature rises are in April, and there is a sharp fall from August onwards.
- 194. The depth of seasonal freezing reaches 0.7 m. Analysis of wind conditions shows that both easterly (E, NE, SE 50.4%) and westerly (W, NW, SW 33.3%) winds prevail in the area in question throughout the year. The average annual relative humidity is 58%. The average annual atmospheric pressure is 720.6 mmHg. (96.05 hPa). On average, there is one day with frost and 2-11 days with frost annually. The earliest frosts in some years occurred in mid-October, the latest in early April. The frost-free period lasts 210 days.
- 195. The area is characterized by low wind speeds of 1.2 to 5 m/s. Winds with slightly higher speeds are a clearing factor. The average annual frequency of wind speeds of 1.2 m/s is 80.45%. The annual precipitation during 2001-2013 was 557.3 mm. Precipitation is highest in April and December (97.2 mm and 84.2 mm, respectively). Precipitation is fairly consistent from January to May, and again from October to December, and almost negligible from June to September.

3.8.3. Surface water and ground water resources

- 196. The main watercourse in the region is the Chirchik river, which is formed by the confluence of the Chatkal and Pskem rivers. The flow of the Chirchik river is regulated by Charvak reservoir, the useful capacity of which is 2 billion m³. Only two relatively large tributaries flow into the river along its course the Ugam River on the right side and the Aksakata River on the left. The other tributaries are small, the largest being the right tributaries, Aktash, Shurabsay, Tavaksay and Azatbash, and the left tributaries, Chalibsay, Parkensay and Bashkizilsay.
- 197. A significant volume of Chirchik's water is diverted for irrigation through a network of canals. The largest canals are the Zakh, Bozsu (right) and North Tashkent Canal (called the Left Bank Karasu Canal at the top). The canals are characterized by a large capacity and have the appearance of real rivers.
- 198. The waters of the Chirchik River are withdrawn for irrigation and used for hydropower (the Chirchik HPP diversion channel discharges part of its water through the Bozsu canal directly into the Syr Darya River). The Chirchik gradually reduces its flow and flows into the Syr Darya. The Chirchik is 174 km long and its basin area is 14,240 km².

- 199. According to hydrogeological zoning, the project belongs entirely to the Near Tashkent artesian basin (Pritashkent). The explored areas are considered part of the potable source water deposit of the current Chirchik river valley. The Chirchik groundwater deposit is developed within the lower I-II terraces of the river as well as III above the floodplain terrace. Groundwater is confined to alluvial gravel of Quaternary age.
- 200. The main source of groundwater supply to the aquifer is area infiltration of irrigation water from irrigated land and groundwater inflow from upstream Chirchik. Groundwater is fresh. Salinity level mainly up to 0.6 g/l; total hardness up to 7.0 mEq/l. Type: mainly sulphate-bicarbonate-calcium-magnesium.
- 201. Due to the frequent replacement of the section by gravel conglomerates, less frequently due to loam, the aquifer contains groundwater, the piezometric level of which is defined at 0.2-4.7 m below surface level.

3.8.4. Soils

- 202. The soil-forming rocks of Tashkent region are ephemeral-steppe sierozem type soils. They include sierozem, meadow sierozem and meadow soils. Many features and properties of sierozem are determined by parent rocks loesses.
- 203. During cultivation, all these soil types are irrigated. The main parent rocks are alluvial and alluvial-proluvial deposits. The soil cover was formed in dry and contrasting desert conditions, so the soil does not have a high level of potential fertility.

3.8.5. Biodiversity, ecological and cultural heritage

- 204. The list of representatives of fauna of reviewed district is limited those type of animals, who could adapt to the life in anthropogenic conditions. Big mammals are fully absent, typical for unpopulated districts. Representatives of rodents are frequently found here: myagrum, house mouse, common rat, sometimes could be found the eared hedgehog. Typical village representatives inhabit here from the birds' family. They are rook, jackdaw, hooded crow, starling, and different species of sparrows, lady's-belt, pigeons and others.
- 205. The vegetation is represented by artificial planting of trees, bushes, fruit and vegetable crops. Eastern plane, European ash, Catalpa, White poplar, Maple, Thuya; Asian sumac; Sophora and others grow within settlement area and along the central and country roads.

3.8.6. Socio-economic conditions

206. The date of the foundation of Tashkent region is January 15, 1938. The administrative center is Nurafshon city. The region is divided into 14 administrative districts: Akkurgan, Bekabad, Bostanlik, Buka, Chinaz, Kibray, Parkent, Piskent, Kuyi Chirchik, Orta Chirchik, Yangiyul, Yukori Chirchik, and Zangiata. The administrative division of Tashkent region is presented below.

Figure 11: Administrative map of Tashkent region¹⁸



207. The main socio-economic indicators of Tashkent region are presented in Table 10.

Table 10. Main socio-economic indicators of Tashkent region¹⁹

	Indicators	
Territory, km ²		15 250
	pulation	
Population den	sity, per/km ²	190,1
Total number of	f people	2 898 500
Women, total		1 447 000
Men, total		1 451 500
Urban populati	on, total	1 427 500
Rural population	n, total	1 471 000
Edi	ucational institutions	6
Primary school	S	870
Secondary professional (colleges)		120
Academic lyceums		6
Higher education institutions		2
N		
Hospitals		81
State clinics		9,9
	Motor roads	3 964
- ,	Railways	391
Transport	Airport	
Social	Gas pipelines, km	0,3

https://en.wikipedia.org/wiki/Tashkent_Region https://en.wikipedia.org/wiki/Tashkent_Region

inf	rastructure	Water supply nerworks, km	161

208. The main sectors of agriculture include cotton growing, grain growing, meat and dairy farming, horticulture and viticulture, poultry farming and sericulture. The main industries are electric power, non-ferrous metallurgy, machine building, metalworking, fuel (oil and gas), chemical and gas chemical, building materials, and light and food industry.

3.9. Surkhandarya region

3.9.1. Geography and topography

- 209. Surkhandarya region is located in the south of the Republic of Uzbekistan in the Surkhan-Sherabad valley. It borders in the south along the Amudarya river with Afghanistan, in the northeast with Tajikistan, in the southwest with Turkmenistan, and in the northwest with the Kashkadarya region of Uzbekistan. The territory of the Surkhandarya region is 20.1 thousand km².
- 210. It extends mainly from north to south for almost 200 km, and from west to east for 140 km. The central and southern parts of the plain border the Gissar range in the north, its spurs Baysuntau and Kugitangtau in the west and northwest, the Babatag range in the east, and the Amu Darya valley in the south.

3.9.2. Climate

211. The climate prevailing in Surkhandarya region is continental. Summer is hot and dry, maximum air temperature in the summer months (July-August) reach +48-50 °C, and on the soil surface 60-70 °C. The region is characterized by mild and short winters. Average monthly temperature in January, the coolest month, ranges from 2.1 to 3.3 °C. Average absolute minimum recorded temperature in the rayon is between -23 and -25 °C. The duration of the frost-free period is 240-270 days (sometimes 300-320 days). Total annual precipitation is low (350-400 mm). Due to high temperature and low humidity the evaporation exceeds precipitation more than ten times at some locations.

3.9.3. Surface water and ground water resources

- 212. The landscape of the region is diverse; there are a lot of river valleys, foothills, mountains and rivers. The main rivers are the Surkhandarya, Sherobod, Tupalang, Sangardak, and other rivers.
- 213. The Termez city lies on the right bank of Amu Darya river, which is the main surface water source. Annual run-off of this river varies from 3,050 m³ /sec to 1,410 m³ /sec, reportedly. Water salinity level is 0.5-0.7 g/l. Turbidity (weighted particles load) is approximately 5 g/l, of which 40% are sand particles (1.0 to 0.05 mm). Average sediment transport is 2 to 4 kg/m³, with summer peaks up to 10 kg/m³. The main hydro-geographical network consists of manmade irrigation and drainage canals. All irrigated croplands in the rayon are served by this irrigation system, which is fed from Amudarya river. Underground water of the South Surkhandarya ground water deposit is used for water supply of Termez district. The water salinity is 0.4 g/l.

3.9.4. Soils

- 214. Surkhandarya region occupies the extreme southern position within Uzbekistan. The system of mountain ranges separates the region from the eastern and northern parts of Central Asia. The best contact of air flows occurs from the west and south. All this determines the specific climate of the region. At the same time, natural conditions are very diverse within the region. There are areas with a mountainous, semi-desert climate.
- 215. According to the adopted soil-climatic zoning scheme, the zones of light brown high mountain soils, mountain-brown soils, gray soils (dark, typical, light) in the vertical zoning system and an arid zone in the latitudinal zoning system are distinguished within the boundaries of the Surkhandarya region.

3.9.5. Biodiversity, ecological and cultural heritage

- 216. The hot climate allows for cultivation of different kinds of plants in the region. Cotton is the most widely cultivated crop. Cotton plantations occupy almost 50 % of the territory. There are districts where fruits and vegetables such as grapes, lemons and apricots are cultivated. The region is the only place in the country where sugarcane is cultivated.
- 217. It is home to 125 plant species and 64 animal species included in the Red Book of the Republic of Uzbekistan.
- 218. Surkhandarya region has many cultural and archaeological monuments such as Fayaz Tepe and Karatepa complexes; the Sultan Saodat memorial and cultural complex; Kokildor Hanaka; Ayribaba; the Jarkurgan minaret; the Kirk-Kyz fortress; Hakim At-Termezi mausoleum; Buddhist stupa Zurmala, and others.

3.9.6. Socio-economic conditions

219. Surkhandarya region was founded on March 6, 1941. The administrative center is Termez city. Surkhandarya region is divided into 13 administrative districts: Angor, Denau, Jarkurgan, Kizirik, Kumkurgan, Muzrabad, Altinsay, Sariasiy, Sherabad, Shurchi, Termez, and Uzun. The administrative division of Surkhandarya region is presented below.

Figure 12: Administrative map of Surkhandarya region²⁰



220. The main socio-economic indicators of Surkhandarya region are presented in Table 11.

Table 11. Main socio-economic indicators of Surkhandarya region²¹

21 https://en.wikipedia.org/wiki/Surxondaryo_Region

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²⁰ https://en.wikipedia.org/wiki/Surxondaryo_Region

Na	Indicators					
Territory, km ²	20 100					
Population						
Population density,		127,9				
Total number of peo	ple	2 569 900				
Women, total		1 271 800				
Men, total		1 298 100				
Urban population, to	tal	910 600				
Rural population, tot		1 659 300				
Ed	ucational institutions					
Primary schools		855				
Secondary profession	onal (colleges)	116				
Academic lyceums		4				
Higher education ins						
N	Medical institutions					
Hospitals		57				
State clinics		268				
	Infrastructure, km					
	Motor roads	2 827				
	Railways					
Transport Airport		International				
-	Airport Termez					
Social	,					
infrastructure						
	nerworks, km	235,6				

221. The main sectors of agriculture include cotton growing, grain growing, horticulture and viticulture, sheep breeding, and sericulture. The main industries include electric power, fuel (oil and gas), light and food industry.

3.9.7. Cultural heritage

- 222. There are two historical places located within 1,000 meters radius to the project site: (i) the Buddhist temple complex Fayaztepa, and (ii) the Mausoleum of Hakim at-Termezi.
- 223. On the elevated coast of the Amu Darya, in the south-west of the Old Termez settlement, there is an architectural monument which is the mausoleum of the "sage from Termez" *Hakim at-Termezi*. To celebrate the 2,500th anniversary of the city in 2001, the appearance of the mausoleum was almost completely restored, which symbolizes the revival of Islamic values. Hakim at-Termezi is now considered the patron saint of this city, and its mausoleum has become a place of worship for Muslims around the world. The distance between this historical complex and project site is more than 1,000 m.

3.10. Khorezm region

3.10.1. Geography and topography

- 224. Khorezm region located in the northwest of Uzbekistan in the lower reaches of the Amu Darya river. The total area is 6.100 thousand km² and occupies 1,4 percent of the territory of Uzbekistan.
- 225. In the north, Khorezm region borders with the Republic of Karakalpakstan, in the south with Turkmenistan, in the northeast with Bukhara region of Uzbekistan.
- 226. The region in its geographical position is between 400 -420 north latitude and 600 -620 east longitude, the territory stretches from northwest to southeast for 280 km in those latitudes where the city of Urgench is located, from west to east 80 km, the northernmost part of the region falls on the tugai of Nuronbobo, which is near the village of Olchin in Gurlen district. The southernmost point is located slightly south of the Tuprakkala massif.

3.10.2. Clmate

227. Khorezm's climate is classified as continental, with hot summers and cool winters. Summer temperatures often surpass 40 °C; winter temperatures average about –2°C, but may fall as low as –40°C. The coldest month is January - with minimum temperature of -20-27°C. The hottest month - July with maximum temperature of 42°C. The Project areas are quite arid, with average annual rainfall amounting to between 60 and 120 millimeters, and occurring mostly in winter and spring. Between July and September, little precipitation falls, essentially stopping the growth of vegetation during that period. The wind direction is mostly north-east and north.

3.10.3. Surface water and ground water resources

- 228. The main waterway of Khorezm region is the Amu Darya river. There are irrigation canals such as: Levoberejny, Tashsakay, Shavat, Palvan, Gazavat, and drainage canals Ozerny, Daryalyk, Chekkakul, Divankul.
- 229. There are the following water bodies in the region: Sultansanjar, Koshbulak and Kaparas. The total capacity of water bodies is 7.36 billion m³ and the volume of available water is 5.2 billion m³.
- 230. Groundwater is very shallow, varying from 0.7 to 2.5 meters, in some areas up to 5 meters. Groundwater recharge comes from groundwater runoff from the Amu Darya and canals, as well as from infiltration of irrigation water and precipitation.
- 231. The mineral content of groundwater varies considerably, from 1.5 to 50 g/l, this is due to the high salt and corrosion potential in relation to concrete. Groundwater can only be used as drinking water if desalination plants are used.

3.10.4. Soils

232. The relief in Khorezm is flat, with elevations ranging from 112 to 138 metres above sea level. In terms of geomorphological structure, soils are loess-like loams interspersed with lenses of sand and gravel with thickness from 2 to 40 m. The soil structure is dominated by layers of silty loam together with sandy loam and loam, which constitute almost 80% of the entire soil layer. The content of organic matter in irrigated soils is low, averaging 7.5 g/kg (0.75%) in the upper soil layers, and decreases in the deeper layers. Most of the underground layers in Khorezm are slightly to medium saline, while most of the upper layers, above 60 cm, are highly saline.

3.10.5. Biodiversity, ecological and cultural heritage

- 233. Natural vegetation is preserved in the floodplain of Amu Darya and sands. In floodplain riparian forests on alluvial soils with shallow groundwater are common poplar turanga, olive, tamarisk, halimodendron, krugloplodnik, cane, kermek, etc. On sandy tracts are distributed associations of crowfoot, narrow-leaved and leafless shrubs, including kanda, sand acacia, garnal, bindweed, bean caperbush, wormwood, euphorbia, adzhryk, spine pink, camel thorn, epilazna, Astragalus, Salsola, etc.
- 234. The fauna of this region is typical for arid lands and represented by rodents, reptiles, insects, arachnids and many species of birds that live in the floodplains of rivers and lakes. From the animal world there are hares, jackals, foxes, gazelles, inreeds susliks, ducks, hawks, larks, sp arrows, starlings, golden oriole, from reptiles geckos, turtles, glass-lizards, lizards, from rodents moles, jerboa, field mice, hedgehogs and rats.
- 235. There are many cultural and archaeological monuments in Khorezm region, such as Ak, Bogbonla, Juma and Al-Kuli-Khan mosques; the madrasas of Amir Temur, Arab-Khanay Muhammad-Amin-Inak, Kutlug-Murad-Inakay Abdullakhan, Kazy-Kalyan, Matpana-Baya, Matniaz-Divan Begi, Muhammad Amin-Khan, Muhammad Rahim-Khan, Khurjum and Alla-Kuli-Khan, Shirgazi-Khan and Islam Khoja; the mausoleums of Sayyid Allauddin, Uch-Ovliya; the minarets of Palvan-Kari, Seyid-Biya and many others.

3.10.6. Socio-economic conditions

Khorezm region was founded on 15 January 1938. The administrative center is Urgench city. The region consists of 10 administrative districts: Bagat, Gurlen, Khiva, Kosh-Kupyr, Shavat, Urgench, Khanka, Khazarasp, Yangiaryk, and Yangibazar. The administrative division of Khorezm region is shown below.



Figure 13. Administrative map of Khorezm region²²

237. The main socio-economic indicators of Khorezm region are shown in Table 12.

Table 12. Main socio-economic indicators of Khorezm region²³

	Indicators		
Territory, km ²	60 500		
Pop			
Population dens		303 400	
Total number of	people	1 835 700	
Women, total		963 000	
Men, total		917 000	
Urban population	n, total	610 100	
Rural population		1 225 600	
Edu	cational institutions	6	
Primary schools	}	525	
Secondary profe	88		
Academic lyceu	5		
Higher educatio	1		
M			
Hospitals	41		
State clinics		271	
	Motor roads		
Transport		2165	
	Railways	174,7	
	Airport	International Airport Urgench	

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https://en.wikipedia.org/wiki/Xorazm_Region https://en.wikipedia.org/wiki/Xorazm_Region

Social	Gas pipelines, km	21,1
infrastructure	Water supply nerworks, km	262,4

- 238. The economy of Khorezm province is primarily based on cotton. The main sectors of agriculture: cotton, melon-growing, rice-growing, meat and dairy farming, sericulture.
- 239. Main industries: electric power industry, machine building and metalworking, building materials, light, food, flour and cereal industry.

4. SOCIO-ECONOMIC CHARACTERISTICS

240. The Republic of Uzbekistan, doubly landlocked country in Central Asia, is a unitary, constitutional, presidential republic, comprising 12 regions, 1 autonomous republic, and 1 independent city. Uzbekistan is bordered by five countries: Kazakhstan and the Aral Sea to the north; Tajikistan to the southeast; Kyrgyzstan to the northeast; Afghanistan to the south; and Turkmenistan to the southwest. Administrative-territorial data is presented in Table 13.

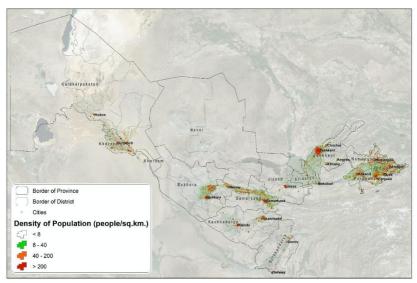
Table 13. Administrative-territorial division of Uzbekistan, April 1, 2020

Indicator	Details
Total area, thousand km ²	448,97
Number of districts, units	170
Number of urban settlements, units	1085
Number of rural settlements, units	11013
Number of rural citizens assembly (RCA), units	1470
Number of cities, units	120
Number of population,	34 036,800
Rate of urbanization	50,5%-urban
	49,5% - rural
Density of population, persons per 1 km ²	74,1
Average age of population, years	28,6

Source: State committee on statistics of the Republic of Uzbekistan

- Population. The total population of Uzbekistan as of April 1, 2020 is 34 036.800 people. The share of male population amounts at 50.6% and female population, 49.4% of total. The population in Uzbekistan is mostly concentrated in urban area (Figure 18). The rate of urbanization is 50.6%. The share of rural population is 49.5%. The number of urban population is more than rural population by 413.900 people. As of January 1, 2018, the largest population is in Samarkand region 11.3% of total population of Uzbekistan, Fergana region 11%, Kashkadarya region 9.6 %, Andijan region 9.1 % and Tashkent region 8.6 %. Number of people categorized as poor amount to about 12%.
- The population of Uzbekistan is very young: 34.1% of its people are younger than 14 years. According to official sources, Uzbeks comprise a majority (80%) of the total population.
- 243. Other ethnic groups include Russians 5.5%, Tajiks 5%, Kazakhs 3%, Karakalpaks 2.5%, and Tatars 1.5% (1996 estimates). Uzbekistan has an ethnic Korean population that was forcibly relocated to the region from the Soviet Far East in 1937-1938. There are also small groups of Armenians in Uzbekistan, mostly in Tashkent and Samarkand. The nation is 88% Muslim (mostly Sunni, with a 5% Shi'a minority), 9% Eastern Orthodox and 3% other faiths (which include small communities of Korean Christians, other Christian denominations, Buddhists, Baha'is, and more).

Figure 14: Map of Uzbekistan, showing regions and population density²⁴



- Economy. Uzbekistan's economy has grown at around 7% annually since the late 1990s. The 244. economicgrowth has been fueled by large public investments in extractive sectors, redistribution of resources from agriculture to industries and increased remittances from Uzbek migrants abroad. As a result, poverty has declined from 27.5% in 2001 to 12.3% in 2017 and people's well-being has improved. In recent years due to the unfavorable external conditions the economy grew at a slower rate, 4.6% and 5.1%, respectively.
- Gross Domestic (Regional) Product. According to a preliminary estimate, in 2020, the gross domestic product (hereinafter - GDP) of the Republic of Uzbekistan in current prices amounted to 580 203.2 billion UZS and, compared to 2019, increased in real terms by 1.6%. GDP deflator index, in relation to 2019 prices, amounted to 111.9%. In 2020, GDP per capita in current prices amounted to 16 949.1 thousand UZS (or, in equivalent - 1 685.5 US dollars) and, compared to 2019, decreased by 0.3%.

Table 14. GDP per capita for 2020 in current prices, thousand UZS²⁵

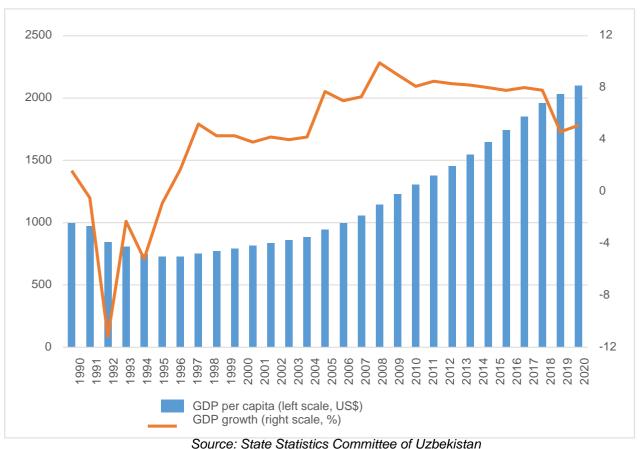
	2018		2019		2020	
	thousand UZS	Growt h	thousand UZS	Growth rate, %	thousand UZS	Growth rate, %
		rate, %				
Republic of	12 339,1	103,6	15 190,9	103,8	16 949,1	99,7
Uzbekistan						
Republic of	8 086,9	104,0	10 126,2	105,9	11 093,5	101,1
Karakalpakstan						
regions:						
Andijan	8 720,1	106,2	10 732,7	103,9	12 006,0	100,8
Bukhara	11 254,4	104,1	14 338,4	104,6	15 892,4	100,4
Jizzakh	9 019,7	102,0	11 302,4	106,5	12 494,3	99,5
Kashkadarya	7 920,5	99,8	9 595,4	99,6	10 466,5	100,2
Navoi	22 786,2	102,5	36 479,6	103,4	48 747,0	105,3
Namangan	6 619,5	102,6	8 319,8	105,5	9 380,5	102,7
Samarkand	8 307,9	98,6	9 719,9	103,6	10 831,7	100,5
Surkhandarya	7 002,9	102,5	8 299,2	101,5	9 040,6	102,2
Syrdarya	9 802,3	101,8	13 672,3	107,7	14 274,7	98,2
Tashkent	13 463,8	105,7	18 409,5	106,0	21 113,1	100,9
Ferghana	7 287,2	106,0	8 558,6	102,7	9 651,1	101,1

²⁴ https://en.wikipedia.org/wiki/Demographics_of_Uzbekistan

https://stat.uz/en/press-center/news-of-committee/7852-o-zbekistonda-yil-boshidan-buyon-yalpi-ichki-mahsulot-hajmi-necha-foizgao-sdi-3

	2018		2019		2020	
	thousand UZS	Growt h rate, %	thousand UZS	Growth rate, %	thousand UZS	Growth rate, %
Khorezm	8 373,6	101,5	9 987,0	104,0	11 076,9	100,7
Tashkent city	23 433,5	110,0	30 860,7	106,5	33 747,8	98,3

Figure 15: Uzbekistan's GDP per capita and growth rates since independence



- 246. Uninterrupted economic growth since early 2000s has increased GDP per capita and brought improvement in living conditions for many families, though these improvements have been uneven across the country. The share of population living below the national poverty line was decreased by more than 2 times - from 27.5% in 2001 to 11.4% in 2018 (ADB Basic Statistics 2019). According to ADB (2018), 75 per cent of the poor live in rural areas.
- 247. Unemployment rate. One of the most difficult challenges the country is facing is a lack of employment opportunities, and a high disparity in living standards between rural and urban areas. High unemployment and low wages have resulted in a mass labor migration to Russia and Kazakhstan, with estimated (stat.uz information) 2-2.5 million Uzbek citizens in 2018 having migrated to other countries in search of jobs and better earnings.
- 248. For many years, national statistics has tended to underreport figures on unemployment (average reported unemployment rate had been less than 1% until 2015). For many years the low unemployment rates have been explained by methodological differences between national and international definitions of unemployment rates. In 2018, however, the Ministry of Labor conducted a new household survey covering 3,100 households and 16,425 citizens, and reported that in the first half of 2018 the unemployment rate in Uzbekistan was 9.7 percent. The highest unemployment rate has been recorded in the Fergana (10 percent), Andijan (9.9 percent) and Surkhandarya (9.9 percent) regions, the lowest rate - in Tashkent (7.8 percent). Overall number of the unemployed in Uzbekistan was 1,391 000 people, out of which 54% were women. The same report estimated that the unemployment rate among young people (under 30) was 15.9 percent, the unemployment rate among women was 13.4 percent. Official statistics on employment and unemployment

shows that since 2010, economically active population and number of employed people in the economy grew by around 1.7 million people (or 13%–14%), reflecting increase in working-age population. These indicators grew equally for both men and women. It is observed that unemployed men increased by 33% while that for women decreased by 10%.

- 249. **Poverty.** According to ADB (https://www.adb.org/countries/uzbekistan/poverty), absolute poverty in Uzbekistan has significantly declined since it was first recorded in 2001. The official figures suggest that the incidence of poverty fell from 28% in 2001 to 11.4% in 2018, based on consumption-based poverty line threshold.
- 250. Poverty is notoriously difficult to tackle in rural areas and Uzbekistan has not been an exception. Rural poverty is higher and it is more difficult to tackle. Most of the decline in poverty incidence in Uzbekistan has happened in urban areas..
- 251. The gender assessment of agriculture sector finds out that, one of the key poverty factors in the project area is lack of opportunity for effective and productive employment of women. The formal labor market in Uzbekistan exhibits both vertical and horizontal segregation, with women and men concentrated in distinct fields. Figure 15 shows that in 2018 women were predominantly employed in the healthcare and education sectors, while men dominated construction, transportation, IT and communications, and financial services sectors. Significant wage differentials between men and women in Uzbekistan (according to WEF (2014), wage gap between men and women was 34 percent) are due to this sectoral (horizontal) segregation, as well as occupational(vertical) differences.

100 90 80 70 60 50 40 30 20 Trade Total Arts **Healthcare** Education Hotel and catering Agriculture Industry communications Construction Financial services **Transportation** ■women ■men

Figure 16: Proportion of Male and Female Employees by Sector, 2018

Source:

https://gender.stat.uz/en/osnovnye-pokazateli-en/trud-en/zanyatost-naseleniyaen/723-employed-persons-by-sex-and-economic-activity-in-2018

252. **Industry analysis.** The volume of products produced by electricity, gas, steam and air conditioning companies amounted to UZS 27.2 trillion (7.4% of the total industry volume). The physical volume index of the industry, compared to the corresponding period of 2019, increased by 12.5%.

Table 15. Production by large electricity, gas, steam and air-conditioning enterprises of selected industrial products



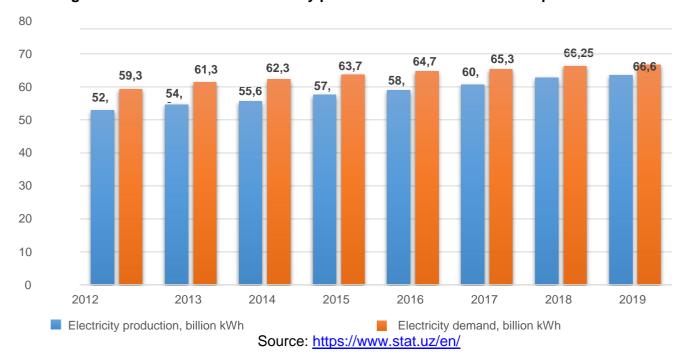
for January-December 2020

Product name	January-	January-	difference
	December 2019	December 2020	+/-
Electricity, mln kWh	63 080,5	64 961,0	1 880,5

Source: https://stat.uz/en/press-center/news-of-committee/7852-o-zbekistonda-yil-boshidan-buyon-yalpi-ichki-mahsulot-hajmi-necha-foizga-o-sdi-3

- 253. Domestic energy demand is determined by the expected economic development, changes in the structure of the economy and the level of its specific energy intensity.
- Reducing the specific energy intensity of the economy is the main objective of Uzbekistan's energy policy, without which the energy sector will inevitably hamper the socio-economic development of the country. Between 2012 and 2019, there was an average annual growth rate of 2.6 per cent in electricity generation. However, electricity demand was not fully met, with a deficit of about 9.4 per cent of demand.

Figure 17: Actual trends in electricity production and demand for the period 2012-2019



256. Forecast estimates show that annual growth in electricity consumption in the country will be around 6-

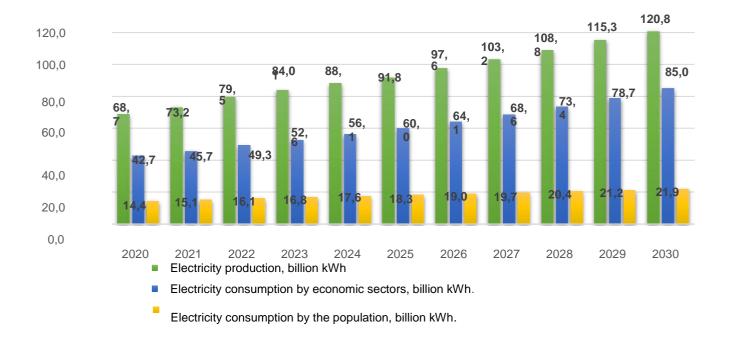
7 per cent in the period to 2030.

257. By 2030, the republican consumption is projected to reach 120.8 billion kWh (1.9 times higher than in 2018). The population's demand for electricity will be 21.9 billion kWh (an increase of 1.8 times compared to 2018), and economic sectors will consume 85.0 billion kWh (an increase of 2.2 times compared to 2018).(stat.uz)

Figure 18: Projected evolution of electricity generation and consumption to 2030, billion kWh²⁶.

140,0

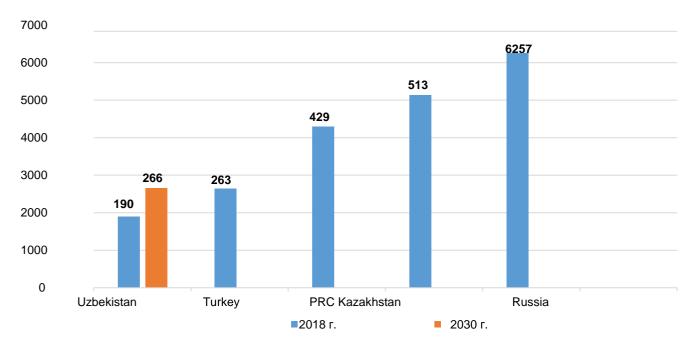
²⁶ https://www.stat.uz/en/



258. Electricity consumption per capita by 2030 is projected to increase to 2,665 kWh per year, an increase of 71.4 per cent from the actual 1,903 kWh achieved in 2018. At the same time, this figure is significantly lower than the similar figure recorded at the end of 2018 in such countries as Korea - 9,711, China - 4,292, Russia - 6,257, Kazakhstan - 5,133, Turkey - 2,637 kWh.

Figure 19: Electricity consumption per capita, kWh per year ²⁷

²⁷ https://www.stat.uz/en/



- 259. The main factors contributing to the growth of electricity consumption are:
 - economic growth (GDP is expected to increase 1.9 times by 2030); improved living standards of the population, leading to an increase;
 - · use of energy consuming equipment;
 - population growth to 37.4 million, according to the United Nations, with a simultaneous increase in urbanisation;
 - elimination of unmet demand, estimated at around 10 per cent.

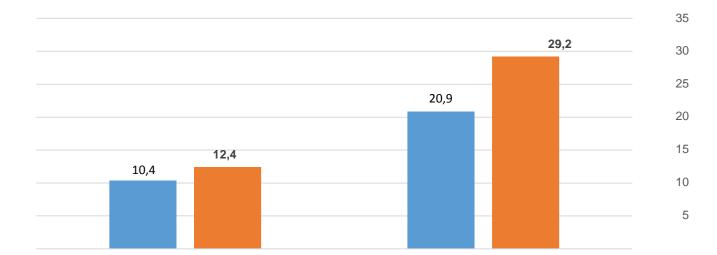
260. Given the geographical location of the country, which is convenient for utilising the transit potential, it is expected that by 2030 electricity imports and exports will equalise and reach 6 billion kWh per year.

261. At the same time, by 2030, the total electricity load during peak consumption hours will reach more than 20,900 MW, compared to 10,400 MW in winter 2019, resulting in an almost two-fold increase in generating capacity by 2030 (+10,500 MW).(stat.uz).

Figure 20: Forecast of generation capacity and peak load ratio in winter period 2019 and 2030, thousand MW²⁸

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²⁸ https://www.stat.uz/en/



5. DESCRIPTION OF THE ADMINISTRATIVE, FRAMEWORK CONCEPT OF REGULATIONS

5.1. Legal, regulatory and policy framework

262. Since the country's independence, the Republic of Uzbekistan has developed, revised and improved national environmental legislation, adopted new laws and regulations, developed programmes and action plans to address environmental issues and promoted sustainable use of natural resources. The country has adopted several subsidiary laws and legislation on environmental management and is a party to series of international and regional environmental agreements and conventions. The nature protection policy and the implementation of measures in the field of rational use of natural resources and environmental protection are based on the following basic principles:

- Integration of economic and environmental policies aimed at preserving and restoring the environment as a prerequisite for improving the living standards of the population;
- Transition from the protection of individual natural elements to the general and comprehensive protection of ecosystems;
- Responsibility of all members of society for environmental protection and biodiversity conservation.

5.2. Uzbekistan National Environmental Legislation and Procedures

- Legal Framework in the field of Nature Protection and Management established in Republic of Uzbekistan, provides to the citizens the rights and duties specified in the country's Constitution.
- 264. Specific articles that address environment protection issues within the Constitution are:
 - a. Article 50. All citizens shall protect the environment.
 - b. Article 51. All citizens shall be obliged to pay taxes and local fees established by law
 - c. Article 54. Any property shall not inflict harm to the environment
 - d. 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.
- 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.
- 266. **The Law "On Nature Protection"** of December 9, 1992 (as amended on 18.04.2018) establishes the legal, economic and organizational framework for environmental protection, ensures sustainable development and certain principles, including the State Environmental Expertise (SEE). Article 12 of the Law "On Nature Protection" states: Residents of the Republic of Uzbekistan are obliged to use natural resources rationally, treat natural resources with care, and comply with environmental requirements. As stated in the law, in order to protect the climate from global changes, a business entity must comply with the restrictions on greenhouse gas emissions, as well as take measures to mitigate these emissions.
- 267. **The Law "On Protection of the Atmospheric Air"** of December 27, 1996 (as amended on September 14, 2017) defines the issues of preservation of the natural state of the atmospheric air; legal regulation of the activity of state bodies, enterprises, institutions, organizations, public associations and citizens in the field of protection of the atmospheric air.
- The Law "On Water and Water Use" of 6 May 1993 (as amended on 23 July 2018) provides for the rational use of water resources, protection of water resources, prevention and mitigation of negative impacts and compliance with national legislation; the Law provides for the responsibility of all natural and legal persons for the prevention of pollution of watersheds, reservoirs, snow and ice cover, glaciers, permanent snow cover with industrial, domestic and other wastes and emissions that may lead to the deterioration of ecological balance of the environment. State management of water protection and use is carried out through accounting, monitoring, licensing, control and supervision;
- 269. Land Code of the Republic of Uzbekistan (1998) The main objectives of land legislation are

to regulate land relations with a view to ensuring, in the interests of present and future generations, scientifically sound, rational use and protection of land, reproduction and improvement of soil fertility, conservation and improvement of the natural environment, creating conditions for the equitable development of all forms of economic activity, protection of the land rights of legal and natural persons, and strengthening legality in this area, including by preventing corruption offenses.

- 270. **The Law "On Environmental Expertise" (2001)** (as amended on 14.09.2018) provides for mandatory expertise on environmental and human health impacts, and serves as the legal basis for expertise;
- The Law "On Waste" (2002,(as amended on 10.10.2018) deals with waste management, excluding emissions and air and water pollution, and gives the State Committee for Ecology and Environmental Protection the power to inspect, coordinate, environmental expertise and set certain parameters for waste treatment. Enterprises are responsible for their waste but, in the case of recycling, the state may provide assistance from its budget, the National Environmental Protection Fund or voluntary payments. The main purpose of this law is to prevent the negative impact of solid waste on human life and health and on the environment, to reduce the amount of waste and to encourage the use of rational household waste reduction methods.
- 272. **The Law "On Protected Natural Areas" (2004)** The purpose of this Law is to regulate relations in the field of organization, protection and use of protected natural areas. The main objectives of this Law are preservation of typical, unique, valuable natural objects and complexes, plant and animal genetic fund, prevention of negative impact of human activities on nature, study of natural processes, monitoring of natural environment, improvement of environmental education and upbringing.
- The Law "On Environmental Control" (2013) The purpose of this Law is to regulate relations in the field of environmental control. The main objectives of environmental control are: (i) to prevent, detect and suppress violations of legal requirements in the field of environmental protection and rational use of natural resources; (ii) to monitor the state of the environment, identify situations that may lead to environmental pollution, irrational use of natural resources, endanger the life and health of citizens; (iii) to determine whether planned or ongoing economic and other activities comply with environmental requirements; (iv) to ensure the observance of the rights and legitimate interests of legal and natural persons and the fulfilment of their obligations in the field of environmental protection and the rational use of natural resources.
- The Law "On the Protection and Use of Vegetation" of December 26, 1997 (as amended on September 21, 2016) regulates relations in the field of protection and use of vegetation (plants) growing in natural conditions, as well as wild plants grown for their restoration and genetic conservation.
- 275. The Law "On the Protection and Use of Wildlife" (1997) regulates relations in the field of protection, use, restoration and reproduction of wildlife in order to ensure the conditions for its existence, the conservation of species diversity, the integrity of natural communities and habitats.
- The Law "On Electricity" (2009) establishes clear rules for the regulation of legal relations in the production, transmission, distribution, sale and consumption of electricity. It specifies the system of regulating relations in the electricity sector, the rules that define the rights, obligations and responsibilities of each participant from generation to consumption of electricity, ensuring electricity security of the Republic of Uzbekistan, the reliable functioning of the unified electricity system of the country, and meeting the needs of consumers.

5.3. Legislation related to nature protection

- 277. Most important nature protection normative documents issued by government include:
 - "Procedure for the development and execution of draft standards for maximum permissible discharges of pollutants discharged into water bodies, including sewage" (RD 118.0027719.5-91);
 - State Standard Water quality. O'z DST 951:2011 Sources of centralized household water supply. Hygienic, technical requirements and classification code;
 - "Temporary recommendations on control over groundwater protection in the Republic of Uzbekistan". State Committee on Nature Protection and Uzbekhydrogeology of the Republic of Uzbekistan, Tashkent, 1991

- Resolution of the Cabinet of Ministers "On Approval of the Regulation on State Environmental Control" (№ 49, 3.04.2002);
- SanPiN RUz № 0179-04 Hygiene standards. List of Maximum Permissible Concentrations (MPCs) of Pollutants in the Air of Residential Areas in the Republic of Uzbekistan, including Annex 1;
- SanPiN № 0120-01 "Sanitary standards of permissible noise levels at workplaces";
- SanPiN RUz № 0088-99 Sanitary requirements for the development and approval of projects of Maximum Permissible Discharges (MPD) of substances entering water bodies with waste water;
- SanPiN RUz № 0321-15 Hygienic classification of toxicity and hazard;
- Regulation on the procedure of burial of toxic chemicals and other toxic substances, as well as protection and maintenance of special grounds" (registered with the Ministry of Justice under №2438 of 20.03.2013);
- Rules for the reception of industrial wastewater and the procedure for the calculation of compensation payments for supernormal discharges of pollutants into the municipal sewerage networks of cities and other localities of the Republic of Uzbekistan (Annex 1 to RCM № 11 of 2010);
- GOST-23941-79 "Noise. Measurement methods";
- Methodical guidelines for measuring and hygienic assessment of noise at workplaces" № 1844-78;
- SanPiN № 0046-95 "Maximum permissible concentrations (MPC) of harmful substances in the air of the working zone";
- Instruction on determining the damage caused to the national economy by groundwater pollution". (PP 118.0027719.5-91) (PARAS. 118.0027714.47-95);
- Sanitary Regulations № 0289-10. Sanitary rules and hygienic requirements in the organization of construction and construction:
- Sanitary rules and standards for the maintenance and improvement of residential areas in the conditions of the Republic of Uzbekistan (Sanitary Rules and Regulations No. 0329-16)
- Temporary Recommendations on Groundwater Protection Control in the Republic of Uzbekistan". State Committee on Natural Resources and Uzbek Hydrogeology of the Republic of Uzbekistan, Tashkent, 1991.
- State standard O'z DSt 1057:2004 "Vehicles. Safety requirements for technical conditions" and O'z DSt 1058:2004 "Vehicles. Technical inspection. Methods of control";
- SanPiN RUz № 0122-01 Sanitary Regulations on whole-body and local vibration in the workplace;
- The Order of the Ministry of Health of the Republic of Uzbekistan №300 dated 06.06.2000 "On carrying out the mandatory pre-employment and periodic medical examinations of workers exposed to harmful and adverse working conditions".

5.4. National Requirements for Environmental Assessment

278. The national ESA procedure is regulated by the Law "on Environmental Expertise "(2000), updated on 14.09.2017, and Cabinet of Ministers Resolution № 541 of 07.09.2020: "On Approval of the Regulation on State Environmental Expertise". In accordance with Article 3 of the aforementioned law, an environmental impact assessment shall be carried out to identify::

- Compliance of the planned economic and other activities with environmental requirements at the stages preceding the decision to implement them;
- The level of environmental hazard from planned or existing economic and other activities which may have or have had a negative impact on the environment and public health;
- Adequacy and validity of the measures envisaged for environmental protection and rational use of

natural resources.

- 279. The special authorized state body in the field of state environmental expertise is the State Committee on Ecology and Environmental Protection (Goskomekologiya / or SCEEP). The organizational structure of the State Committee on Ecology and Environmental Protection of the Republic of Uzbekistan is discussed in detail in 3.2 Section.
- 280. The main organization responsible for the state environmental expertise is the Glavgosexpertiza SCEEP (Main state expertise) (Figure 21).
- 281. SUE "Center of State Environmental Expertise" carries out state eco-expertise of EIA of the objects of economic activity belonging to I and II categories of environmental impact (high and medium risk).
- 282. The State Unitary Enterprise "Center of State Environmental Expertise" of the Republic of Karakalpakstan and regions carry out environmental impact assessment of economic activity objects belonging to III and IV categories of environmental impact (low risk and local impact).
- 283. The Regulation on the Main state expertise describes in detail the procedure for organizing and conducting the SEE (Annex 2).
- 284. Environmental impact assessment is a procedure that includes three stages of the EIA:
- 285. **Step 1: The Draft Environmental Impact Statement (DEIS / PZVOS)** should be conducted at the planning stage of the proposed project prior to the allocation of development funds and contain the following sections:
 - environmental conditions prior to the beginning of the planned activity, population of the territory, land development, analysis of environmental characteristics;
 - a situational plan indicating the existing recreational zones, settlements, irrigation, reclamation facilities, farmlands, power lines, transportation, water supply, gas pipelines and other information about the area;
 - proposed (planned) main and auxiliary facilities, used machinery, technology, natural resources, materials, raw materials, fuel, analysis of their environmental impacts, environmental hazards of the products;
 - expected emissions, discharges, wastes, their negative impact on the environment and methods of neutralization;
 - warehousing, storage and utilization of wastes;
 - the analysis of alternatives to planned or ongoing activities and technological solutions from the perspective of nature protection, taking into account the achievements of science, technology and best practices;
 - organizational, technical, technological solutions and measures that exclude negative environmental consequences and reduce the environmental impact of the facility;
 - analysis of emergency situations (with an assessment of their probability and a scenario to prevent their negative consequences);
 - forecast of changes in the environment and environmental consequences as a result of the implementation of the object under the expertise.
- 286. **Step 2: Preparing the Environmental Impact Statement (EIS / ZVOS)** the need for such step is decided at Stage 1 and Glavgosexpertiza shall indicate that additional researches or analyses are needed. The EIS shall be submitted to the Glavgosexpertiza prior to approval of the Project Feasibility Study, prior construction activities. The application shall contain the following:
 - assessment of ecological problems of the selected site based on the results of engineering and geological surveys, model and other necessary studies;
 - ecological analysis of the technology in relation to the identified problems of the site;
 - results of public hearings (if necessary);

- reasoned studies of environment protection measures that prevent negative consequences of implementation of the object of expertise.
- 287. **Step 3: Preparing the Statement of Environmental Effects (SEE / ZEP)** is the final step in the SEE process and should be made prior to project implementation. Such documents are necessary only for projects with significant environmental and social impacts. Main sections of the SEE are the following:
 - adjustment of design decisions and other measures taken following the review of the draft SCEEP conclusion on the environmental impact, as well as proposals made during the public hearings;
 - environmental standards regulating the activities of the object of expertise;
 - requirements to the organization of works and implementation of measures for
 - environmental support of the facility operation;
 - main conclusions on the possibility of conducting business activities.
- 288. **Project Categories.** According to the Resolution of the Cabinet of Ministers of Uzbekistan № 541 of 07.09.2020: "On Approval of the Regulation on State Environmental Expertise". All environmental protection activities are divided into 4 categories with varying degrees of impact:
 - Category I "high risk" of environmental impact (SEE is conducted by SUE "Center of State Environmental Expertise" within 20 days, all stages of EIA are required);
 - Category II "average risk of environmental impact" (SEE is conducted by the Center of State Environmental Expertise within 15 days, all stages of the EIA are required);
 - Category III "low risk of impact" (SEE is conducted by regional branches of SUE "Centre of State Environmental Expertise" within 10 days, all stages of EIA are required);
 - Category IV "minor impact, local" (SEE is conducted by the regional branches within 5 days, only the first stage is required, Draft EIS).
- 289. All other projects that do not fall into the various categories are treated as projects with no environmental impact and do not require a state environmental expertise.
- 290. According to point 24 " SEE regulations ", the positive conclusion of SEE is a mandatory document for the opening of financing by banking and other credit institutions and the execution of legal entities and individuals of the implementation of the object of state environmental impact assessment. The SEE conclusion is valid for three years from the date of its issue. SEE conclusion is sent to the relevant district (city) inspectorates for ecological and environmental control. The EIA procedure for this project is described in more detail in Section 6 of this document.
- Public participation in EA process. The Constitution of the Republic of Uzbekistan (arts. 50.55) lays the foundation for the participation of citizens and public associations in environmental management. Law of the Republic of Uzbekistan of 09.12.1992. (updated on 18.04.2018) "On nature protection" in Articles 12-13 regulates the right of citizens to unite in public organizations for nature protection, to request and receive information about the state of the environment and measures taken for its protection, as well as the authority of NGOs established. Legislation in the field of ecology and environmental protection provides for public participation as a) an individual citizen or a group of citizens; b) through citizens' self-governance bodies and c) through non-governmental non-profit organizations.

Draft Environmental Impact Statement **Environmental Impact** (DEIS / PZVOS) (1 Step) Statement (EIS / ZVOS) (2 Step) Approval No Under Condition Yes PZVOS/ZVOS are approved, permits are granted, Site Selection Statement is received, and construction phase may commence Statement of Environmental Effects - SEE / ZEP (3 Step) Review Approval Yes No Project Commissioning

Figure 21: EIA procedure in Uzbekistan²⁹

292. Direct participation of non-commercial environmental protection organizations is envisaged in the course of EE of documentation for construction of new and reconstruction of existing facilities for

²⁹ (Source: Resolution of the Cabinet of Ministers of the Republic of Uzbekistan № 541 dated September 07, 2020 ""On further improvement of the environmental impact assessment mechanism")

management purposes. In particular, Article 27 of the Law of the Republic of Uzbekistan "On Nature Protection", as well as Article 23 of the Law of the Republic of Uzbekistan of 2018. "The SEE law enables NGOs and citizens to carry out public EE in any area of activity that needs to be justified by independent groups of specialists at the initiative of the NGOs themselves and at their own expense or on a voluntary basis. The public expertise may be carried out independently of the state ecological expertise. It is prohibited to hinder the implementation of public EE. It is established that the conclusion of the public EE is of a recommendatory nature.

293. In addition, during the SEE of the organization-customers of its implementation are obliged to publish an announcement of the environmental impact assessment and information on its results in the media, in cases where the authorized bodies include the object of construction in the list of important objects.

5.5. Legislation of the Republic of Uzbekistan in the field of labor, health and safety

5.5.1. Labor legislation

The Constitution of the Republic of Uzbekistan (adopted on December 8, 1992) includes a chapter on Economic and Social rights of the citizens. According to it everyone is entitled to:

- "Have the right to work, free choice of work, fair conditions of labor and protection against unemployment in the procedure specified by law. Any forced labor shall be prohibited except for punishment under the sentence of a court or some other instances stipulated by law" (Chapter IX, Article 37);
- The right to rest is included in the Article 38: "Citizens, working on hire, shall be entitled to a paid rest. The number of working hours and paid labor leave shall be specified by law;
- Social security in old age in the event of disease, disability, loss of breadwinner and in other cases stipulated under the law (Article 39);
- Have the right to skilled medical care (Article 40); and
- Equal rights of men and women is guaranteed by the law (Article 46).
- "Have the right, both individually and collectively, to submit applications and proposals, and to lodge complaints with competent state bodies, institutions or public representatives. Applications, proposals and complaints shall be considered in the procedure and within the time-limit specified by law" (Chapter VIII, Article 35).
- The Labor Code of the Republic of Uzbekistan introduced on April 1, 1996 incorporates—the interests of the employees, employers and the state and fair and safe labor conditions and the protection of the labor rights and health of the workers. This Code governs employment relationships and other relations, directly related, directed to protection of the rights and freedoms of the parties of employment relationships, establishment of the minimum guarantees of the rights and freedoms in the sphere of work. Article 6 of the Labor Code prohibits discrimination and guarantees that all citizens have equal rights to work; discrimination in labor relations is prohibited. Any differences, non-admission or preference, denial of employment, regardless of nationality, race, gender, language, religion, political beliefs, social status, education, property, leading to a violation of equality of opportunities in the field of labor, are prohibited. A person who considers that he/she has been subjected to discrimination at work may apply to the court for the elimination of discrimination and compensation for material and moral damage caused to him.
- 296. According to Labor Code, labor-management relations should be formalized in a fixed-term or temporary employment contract. The maximum length of a single fixed-term contract is 5 years (with the exception of few specific positions).
- 297. The Ministry of Employment and Labor Relations of the Republic of Uzbekistan is the main state institution responsible for labor, employment, and social protection policy making. The ministry is tasked with the development and regulation of labor market and ensuring employment of population, regulation of labor relations and labor protection, provision of social services for population and medical-social rehabilitation of persons with disabilities.
- 298. The supervision and monitoring of compliance with Labor Code requirements and protection of

labor rights of citizens is implemented by the State Labor Inspection under the Ministry of Employment and Labor Relations, and its territorial subordinate structures according to the Statement on the State Labor Inspection, Appendix 3, Resolution of the Cabinet of Ministers №1066 of 31.12.2018 "On measures to improve the performance of the Ministry of Employment and Labor Relations of Uzbekistan".

- 299. **Forced labor and child labor.** Article 7 of the Labor Code states that Forced labor, i.e., forced to perform work under the threat of any punishment (including as a means of labor discipline) is prohibited. The right to work is permitted for persons aged 16 and older. However, for internship, it is allowed to hire students from secondary schools, secondary special, professional educational institutions to perform light work that does not harm their health and moral development, and does not interfere with the learning process, in their free time, when they reach the age of 15 with written consent of one of the parents or their legal guardians (Article 77). No one under the age of 15 is allowed to work under the Labor Code.
- 300. Young people aged between 15 and 18 years old have the right to work based on the local legislation, and have the same rights as adult workers with some benefits due to their age (Labor Code, Article 240). People under age of 18 can be employed only after medical examination and further until reaching the age of eighteen are subject to mandatory annual medical examination. People under age of 18 can be employed only for works which have no risk to their health, safety and moral, they are not allowed to lift and move heavy objects (Labor Code Article 241).
- 301. Employees aged 15-16 are allowed to work no more than 24 hours a week, and employees aged 16-18 are allowed to work no more than 36 hours a week. Students can be employed only when they are free of study, and their working time may not exceed half of the maximum working time set for the respective age groups, i.e. students aged 15-16 can work only 12 hours a week and students aged 16-18 allowed to work no more than 17.5 hours a week (Article 242).
- 302. Articles 49 and 51 of Administrative Code of Uzbekistan impose fines for violation of above-mentioned regulations on forced and child labor. The amended law on 23.08.2019 significantly increases fines for using administrative measures to attract employees to forced labor, which has been practiced previously in the country involving public workers, mostly teachers, health workers and students. The new law imposes fines ranging from 10 to 30 times the minimum wage for using such practices. If the same offence is committed repeatedly, responsible persons will face fines from 30 to 100 times the minimum wage, according to the ministry.
- Wages and deductions. Contracts and collective agreements establish the form and amount of compensation for work performed. It is forbidden to pay in kind, except in cases established by the Government of the Republic of Uzbekistan (Labor Code Article 153). The Government establishes a minimum wage (Article 155). From September 2019, minimum wage payment was introduced, hence being the lowest national wage for a full-time position, cannot be less than 634,880 UZS (or \$67,40 per month). In areas with adverse climatic and living conditions, district coefficients and allowances for wages are established. There is no established minimum wage for seasonal and daily workers (minimum payment for hour of work).
- 304. Employers are obligated to pay workers at least once per half-month (Article 161). Compensations for the payment delays can be included in the collective agreement. Employers also must pay for work-related damage to health or property and families are compensated in case of death. Deductions are allowed mainly for taxes and other obligatory payments set by the Government of Uzbekistan, as well as for specific reasons, but may not exceed 50 percent of the amount owed to the employee, and payment after deductions may not be less than the minimum rate determined by the government (Article 164).
- Women. Night time work, overtime work, work on weekends and business trips for pregnant women and women with children under the age of 14 (with disabled children up to 16 years old), are allowed only on voluntary basis.. Herewith, recruitment of pregnant women and women with children under 3 years of age for night works is allowed only if there is a medical certificate confirming that such work does not threaten the health of the mother and child (Article 228).
- 306. Pursuant to the Presidential Decree № PP 4235 of March 7, 2019, men have received the same package of rights related to the childcare since 1 May 2019, only one of the parents (male or female) can decide to take maternity leave. Additionally, the President ordered to revoke the prohibitions on the use of female workers. As a corollary, the list of the professions that excluded the females' presence has been given recommendatory status only (amendment to Article 225).

- Working hours. The standard work week is 40 hours, with less allowed for those under 18 and for women who have children up to 3 years old. The number of hours per day, and days per week, is established in the contract/agreement between the employer and employee. Employers must provide time off each workday for "rest and food", and also paid time off in case time is needed to cool off, to warm up, or to breastfeed children. Details of time off are established in contracts/agreements.
- 308. **Leave.** In addition to national holidays, employees have to receive at least 15 working days of paid leave per year, with workers under 18 years of age receiving at least 30 calendar days and disabled employees receiving 30 calendar days (Article 134-135). In addition, those who work in unhealthy and unfavorable working conditions receive an additional seven days and those who work in unfavorable climate conditions receive an additional eight days. The list of jobs, professions and positions at enterprises that give the right to additional leave, the duration of vacations, the procedure and conditions for their provision are determined by sectoral agreements, a collective agreement (and if it is not concluded by the employer in agreement with the trade union committee or other representative body of workers) on the basis of methodology for assessing working conditions, approved by the Ministry of Employment and Labor Relations of the Republic of Uzbekistan and the Ministry of Health of the Republic of Uzbekistan. Leave without pay may also be taken by certain groups of people and may also be covered in contracts. At termination of employment, employees are paid for unused leave, or they may use the leave as their last days of employment.
- 309. Women are provided maternity leave for up to 70 calendar days, and then are provided 56 days leave after giving birth, in case of complications or giving birth to 2 or more children up to 70 days, with benefits paid from the state social insurance (Article 233). Maternity leave is calculated in total and is paid in a lump sum, regardless of the actual number of days off before giving birth. After giving birth, a mother may take additional leave until the child is six months old, again paid by social insurance. She may take unpaid leave until the child is three years of age. Her position is guaranteed upon her return from all these types of leave.
- 310. **Overtime work.** Overtime compensation as specified in employment contracts or agreed to with an employee's trade union, which can be implemented in the form of additional pay or leave. The law states that overtime compensation should not be less than 200 percent of the employee's average monthly salary rate (broken down by hours worked). Additional leave time should not be less than the length of actual overtime work (Article 157).
- Layoffs and staff reductions. The Labor Code and subordinate labor legislation differentiate between layoffs and firing. Employees can terminate their employment by filing two-week prior written notice, or apply for leave without pay. Layoff or temporary leaves without pay can be initiated by an employer due to worsening of the economic situation as below. For firing (severance), the employer should personally give two months' advance notice in the case of corporate liquidation or optimization, two weeks' advance notice in the case of an employee's incompetence, and three days' advance notice in the case of an employee's malpractice or unacceptable violations. In case of severance caused by corporate liquidation or optimization, an employee should receive compensation, which should not be less than two average monthly salaries paid during their employment plus payment for unused leave (if another form of compensation was not agreed to in the employment contract).
- 312. **Labor disputes.** The general court system, where civil and criminal cases are tried, is responsible for resolving labor-related disputes. This can be done on a regional or city level. Formally, workers can file their complaints through the Prosecutor General's Office. The Ministry of Employment and Labor Relations should provide legal support to employees in their labor disputes.
- Disputes may be adjudicated by commissions that are created "on a par with employer and agencies representing the interests of employees..." (that is, with equal representation of employee/employees and employer), if such commissions are provided for in labor agreements/contracts (Article 262). Commissions must consider issues within 10 days. If the employer, employee, or their representatives disagree with decisions by a commission, or if the commission does not consider applications within 10 days, any of the parties may appeal to the courts, but that must be within 10 days of the decision (or no decision).
- 314. Enforcement of Labor Code is implemented by the State Labor Inspection under the Ministry of Employment and Labor Relations, and its territorial subordinate structures according to the Statement on the State Labor Inspection, Appendix №3, Resolution of the Cabinet of Ministers №1066 of 31.12.2018 "On

measures to improve the performance of the Ministry of Employment and Labor Relations of Uzbekistan.

5.5.2. Occupational Health and Safety

- Occupational Health and Safety (OHS) legislation comprises the Labor Code, the Law on Occupational Health and Safety, the decrees of the President of the Republic of Uzbekistan, Occupational Health and Safety standards, decisions of executive government agencies taken within their competence in the form of decrees, executive orders, regulations, directives, rules, etc.
- More than 30 articles of the Labor Code are directly linked with issues of occupational health and safety. They include:
 - Occupational safety and health requirements (Article 211);
 - Compliance with occupational health and safety regulations, rules and instructions (Article 212);
 - Provision of instruction and training to workers in labor protection (Article 215);
 - Regulation of working hours in hazardous industries for workers performing special work and workers under the age of 18 (Articles 116, 117 and 118);
 - Conditions for the employment of disabled persons in various jobs (Article 220);
 - Provision of milk, therapeutic and prophylactic food and personal protective and hygiene equipment to workers (Article 217);
 - Provision of first aid to workers and their transportation to medical and preventive treatment facilities (Article 221); and
 - Registration and investigation of accidents at work (Article 222) etc.
- 317. **The Law "On Labor Protection"** in the new edition was signed by the President of Uzbekistan on September 22, 2016. The law is aimed at further improvement of labor protection system, strengthening responsibility of employer and workers to execute requirements in this area, defining public authorities' powers to ensure proper monitoring of working conditions and safety, increasing efficiency of public control in this field, bringing certain provisions of the current law in accordance with the requirements of the newly adopted legislative acts in modern market economy.
- The Law introduces new concepts, regulates clearly issues of certification of workplaces on working conditions, audit of the OHS management system, investigation and registration of accidents at work and occupational diseases. It establishes specific mechanisms for public and trade unions participation in implementation of public control in this field, secures their rights related directly to OHS activities.
- 319. **The Law "On Occupational Safety in Hazardous Production Facilities"** passed on August 25, 2006 sets down the legal, economic and social terms of ensuring safe exploitation of hazardous production facilities and is aimed at preventing accidents and building the capacity of enterprises to liquidate their aftermath.
- 320. Under the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan № 60 of February 11, 2005 Rules of Compensation by the Employer of the Damage Caused to Employees by Injury, Occupational Disease or other Work-Related Impairment of Health were introduced. Under the law "On Occupational Safety and Health" a worker who has been fully or partially disabled through the fault of the management as a result of an occupational accident or professional disease is entitled to a lump sum allowance and compensation of damage to health paid by the enterprise. The lump sum allowance is determined by the collective contract (agreement) and may not be less than the annual wages of the victim.
- 321. The enterprise is obliged to compensate the victim for the cost of treatment, prosthetic work and other types of medical and social assistance and ensure retraining and reemployment of the victim in accordance with the medical report or pay the cost of the same. In the event of the death of a worker the enterprise pays material damage to the persons entitled to it as well as a lump sum in the amount of not less than six average annual wages of the deceased.
- 322. In addition to the main legislation the Republic has national normative documents addressing the

issues of occupational health and safety. They include the Sanitary Rules and Norms (SanPiN), State Occupational Safety Standards (GOST, SSBT), Construction Norms and Rules (SNiPs), standards of the content of harmful substances (maximum allowable concentrations and levels), normative methodological documents on individual issues setting forth concrete requirements to occupational safety in hazardous facilities, when manufacturing or applying various products, etc. In addition to state normative documents various sectors of industry enforce departmental and interdepartmental norms, requirements and rules of occupational safety and health.

- 323. Enforcement of OHS legislation. The main state bodies responsible for the implementation of OHS policy are:
 - the Ministry of Employment and Labor Relations, including the State Labor Inspection under the Ministry with territorial branches distributed all over the Republic;
 - the State Inspection for Safety in Industry, Mining and Housing and Utilities Sector;
 - the Department of State Sanitary Epidemiological Supervision under the Ministry of Health of the Republic of Uzbekistan.
- 324. The Ministry of Employment and Labor Relations has an OHS directorate and the State Labor Inspection and its regional branches in the Republic of Karakalpakstan, Viloyats (regions), the Tashkent city and district directorates and branches on labor, employment and social security. They constitute a single system of supervision and monitoring compliance with OHS requirements at the ministries and agencies, institutions, organizations, industrial and agricultural enterprises, with the exception of hazardous facilities that are under the jurisdiction of the State Inspection on Safety in Industry, Mining and the Housing and Utilities Sector.
- 325. The structural units of the State Inspection for Safety in Industry, Mining and the Housing and Utilities Sector are sectoral inspections:
 - · for supervision of the coal and mining industries;
 - for supervision of the oil and gas industry;
 - for supervision in the chemical, metallurgical and oil and gas processing industry;
 - · for gas supervision;
 - for boiler and underground structures supervision;
 - for geological prospecting supervision;
 - for nuclear industry supervision;
 - for transport and storage of petroleum products supervision;
 - for supervision of the carriage of hazardous cargoes;
 - for supervision of subsoil resources, processing of mineral raw materials and geological and surveying control;
 - for supervision of compliance with the technological rules of grain storage and processing;
 - for supervision of the work of power stations, substations and networks; and
 - for supervision of the housing and utilities sector.
- Sanitary supervision is carried out in the name of the state by the agencies of the Ministry of Health in accordance with the basic laws of the Republic of Uzbekistan: The Constitution, the Laws on Protecting the Health of Citizens and On State Sanitary Supervision (Gossannadzor) and other regulations.
- 327. According to the Statement on the Procedure for the Creation and Organization of Labor Protection Services in organizations, Appendix №5, Resolution of the Cabinet of Ministers №1066 of 31.12.2018 "On measures to improve the performance of the Ministry of Employment and Labor Relations of Uzbekistan" each organization must have Labor Protection personnel which is responsible for: i) organization of work to ensure that employees comply with labor protection requirements; ii) monitoring compliance by employees with laws and other regulatory legal acts on labor protection, regulatory documents in the field of technical regulation on labor protection, the collective agreement, labor protection

agreements, and other local regulatory acts of the organization; iii) the organization of preventive work to prevent occupational injuries, occupational diseases and diseases caused by occupational factors, as well as work to improve working conditions; iv) informing and advising the employer and employees of the organization on labor protection issues, introducing best practices and scientific developments on labor protection, promoting labor protection issues; v) implementation of measures for the organization of induction trainings, trainings, retraining and advanced training of employees of the organization on labor protection issues.

- 328. And if organization have employees less than 50 people, this organization should have at least on labor protection specialist or one of the managers combine work of the labor specialist, and for organizations with employees more than 50 people, labor protection service needs to be created within the organization.
- 329. The Law of Uzbekistan №210 of 16.04.2009 "About mandatory insurance of civil liability of employer" obliges employers, under the conditions and in the manner established by the Law, to insure its civil liability for compensation for harm caused to the life or health of the employee in connection with work injury, occupational disease or other health damage associated with the performance of his/her labor duties (Article 4)).

5.6. Legal Framework for Land Acquisition and Resettlement

5.6.1. Applicable legislation of Uzbekistan on Land Acquisition and Involuntary Resettlement.

330. In Uzbekistan, land expropriation is provided for the public needs under the Land Code (LC). Expropriation in this context refers to the taking away of private land for a public purpose by the government with or without the owner's consent subject to laws of eminent domain, which stipulates prompt and adequate compensation. In Uzbekistan, there is no separate legal document about land acquisition and resettlement but the actions is supported by different Resolutions, Acts and Codes as described below.

5.6.2. Civil Code (29 August 1996)

- 331. The Civil Code (CC) defines the legal status of participants of civic relations, the grounds, and procedure of implementation of property rights and other proprietary rights, rights on the intellectual property, regulates the contractual and other obligations, as well as other property and related personal non-property relations. The CC defines general rules of property seizure, determination of property cost and rights for compensation, terms of rights termination.
- 332. The CC provides that: a person whose right has been violated may demand full compensation for damages unless the law or the contract provides compensation for losses in a smaller size (Article 14, Clause 1). The Civil Code (Article 14, Clause 2) also specifies that losses are understood as:
 - expenses that the person whose right is violated, made or must make to restore the violated right;
 - the loss of or damage to property (real damage);
 - the revenues that this person would have received under normal conditions of civil turnover if his right had not been violated (lost profits)
- 333. According to article 14, Clause 3 "If the person has violated the law, revenues received as a result of this, the person whose rights were violated, has the right to demand compensation along with other losses, lost profits in the amount not less than such profits".
- 334. According to article 7 "If an international treaty or agreement stipulates other rules than those stipulated by civil legislation, rules of the international treaty or agreement." This rule is a common rule for all of Uzbekistan's laws.
- 335. According to Article 8, Clause 3, the rights to the property which are subject to state registration shall arise upon the registration of the relevant rights to it, unless otherwise provided by law. Article 84, Clause 1 provides that the right of ownership and other real property rights, creation, transfer, restriction, and termination of these rights are subject to state registration. This means that without registration the right to real estate property does not enter into the force. This statement is very important for the further understanding of LAR processes related to land acquisition and building's demolition.

5.6.3. Land Code (30 April 1998)

336. The Land Code (LC) is the main regulatory framework for land-related matters in Uzbekistan. The LC regulates allocation, transfer, and sale of land plots, defines ownership and rights on the land. It describes responsibilities of different state authorities (Cabinet of Ministers, regional, district and city khokimiyats) in land management; rights and obligations of the land possessor, user, tenant, and owner; land category types, land acquisition, and compensation issues, resolution of land disputes and land protection. The LC also defines the terms of rights termination on land plot, seizure and land acquisition of land plot for state and public needs, and terms of seizure of land plot in violation of land legislation. The LC provides that:

- Withdrawal of the land or part thereof for state and public needs is made by agreement with the
 land user and tenant with decision respectively by khokim of district, city, region or by the
 decision of the Cabinet of Ministers (Article 37, Clause 1). In case of disagreement by the land
 user or tenant of the land with a decision by district (city, region) khokim, or the decision of the
 Cabinet of Ministers to withdraw the land, this decision may be appealed in court (Article 37,
 Clause 2);
- Losses caused by violation of the rights of land users, tenants and landowners (including lost profits), shall be reimbursed in full (Article 41, Clause 3);
- The withdrawal of the land for state or public needs may be produced after allocation to a land user or tenant an equivalent land plot and the compensation of all losses including lost profits (Article 41, Clause 4):
- The LC (Article 36, Clause 1) specifies instances when the right to the land can be terminated. Termination of the right of possession and the right of permanent or temporary use of land is made by decisions, respectively, bykhokims of districts, cities, regions or by the decision of the Cabinet of Ministers regarding the proposal by the bodies exercising state control over the use and protection of land, on the basis of supporting documents justifying the termination of the rights. In case of disagreement with the decisions of the Cabinet of Ministers and the officials of the termination of the right of possession, the right of permanent or temporary land use, the natural and legal persons may appeal to the court (Article 36, Clause 4).
- 337. According to Article 39, Clause 1 land user, tenant, and landowner have besides others the right to reimbursement of losses (including lost profits), in case of withdrawal of land or compensation costs for voluntary renunciation of land (Article 39, Clause 1, sub-Clause 7).
- 338. The LC (Article 86, Clause 1) specifies the cases where losses of land users must be compensated in full including lost profits:
 - seizure, redemption or temporary occupation of land;
 - the restriction of their rights in connection with the establishment of water protection zones, coastal strips, sanitary protection zones of water bodies, zones of formation of surface and underground water, zones of resort areas, public areas of biosphere reserves, protected zones around national parks, game reserves, national nature monuments, sites of cultural heritage, discharges, roads, pipelines, communication and power lines.
- 339. According to the Article 87, Clause 1 losses of agricultural and forestry production, caused by the withdrawal of agricultural and forest land, including agricultural land, owned and used by individuals to use them for purposes not related to agriculture and forestry, restrictions on the rights of land users and tenants or deterioration land due to the impact caused by the activity of enterprises, institutions and organizations, shall be reimbursed in addition to the indemnity provided for in Article 86. Losses of agricultural and forestry production are compensated by legal and natural persons:
 - which removes withdrawn agricultural and forest lands for purposes not related to agriculture and forestry;
 - around objects for which protection sanitary and protection zones are established with the
 exclusion of agricultural and forest lands from the turnover or through transferring them into
 less valuable lands' category.

5.6.4. Resolution of Cabinet of Ministers № 146 (25 May 2011) with amendments based on Resolution of Cabinet of Ministers №1024 (20 December 2019)

340. This Resolution previously named "About the Measures of Improvement the Order of Provision of Land Plots for the Implementation of Urban Development Activity and for Other Non-Agricultural Needs" and renamed in late 2019 into the "Regulation on the procedure for compensation for losses of owners, users, tenants and possessors of land, as well as losses of agricultural and forestry production" is aimed to improve the procedure for granting land plots, protecting the rights of legal entities and individuals on land and improving the architecture of settlements and the efficient use of their (settlements) land for construction by the Land Code and the Town Planning Code. This resolution has approved two Regulations: (i) Regulation on the procedure for granting land for urban development and other non-agricultural purposes, (ii) Regulation on the procedure and forestry. The Regulation on the procedure for granting land for urban development and other non-agricultural purposes contains the following provisions:

- Order of land plot location, preparation and approval of site selection and land allocation documents without approved planning documentation;
- Order of placement, selection and land allocation with approved planning documentation,
- Order for rejection in the selection and land allocation for construction;
- Provision (sale) of land plots for individual housing construction;
- Elements of urban planning documents and development regulation lines.
- Based on Regulation №498 (14 June 2019) point №19. In the resolution of the Cabinet of Ministers of May 25, 2011 No. 146 "On measures to improve the procedure for the provision of land plots for urban planning and other non-agricultural needs" (SP of the Republic of Uzbekistan, 2011, No. 5, art. 40):losses of possessors, users, tenants and owners of land, as well as losses of agricultural and forestry production are to be determined by the UzDavYerLoyiha Institute, or by cadaster bodies or by departments of the Ministry of Construction with the involvement of the evaluating agency. The defined sizes of losses are to be considered, respectively, by the commissions under the Cabinet of Ministers or khokimiyats and subject of the approval by public authorities along with materials for the selection and allocation of land plot(s).

341. The Regulation on the procedure of compensation for possessors, users, tenants and land owners, as well as losses of agriculture and forestry includes the following:

- Compensation for losses of owners, users, tenants and land owners;
- Compensation for losses of agriculture and forestry;
- Cost of irrigation and developing the equal new land plot in return for seized irrigated agricultural land;
- Cost of fundamental improvement of grassland and pasture;
- Scheme for determination of losses of land possessors, users, tenants, and owners, as well as losses of agriculture and forestry;
- Coefficients on the location of seized land plots (Not active since January 1, 2020)³⁰.

342. The losses of land possessors, users, tenants, and owners, as well as losses of agriculture and forestry, should be compensated before granting of documents certifying rights on land plot. The regulation also orders that demolition of the house or building shall be done only after agreeing on compensation and providing replacement premises — the regulation orders that compensation has to be paid before starting any construction work. The land possessors, users, tenants and owners, whose land plots are seized and to whom land plots are granted, can in case of disagreement with a defined amount of losses, appeal to the court. In case of acquisition and temporary occupation of land plot or part thereof, the following would be subject to compensation:

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³⁰ Chapter II of the Resolution that regulated coefficients has been terminated in accordance with the Resolution #911 dated November 16, 2019.

- Cost of the land plot, owned by individuals and legal entities;
- Cost of residential houses, constructions, and installations, including incomplete constructions, and also located outside of the allocated plot, if its further utilization is impossible due to seizing of the land plot.
- Cost of fruits and berries, protection and other perennial plants;
- · Cost of incomplete agricultural production;
- Lost income.
- 343. Above described Laws and Regulations mention that non-titled and squatters on land and building/structures are ineligible for any compensation.
- 344. Collectively, these regulations provide a sound basis for acquiring land for public purposes and for compensating land users according to the registered user of the land in Uzbekistan.

5.6.5. Resolution of Cabinet Ministers №317 (21 September 2016)

- 345. The resolution "On amending and adding to some decrees of the Republic of Uzbekistan, aimed the further improvement of registration of cadastral document on real property" defines responsible design institution which calculates the agricultural and forest-related losses belonging to legal land users, tenants. This institute is "UzDavYerLoyiha" and its branches in the regions.
- 346. It defines that in case of the following type of construction works, compensation for agricultural and forest-related losses will not be compensated:
 - individual housing construction and maintenance of a residential house;
 - the construction of pre-school, general secondary, secondary special, professional educational and medical institutions;
 - construction of water management facilities, land reclamation facilities and hydraulic structures;
 - the formation of protected natural areas.
- 347. By this resolution, the Government defined the procedure of legalization of cadastral document of titled and not titled (illegal) land users. The main requirements for the legalization of non-titled land users are to provide i) explanation of circumstances of iinformal use of land, ii) certificate from local self-governed bodies on possession of last 15 years, iii) payment of land tax for the last five years.
- 348. Compensation mechanism of agricultural and forest-related losses is updated by this resolution.

5.6.6. Resolution of Cabinet Ministers №3857 (16 July 2018)

349. The resolution "On measures to improve the effectiveness of preparation and realization of projects with participation of international financial institutions and foreign government financial organizations" partly provides that payment of compensation for the land acquisition, demolition of houses, other structures, plantings within the framework of projects with the participation of International Financial Institutions (IFIs), if it is agreed and stated in agreements, then will be carried out by authorized bodies in accordance with the requirements of IFIs or Foreign Governmental Finance Organizations (FGFOs).

5.6.7. Decree of the President of the Republic of Uzbekistan №5490 (27 July 2018)

350. The Decree "On measures to further improvement of the system for protecting the rights and legitimate interests of business entities" has established a Centralized Fund under the Cabinet of Ministers of the Republic of Uzbekistan for compensation of losses to citizens and business entities in connection with the seizure land plots for state and public needs, as well as the procedure for mandatory coordination with this fund of land acquisition for state and public s needs.

5.6.8. Decree of the President of the Republic of Uzbekistan №5495 (1 August 2018)

351. Decree "On measures on cardinal improvement of investment climate in the Republic of Uzbekistan" partly provides that the adoption of decisions on the seizure of land for state and public needs is allowed only after an open discussion with interested parties whose land plots are planned to be seized, as well as assessing the benefits and costs; demolition of residential, industrial premises, other structures, and structures belonging to individuals and legal entities, with the withdrawal of land plots is allowed after

the full compensation of the market value of immovable property and losses caused to owners in connection with such withdrawal.

5.6.9. The Law of the RoU "On Privatization of Non-agricultural Land" №552, August 13, 2019

- 352. This normative document regulates the procedures, rules and mechanism of privatization of non-agricultural land. According to the Law, the following land plots are subject for privatization: (i) land plots on which the buildings and structures belonging to legal entities, industrial infrastructure facilities are located, as well as the land adjacent to them in the extent necessary for the conduct of production activities; (ii) land plots provided to Uzbekistan citizens for individual housing construction and its upkeep; (iii) free land plots; (iv) land plots that are provided to the Urban Development Fund under the Ministry of Economy and Industry of the Republic of Uzbekistan.
- 353. The Law forbids privatization of land plots that are: (i) located in territories that do not have approved and published layout plans; (ii) that are part of the lands of environmental, recreational, recreational and historical-cultural purposes, as well as lands of forest and water funds, general use of cities and towns (squares, streets, driveways, roads, embankments, squares, boulevards); (iii) infected with hazardous substances and susceptible to biogenic infection; (iv) provided to residents of free economic and small industrial zones.
- 354. Within implementation of this project the order of compensations payment to these persons in case of loss of property and other objects of property is also governed by the following standard and legal documents:
 - (i) Law of the Republic of Uzbekistan "On Evaluation Activity" as for 19.08.1999. № 811-I;
 - (ii) Decree of the President of the Republic of Uzbekistan "On further improvement of activity of evaluation companies and increases of their responsibility for the quality of rendered services" (№ UP-843 as for 24.04.2008).

5.6.10. Resolution of Cabinet of Ministers № 1047 (26 December 2018)

355. This resolution "On the procedure for the formation and use of centralized funds for the compensation to affected individuals and legal entities for the expropriation of land for the state and public needs" appoints Republican Centralized Fund (RCF) under the Cabinet of Ministers for land acquisition compensation payments to affected households and affected entities in course of the projects to be implemented for the needs of the state and society. RCF will be established for the projects that are accepted on the Governmental level. This resolution establishes the procedure of compensation payments to affected physical and legal entities. The Supervisory Board is established under RCF, and its decisions are compulsory to execute. The Board will also monitor the allocation of funds to AHs during the resettlement implementation period. Local managing bodies (khokimiyats) should start the process by application to RCF on the allocation of necessary funds for LAR. This application will be reviewed by the Board, and the necessary decisions will be accepted. The Decree on the allocation of compensation is issued by regional khokimiyats based on the decision of RCF. The Decree serves legal instrument to pay compensation to affected physical and legal entities.

5.6.11. Decree of the President of the Republic of Uzbekistan №-5491 (August 5, 2019)

The Decree "On Additional Measures to Unconditionally Guarantee the Right of Ownership of Citizens and Business Entities" governs the procedures, mechanism of making decisions on the seizure of land for state and public needs which is (i) allowed only after an open discussion with interested parties whose land is planned to be withdrawn, as well as assessing the benefits and costs; (ii) the demolition of residential, industrial premises, other buildings and structures belonging to citizens and business entities upon the seizure of land is permitted after full compensation of the market value of real estate and losses incurred by the owners in connection with such seizure; (iii) Losses caused to citizens and business entities as a result of the unlawful administrative act of a state body (official) are subject to compensation by the state, primarily at the expense of extra budgetary funds of the relevant bodies, followed by recovery from the guilty person in recourse. According to this Decree, from August 5, 2019, the seizure of land and the demolition of real estate owned by citizens and businesses for state and public needs, as well as for other purposes, is carried out in the order consisting of the following steps: (i) at the first stage, a collection of materials on the territory planned for demolition is submitted to the Cabinet of Ministers of the Republic of Uzbekistan by the chairman of the Council of Ministers of the Republic of Karakalpakstan, khokims of the regions and the city of Tashkent; (ii) at the second stage - in the Cabinet of Ministers of the Republic of

Uzbekistan, an opinion is prepared on urban planning requirements and for financial calculations; (iii) at the third stage - the prepared opinion is submitted to the Prime Minister of the Republic of Uzbekistan for consideration and decision.

357. There is the personal responsibility of local authorities for full compliance with legislative acts when seizing land, in particular for: (i) notification of owners in the prescribed manner and terms of the relevant decision on the seizure of the land and the demolition of residential, industrial and other buildings, structures and plantings located on the land; (ii) prevention of demolition of houses, other buildings and structures on confiscated land plots before preliminary and full compensation of losses at market value; (iii) the provision in the prescribed manner of temporary housing for the period of development of the land provided as compensation to displaced citizens for up to two years, as well as for compliance with other requirements.

5.6.12. Resolution of Cabinet of Ministers № 911 (16 November 2019)

- 358. On November 16, 2019, the Cabinet of Ministers approved the "Regulation on the procedure for seizure of land plots and providing compensation to the owners of real estate objects located on the seized land plot". This Regulation determines the procedure for the seizure of a land plot for the State and public needs. The Regulation shall apply if the land plot is in possession, use or temporary use of individuals or legal entities (individual entrepreneurs, citizens of Uzbekistan, foreign citizens, business entities, NGOs) and does not apply to land plots owned (private property right) by individuals and legal entities. In this regard it is not clear whether this regulation is not applicable only to lands, that will be privatized in accordance with the Law "On Privatization of Non-agricultural Land" №552 (August 13, 2019).
- 359. This key LAR related document envisages the introduction of new regulations pertaining to the compensation procedure for land seizure for public needs and replaces Resolution of Cabinet of Ministers № 911 (16 November 2019)³¹. To date, the process has not been transparent and lacked adequate protection for property owners. This regulation applies to cases where land occupied by real property is owned based on the rights of permanent or temporary use.
- 360. The document clearly defines the term "State and public needs", which, among others, includes implementation of investment projects aimed at improving infrastructure facilities, including the construction and rehabilitation of energy systems and power transmission lines.
- 361. As per the procedure introduced by the document, land seizure is allowed given that both of the following conditions are met:
 - (i) the owner/user/leaseholder explicitly provides his/her consent and:
 - (ii) the project is approved by the local Kengash (Council) of Peoples' Deputies, or an investment project is specially mentioned in the Presidential Decree or by a Resolution of the Cabinet of Ministers.

According to this resolution:

(i) both local municipalities (khokimiyats) and investors may initiate land seizure following the procedures provided in the regulations;

- (ii) if there is a need to withdraw the land plot, an open discussion is to be held with the participation of the khokimiyat representatives and investors and owners;
- (iii) preliminary valuation of losses will be carried out by the khokimiyat or by cadastral bodies. The Regulation mentions that "the full list of immovable property objects, located on the plot is to be prepared as well as other information is to be provided in regards of the immovable property". Trees and standing crops are not mentioned as a subject of valuation and further compensation, thus, the Resolution of the Cabinet of Ministers №146 (25/05/2011) will be applied for the compensation of these assets);

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³¹ Resolution of the Cabinet of Ministers #911 – see further details on next page.

- (iv) the Kengashes of people's deputies will consider the benefits and costs of the seizure of land, and, if there are sufficient resources, as well as in case of excess of benefits and costs, a decision will be made on the seizure of land.
- (v) evaluation of the property that is going to be seized is done at the expenses of the initiator. When 75% of property owners provide their consent to land seizure, the initiator has the right to apply to court in order to get a compulsory sale order for the rest 25% of the owners. In such cases, the compensation is to be determined in a court ruling rather than by a compensation agreement. This procedure, anyhow, guarantees a full replacement cost.
- (vi) new objects being part of a compensation for seizure must be provided within 2 years, otherwise fines are applied for each day of delay.
- (vii) demolition of real estate objects is permitted only after their owner is compensated in full as provided in a compensation agreement (or a court decision in case of a dispute). Khokimiyats are not authorized to make decisions on the seizure of land;
- (viii) the khokimiyat or the investor and the owners, and this agreement is notarized;
- (ix) an initiator and an owner of a property must conclude the relevant compensation agreement subject to notarization. The agreement must include the type of compensation(s), its amount and terms of payment and/or provision of other compensatory measures;
- (x) The demolition of real estate objects without the agreed compensation is not allowed.

After providing agreed compensation to the owners:

- (i) real estate/property is released by the owner
- (ii) the draft resolution on the demolition is sent by the khokimiyats to the justice bodies for the issuance of a conclusion. The resolution on demolition of real estate is accepted only in the presence of the positive conclusion of justice departments
- (iii) Transfer of the real estate objects located on the withdrawn land plot to another person is allowed only if there is a written consent of the initiator after signing of the Agreement, or in case of termination of the Agreement (in the order provided by the Agreement, with the consent of the parties or in court).
- (iv) The owner who has acquired the object of real estate subject to demolition is the legal successor of the rights and obligations of the previous owner arising from the Agreement concluded in accordance with this Provision.
- (v) Control over execution of requirements of the legislation at withdrawal of the land plots, demolition of objects of real estate, resettlement of citizens, and also granting of compensations is carried out by bodies of Prosecutor's office.
- (vi) The owner, based on agreement with the initiator/investor, now has the right to carry out at his own expense the demolition of the property/structures with the further removal of all materials (salvages) and construction waste and with the proper cleaning of the territory for construction needs.
- 362. This procedure come into force on January 1, 2020. It is important to mention also that in case of untimely or incomplete provision of compensation by the project initiator, khokimiyat must provide compensation with a subsequent appeal to the court to recover compensation from the guilty persons.
- 363. A possibility to keep salvage materials is a very important issue for relocated households (because they can use salvages for the construction of new houses³²). The previous Resolution №97 (25 May 2006) defined that all the salvages are the property of the investor (after the compensation is provided in full to relocated AH). However, even with this strong requirement, the vast majority of the projects supported by IFIs in Uzbekistan (including WB financed projects) allowed relocated Affected Peoples to keep salvages as an additional protection measure. During this RF preparation, the issue of salvage materials was reviewed by NEGU in the light of the new Resolution №911. A new option/privilege given to the relocated

³² Even having a fair compensation for the demolished houses the AHs may have problems with purchasing and delivery of necessary materials for new construction. It is still the reality for the remote and mountain areas.

AHs permits that, based on agreement with the project initiator (NEGU), AHs will have the right to carry out at his own expense the demolition of the property/structures with the further removal of all materials (salvages) and construction waste and with the proper cleaning of the territory for construction needs. Except for the economic burden for relocated AHs, related to complete "proper cleaning" of territory (while some of the affected houses have strong and large concrete basements, see Figure 1.5), there are several concerns to be considered:

- (i) There is no definition of the "proper cleaning" in the Regulation. This may cause obstacles for project realization.
- (ii) Construction waste utilization issues are very important. Cleaning of the dwelling yards may cause hundreds of tons of waste to be thrown in the neighboring areas, instead of relatively remote specially allocated places. So, this process is to be controlled by Contractor only.
- (iii) The Regulation does not contain a specific timeframe for the self-demolishing of houses. Practically, people will be not able to fit the civil work schedule and Contractor will wait until AHs will clean everything.

5.6.13. Resolution of Cabinet of Ministers № 44 (15 February 2013) with amendments based on Resolution of Cabinet of Ministers №1046 (28 December 2019)

- 364. This resolution determines the procedure for the appointment and payment of Makhalla allowances for: a) low-income families with children under the age of 14 years, b) allowances for low-income parents for child care until the age of two years and c) allowance for low-income families. According to this resolution the following types of families are entitled to allowances:
 - families where the average monthly income does not exceed 52,7% of minimum wage per person during the last three months. Along with incomes household members gain officially, additional factors are also to be considered by makhalla committee members, including the availability of land, employment status of family members, and presence of persons in need of care:
- 365. The preferential rights for makhalla allowances have families:
 - who have lost both parents and children are in care of relatives;
 - families where one or both parents are disabled;
 - widow(er), raising two or more children under the age of 14, living separately from other relatives;
 - family with disabled children;
 - mothers or fathers who are bringing up the children in a single-parent family. In this case the fact of child rearing mother (father) in an incomplete family established by makhalla;
 - families in which one or both parents are unemployed who have been registered at state employment bodies (regional and city departments of the Ministry of Employment and Labor Relations) as job-seekers;
 - single retired persons.

5.6.14. Resolution of Cabinet of Ministers №165 (30 March 2017)

- 366. Uzbekistan's legislation does not define compensation as targeting the rehabilitation of APs' livelihood. They focus on paying compensation for measurable physical impacts or incomes. The Presidential Resolution №3857 of 2018 (described above) requires that the donor-funded projects follow the specific safeguards requirements of the donor. This resolution theoretically removes any disparity between the country's legislation on LAR issues and WB's requirements under ESS5. However, there are still questions to EAs from state budget controlling authorities that are related to the amount of the rehabilitation allowances provision.
- 367. This Regulation №165 determines the procedure for the allocation of a one-time financial allowance to needy families in the Republic of Karakalpakstan and the Khorezm region, primarily, single retirees, families with a disabled breadwinner and other low-income groups and families. This allowance to needy families can be appointed by a special decision of makhalla Social Protection Commissions to families (citizens) who find themselves in difficult life situations. The definition of a difficult life situation includes among others the damage to property as a result of emergency circumstances or force majeure.

The specific amount of this one-time financial assistance is determined by the Commission for each case individually, taking into account the complexity of the "difficult life situation". According to regulation №UP-4086 since 28 December 2018, the minimum and maximum amount of this allowance are annually regulated by a special Decree of the President of Uzbekistan. For the year 2020, this amount was determined in the Decree of President №UP-4555, Annex 2 (December 30, 2019) and vary from 434,000 UZS and up to 1,085,000 UZS.

368. Considering that a) there are no other norm to compensate the loss of livelihood and b) absence of the specialized social protection body in the country, it is suggested in this project, based on Resolution №165 (on analogy), to allocate a one-time allowance amounting of maximum value of the allowance envisaged by the Deree of President №UP-4555 to all the displaced AHs as severe impact relocation allowance.

5.6.15. Tax code

- 369. The Tax Code (TC) is a regulatory framework for taxation related matters of individuals and legal entities. This law regulates compensation for a vulnerable group of people regarding applying for discounts or exemption from property taxes, land tax, income tax and other taxes stipulated in this TC.
- 370. The national legislation of Uzbekistan, instead, limits the matter to the payment as mandated by the Labor Code of fixed employment termination indemnities due by an employer to his employees and to the obligation of the project proponent to reimburse the employer of the cost of those indemnities mandate by the Civil Code. Such an approach excludes informal employees without a declared salary (and confirmed payments of taxes) from job loss compensation, applies only to permanently affected jobs and does not automatically guarantee that the APs receive their job termination dues³³.

5.6.16. Land acquisition norms for the construction of the TL: KMK 2.10.08-97 and Resolution of the CoM №1050 (26 December 2018).

- 371. The Government Construction norms for KMK 2.10.08-97 provides standard and guidance for design, construction, and operation of transmission line particularly with its requirement for land acquisition. For transmission line having a voltage of 220 kV, the requirement is as follow:
 - (i) Single-circuit TL requires a temporary alignment corridor of 15 m in width for stringing cables for single-circuit TL in case of steel supports. For concrete supports the corridor is 12 m.
 - (ii) The TL requires a temporary alignment corridor of 18 meters in width for laying conductor cables for a double-circuit TL.
 - (iii) After construction completion, 55.06 sq m is required for each single-circuit type support and 70.56 sq m for each double-circuit type support.
 - (iv) According to the Article 14(a) of the Annex 1 to the Resolution of the CoM №1050 "On the approval of the rules of protection of power transmission facility objects dated 26.12.2018 a safety zone of **25 meters** to each side of the outer conductor cable is required as a safety zone and will be established for **220 kV TL**. The safety zone of TLs is a land plot from the surface to the bottom of the foundation, on which a special procedure is established for the ownership and use of a land plot. Safety zones of TLs established in accordance with the rules are encumbrances of land plots and are subject to state registration in the prescribed manner.

372. For transmission line having a voltage of 500 kV, the requirement is as follow:

- (v) The TL requires a temporary alignment corridor of 15 meters in width for stringing the conductor cables (5 meters per conductor).
- (vi) For construction of suspension towers temporary land acquisition of 2000 square meters is required for suspension towers and 2500 square meters for tension towers.

³³ Based on the Labor Code of 1996, last amended on 2015 (Article 67) loss of employment is to be compensated with 2 months average salary plus a severance pay of a maximum of 1 month average salary depending on the length of the employment lost. Also according to the Civil Code (Article 14) all losses (including real damage, lost profits) are to be compensated.

- (vii) Post-construction the TL require 315 square meters for each tension tower and 350 square meters for each tension tower.
- (viii) According to the Article 14(a) of the Annex 1 to the Resolution of the CoM №1050 "On the approval of the rules of protection of power transmission facility objects dated 26.12.2018 a safety zone of **30 meters** to each side of the outer conductor cable is required as a safety zone and will be established for **500 kV TL**. The safety zone of TLs is a land plot from the surface to the bottom of the foundation, on which a special procedure is established for the ownership and use of a land plot. Safety zones of TLs established in accordance with the rules are encumbrances of land plots and are subject to state registration in the prescribed manner.

5.7. Relevant sectoral policies and reforms

- 373. Most of Uzbekistan's power generation capacity has exceeded its design resources, and their continued operation may lead to a reduction in the reliability and efficiency of the power plants. At present, many of them have an extreme degree of wear and tear.
- 374. In order to prevent their mass failure, investments to replace the worn-out equipment of power plants need to be significantly increased. There is an urgent need for large-scale investments in the near future to replace, reconstruct and modernize physically and morally obsolete equipment and to commission new capacities based on modern technologies. At the same time, due to objective reasons, power companies do not have sufficient funds of their own to finance the above-mentioned works.
- 375. Among the main problems facing the republic's energy sector, which require significant financial and material expenditures, are the following: carrying out technical re-equipment, reconstruction and modernization of obsolete equipment; mastering of modern efficient technologies of power generation with the use of gas turbine and steam-gas units; reduction of harmful environmental impact of thermal power plants. Under these conditions, the issue of taking measures to increase the park resource of the existing power plants and commissioning of new capacities, which should also be solved by investments. Improvement of the efficiency of the energy sector, increase of production capacity, attraction of large investments into the sector, improvement of the quality of services provided to consumers all these tasks have required the earliest possible but balanced solution, as the viability of the energy system in the near future depends on adequate measures aimed at fulfilling these tasks. It is only through structural reforms of the sector that the many problems faced by the Uzbek energy sector can be resolved.
- 376. The main directions of state policy in the electricity sector are:
 - Ensuring electricity security of the Republic of Uzbekistan;
 - Ensuring safe and reliable functioning of the unified electric power system, meeting the electric power needs of consumers;
 - Ensuring equal access of consumers to the territorial electric power networks.
- 377. The law establishes clear rules for the regulation of legal relations in the production, transmission, distribution, sale and consumption of electricity. It specifies the system of regulating relations in the electricity sector, the rules that define the rights, obligations and responsibilities of each participant from generation to consumption of electricity. Ensuring the electric power security of the Republic of Uzbekistan, the reliable functioning of the unified electric power system of the country, and meeting the needs of consumers..
- 378. Presidential Decree PP-3981 of 2018. "On Measures for Accelerated Development and Financial Sustainability of the Electricity Sector" aims to create a modern electricity generation, transportation, distribution and sales scheme. In particular, it aims at attracting private investment, including FDI, in the development of electricity generation and distribution companies, including while maintaining full control over electricity transmission, and at gradually establishing a modern electricity market based on the purchase of electricity directly from producers on competitive terms..
- 379. It mandates the preparation and approval of a methodology for calculating electricity tariffs based on coverage of current and capital costs. In addition, the decree provides for the establishment of an interdepartmental tariff commission under the Cabinet of Ministers. Presidential Decree UP-5484 "On Measures for the Development of Nuclear Power in the Republic of Uzbekistan".

- 380. Program of measures for the further development of renewable energy, improving energy efficiency in the economic and social sectors for 2017-2021. (Presidential Decree PP-3012 of 2017) replaced the Program of Measures to reduce Energy intensity, introduce energy-saving technologies and systems in the economic and social sectors for 2015-2019. (Presidential Decree PP-2343 2015).
- 381. The new program aims to stimulate private sector investment in the development of renewable energy sources, reducing energy intensity and introducing energy saving technologies and systems. Special privileges and preferences are given to enterprises and organizations that use energy from renewable sources in their production activities.
- 382. The Program sets out the main directions for the introduction of energy saving technologies and the implementation of programs to reduce energy consumption, and provides tax incentives for businesses that produce energy from alternative sources. The program also aims to ensure an annual reduction in energy intensity of 8-10% in key sectors of economic development. At the same time, it sets targets for reconstruction of boiler units in district heating systems and heating boilers by replacing 17,251 obsolete thermal units by 2020. 17,251 obsolete thermal boilers, as well as 879 water pumps and 1,523 electric motors are to be replaced with energy efficient technologies and equipment..
- 383. The program of measures to ensure structural transformation, modernization and diversification of production for 2015-2019 (Presidential Decree UP-4707 2015) covers 846 investment projects worth \$40.8 billion. Consistent modernization of the existing and creation of new generating capacities in the electricity sector is envisaged through the introduction of resource-saving combined cycle gas turbines and modern solar energy technologies.
- 384. In accordance with Cabinet of Ministers Decision № 86 of 2015. "On measures to introduce a system of mandatory energy labelling and certification of marketed household appliances and newly constructed buildings and structures", all household appliances that do not meet energy efficiency standards are banned from importing into Uzbekistan and must be phased out of circulation.

5.8. Relevant institutions

- 385. The organizational structure of the energy sector in Uzbekistan was reorganized at the end of 2018. The Ministry of Energy was established in February 2019 (Presidential Decree UP-5646 of 2019) and endowed with functions and powers in the field of energy resources and electricity generation.
- 386. The Ministry is responsible for creating a modern scheme for the organization of electricity generation, transportation, distribution and sales in order to attract private investment, to develop electricity generation and distribution companies, while maintaining full control over electricity transportation, and for the phased creation of a modern electricity market based on the purchase of electricity directly from producers on competitive terms.
- 387. In March 2019, the President decided to reorganise "Uzbekenergo" JSC as part of the transition to modern methods of organization of production, transportation, distribution and sale of electricity (Presidential Decree PP-4249, 2019). Three independent companies are being established on the basis of "Uzbekenergo" JSC "Thermal Power Plants" JSC, "National Electric Grid of Uzbekistan" JSC and "Regional Electric Networks" JSC. After the reorganisation, "Thermal Power Plants" JSC will manage TPPs and CHPs. "National Grid Networks of Uzbekistan" JSC, established on the basis of "Uzelectroset" UE and "Energosotish" branch of "Uzbekenergo", will operate and develop the country's main electricity networks, transport electricity through the main electricity networks, export and import electricity, act as a single buyer of electricity and sell electricity to regional electric network enterprises. Another new company, "Regional Electric Networks" JSC, will manage the regional electric network enterprises that distribute and sell electricity to end consumers.
- 388. Joint Stock Company "National Electric Grid of Uzbekistan" was established in accordance with the Decree of the President of the Republic of Uzbekistan "Strategy of further development and reform of the electricity sector in the Republic of Uzbekistan" dated March 27, 2019 №PP-4249. JSC "NEGU" is part of the structure of the Ministry of Energy of the Republic of Uzbekistan.
- 389. The main activities of the company are the operation and development of the main power grids of the RUz, supply of electricity through the main power grids and implementation of interstate transit, cooperation with the power systems of neighbouring countries.

- 390. At present, JSC "National Electric Grid of Uzbekistan" includes 14 regional transmission grids, a national dispatch centre responsible for the management of the country's energy system, a central relay protection and automation service and functional branches providing other services, as well as a reliability and safety service. In each of the regions of the Republic there are branches of JSC "NEG of Uzbekistan"
- Main Electric Networks (MEN / MES), which:
- owns the power distribution network (500-220 kV) in its region;
- responsible for the operation and maintenance of 500-220 kV transmission networks.
- 391. There are 85 substations 220-500 kV, more than 11,400 km of overhead transmission lines with voltage of 220-500 kV on the balance sheet of the joint stock company, the number of staff of JSC "NEG of Uzbekistan" as of 01.01.2021 is more than 5000 people.
- 392. There are two laboratories within "NEGU" JSC structural subdivisions: 1. Certified Laboratory at "Ozodlik" substation; 2. Mobile Electrotechnical Laboratory at "Yuksak" substation.
- 393. The Ministry of Finance is responsible for setting electricity, heat and gas tariffs, among other functions. Project tariffs are developed by "Uzbekenergo" JSC and "Uzbekneftegas" JSC and approved by the Ministry of Finance.
- 394. **Ministry of Investment and Foreign Trade (MIFT).** The MIFT is the governmental body responsible for coordinating the preparation and implementation of a unified state investment policy, attracting foreign investment to Uzbekistan and cooperating with international financial institutions. The MIFT will support any necessary legal and financial decisions regarding the program (including those related to involuntary resettlement), facilitate internal Government approvals, oversee program reporting related to the progress and use of Bank funds, and may bring any important issues to the attention of Bank management at a higher level.

5.9. International requirements for environmental and social management

- 395. The development of practical activities in the field of environmental and social management in the Republic of Uzbekistan is directly associated with the possibility of obtaining a number of specific benefits in solving a variety of environmental and social problems. Such advantages include, first of all, new approaches, unconventional ways and opportunities in overcoming the existing negative trends in the development of the environmental and social situation at the production and territorial levels. Ecological management is seen here as a practical basis for the creation of greener production.
- 396. The practice of ecological management proved the possibility of reducing the negative impact on the environment by 20-30% for any operating enterprise on the basis of the use of only low-cost and nocost methods and means. These methods are extremely simple, clear and accessible to any enterprise. Progressive changes in the methods and forms of state environmental control activities are directly linked to environmental management.
- Of particular relevance to the overall management system of companies are the two constituent parts of this system: ISO 9000 quality management and ISO 14000 environmental management. Both systems are understood as regulators for meeting market expectations. The quality management concentrates on a dynamic minimization of the deviations from the accepted quality standards of the products, and the environmental management on a dynamic maximization of the environmental safety of the products and the maximum decrease of the environmental load in the area where the company is situated. The environmental management system shall ensure: 1) assessment of environmental impact of enterprises; 2) development of environmental concept for development of enterprises and a system of measures aimed at ecologization of production; 3) creation of organizational structures, capable of implementing and controlling the implementation of the concept and the system of environmental protection measures. A detailed analysis of all material and energy flows within an enterprise is at the heart of environmental management. The environmental-economic assessment of the use of material resources makes it possible to identify direct and indirect environmental costs. This provides the necessary basis for making decisions on priorities for environmental measures. The ISO 14000 system of standards, as already mentioned, does not focus on quantitative parameters (emissions, concentrations of substances, etc.) and the concept of environmentally sound technologies, but aims to follow certain procedures and responsibilities in the field of environmentally relevant activities. This neutral approach is

due to the fact that ISO 14000 as a kind of international standard should not encroach on the scope of national standards.

398. Ecological audit (eco-audit) is an independent, comprehensive inspection (audit) of the enterprise's compliance with environmental regulations and rules and assessment of the effectiveness of the existing environmental management system with the preparation of recommendations. Eco-audit is comprehensive in nature, it combines administrative and economic attributes, a commercial (market) focus, and complete information materials on the audited facility. Eco-audit is carried out at the initiative of the enterprises themselves (on a commercial basis) and represents a specific form of industrial environmental control. The eco-audit includes an analysis of the company's accounting for environmental indicators, a forecast of environmental risks and damages, instrumental measurements of various environmental parameters of the audited facility and the environment, the development of recommendations, etc. Further introduction of eco-audits into the practice of environmental management will contribute to moving towards a more efficient and environmentally friendly economy.

399. In Uzbekistan, the legal and regulatory framework for Eco-audit is just beginning to take shape. The Law of the Republic of Uzbekistan "On Environmental Protection" adopted in 1993 and other normative and legal documents did not mention Eco-audit and its place in the system of nature management and environmental protection until 2000. The place and status of Eco-audit in the mechanism of environmental management and environmental protection were not defined. The same situation is typical for Russia and other CIS countries. Thus, today, foreign investors and enterprises applying for foreign financing remain the most interested in carrying out ecological audits. Ecological audit procedures were mainly based on the requirements of the EBRD and the World Bank mentioned above. With the introduction of environmental insurance, improvement of the economic mechanism of nature management, licensing and other areas of Eco-audit application in Uzbekistan will expand. This will also be facilitated by the creation of a legal and methodological framework for environmental audits in the Republic of Uzbekistan.

5.10. International Treaties and Obligations.

400. The Republic of Uzbekistan has ratified the following international conventions that are part of this environmental expertise. These are shown in the Table17 below. Fulfillment of the terms of these commitments contributes to environmental sustainability, attracts external funding for stabilization and prevention of degradation of natural resources and cultural heritage, and enhances the country's capacity to use its natural and cultural resources as a basis for poverty reduction and socio-economic development.

Table 16. Participation of the Republic of Uzbekistan in international conventions relevant to the Project

International Conventions and Treaties	Date of Ratification	Date of coming into force for Uzbekistan	Main objectives
United Nations Framework Convention on Climate Change	20 June 1993 (acceptance)	21 March 1994	Stabilizing greenhouse gas concentrations at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.
Kyoto Protocol	20 August 1999	16 February 2005	Setting internationally binding emission reduction targets.

International Conventions and Treaties	Date of Ratification	Date of coming into force for Uzbekistan	Main objectives
United Nations Convention to Combat Desertification	31 August 1995	29 January 1996	Reverse and prevent desertification and land degradation in affected areas in order to support poverty reduction and environment sustainability.
United Nations Convention on Biological Diversity	6 May 1995 (accession)	17 October 1995	Conservation of biodiversity, sustainable use of its components and equitable sharing of the benefits.
Paris Convention on Protection of the World Cultural and Natural Heritage	22 December 1995	15 June 1996	Protection of natural and cultural heritage.
Convention on International Trade of Endangered Species of Wild Flora and Fauna	25 April 1997 (accession)	8 October 1997	Ensuring that international trade does not threaten wild animals and plants.
Convention on the Conservation of Migratory Species	1 May 1998 (accession)	1 September 1998	Global platform for the conservation and sustainable use of migratory animals and their habitats.
Ramsar Convention on Wetlands of International Importance Especially as Wildlife Habitat	30 August 2001 (accession)	8 February 2002	Conservation and wise use of all wetlands through local and national actions and international cooperation to achieve sustainable development.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	22 December 1995 (accession)	7 May 1996	Regulation, reduction and restriction of hazardous wastes transboundary movement.
Stockholm Convention on Persistent Organic Pollutants	22 May 2001	8 May 2019	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 the environment.

International Conventions and Treaties	Date of Ratification	Date of coming into force for Uzbekistan	Main objectives
Paris Agreement on Climate Change.	December 2015	April 2017r	The Paris Agreement is an agreement under the United Nations Framework Convention on Climate Change that regulates measures to reduce the carbon dioxide content in the atmosphere from 2020.

International Labour Organisation (ILO) Convention. Uzbekistan has ratified all eight of the Fundamental ILO Conventions, one out of four of the Governance Conventions and five out of 177 of the Technical Conventions. Out of 14 Conventions ratified by Uzbekistan, of which 14 are in force. ILO Conventions ratified by Uzbekistan are listed as follows:

Fundamental:

- C029 Forced Labour Convention, 1930 (№ 29)
- C087 Freedom of Association and Protection of the Right to Organise Convention, 1948 (№ 87)
- C098 Right to Organise and Collective Bargaining Convention, 1949 (№ 98)
- C100 Equal Remuneration Convention, 1951 (№ 100)
- C105 Abolition of Forced Labour Convention, 1957 (№ 105)
- C111 Discrimination (Employment and Occupation) Convention, 1958 (№ 111)

Management:

C122 - Employment Policy Convention, 1964 (№ 122)

Technical

- C047 Forty-Hour Week Convention, 1935 (№ 47)
- C052 Holidays with Pay Convention, 1936 (№ 52)
- C103 Maternity Protection Convention (Revised), 1952 (№ 103)
- C135 Workers' Representatives Convention, 1971 (№ 135)
- C154 Collective Bargaining Convention, 1981 (№ 154).
- 402. In 2015, Uzbekistan joined the World Bank's proposed "Zero Routine Flaring by 2030" initiative, which brings together governments, oil companies and development agencies that agree to eliminate gas flaring no later than 2030.
- 403. Uzbekistan is a party to the Energy Charter Conference. It has been a party to the 1994 Energy Charter Treaty and the 1994 Protocol on Energy Efficiency and Related Environmental Aspects since 1998.
- 404. Uzbekistan joined the International Renewable Energy Agency (IRENA) in 2009.
- 405. Uzbekistan participates in the work of the Electric Power Council of the Commonwealth of Independent States (CIS), the Interstate Environmental Council of the CIS member States and the Commission of the CIS member States on the Peaceful Uses of Atomic Energy. Uzbekistan is a member of IAEA.
- 406. In 2009, Uzbekistan acceded to the 1997 Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management.

- 407. As of early 2019, Uzbekistan is not a party to the 1986 Convention on Early Notification of a Nuclear Accident.
- 408. The 1994 Nuclear Safety Convention or the 1986 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.
- 409. The recently approved Nuclear Power Development Concept for the period 2019-2029 (Presidential Decree PP-4165, 2019) states Uzbekistan's intention to accede to international nuclear safety conventions and to enforce their provisions, as well as to develop national legislation on the use of nuclear energy. (Presidential Decree PP-4165, 2019) stated Uzbekistan's intention to accede and enforce international conventions on nuclear safety and to develop and adopt national legislation on the peaceful use of atomic energy. Natural gas is the main energy carrier in the national energy mix. However, coal combustion is still used for electricity generation in the country.

6. APPLICABLE WORLD BANK ENVIRONMENTAL AND SOCIAL STANDARDS

6.1. World Bank's Environmental and Social Standards and their requirements

- The World Bank is committed to supporting Receivers in developing and implementing projects that are environmentally and socially sustainable and to enhancing the capacity of Receivers' environmental and social frameworks to assess and manage the environmental and social risks and impacts of projects. To this end, the Bank has defined specific Environmental and Social Standards (ESSs), that are designed to prevent, minimize, reduce or mitigate adverse environmental and social risks and impacts of projects.
- 411. The ten Environmental and Social Standards (ESS) are presented below):
 - ESS1: Assessment and Management of Environmental and Social Risks and Impacts;
 - ESS2: Labor and Working Conditions;
 - ESS3: Resource Efficiency and Pollution Prevention and Management;
 - ESS4: Community Health and Safety;
 - ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
 - ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
 - ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
 - ESS8: Cultural Heritage;
 - ESS9: Financial Intermediaries; and
 - ESS10: Stakeholder Engagement and Information Disclosure.
- The requirements of these ESSs and their implications for the current project are presented in Table 17 below.

Table 17. World Bank ESSs and their relevance to the current project

ENVIRONMENTAL AND SOCIAL STANDARDS (ESS)	RELEVANCE RATE	MAIN REQUIREMENTS	ADRESSING ESSs
ESS1: Assessment and Management of Environmental and Social Risks and Impact	Relevant	ESS1 sets out the Client's responsibilities for assessing, managing, and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESSs). As required by this standard, the ESIA shall be conducted on the basis of current information, including an accurate description and delineation of the project and any associated aspects, and environmental and social baseline data at an appropriate level of detail sufficient to inform characterization and identification of risks and impacts and mitigation measures. The assessment will identify the project's potential environmental and social risks and impacts, paying particular attention to those that may disproportionately affect disadvantaged and/or vulnerable social groups; examine project alternatives; identify ways of improving project selection, siting, planning, design, and implementation in order to apply the mitigation hierarchy for adverse environmental and social impacts and seek opportunities to enhance the positive impacts of the project.	Overall, the project will have a number of positive social and environmental impacts. It supports technical assistance and energy capacity building activities, reduces the operating costs of substation equipment; the consumption of electricity for own and household needs of substations; increases transformer capacity; increases the reliability of electricity supply to consumers throughout the Republic's energy system, ensuring a safe, reliable and affordable electricity supply for households. However, activities during the period of upgrading and improvement of existing high voltage substations and lines and construction of new transmission substations and lines may result in adverse impacts and therefore the project will need to introduce substantial environmental and social pre-screening, mitigation and monitoring systems. The project may also generate some adverse environmental impacts associated with the construction and/or upgrading of substations and transmission lines. These activities might cause a series of direct environmental risks such as: increased environmental pollution with waste, noise, dust, air pollution, health hazards and labor safety issues due to civil works. They can be mitigated easily by applying good construction practices and following the provisions of the Environmental and Social Management Plans (more detailed information will be given in Chapter 5). As before project appraisal, it is not possible to identify all activities and the subprojects that will be financed, in accordance with the ESS1, the NEGU prepared an Environmental and Social Management Framework (ESMF), which specifies rules and procedures for the activities and subprojects' Environmental and Social Management Plans (ESMPs). The ESMF guidelines methods of the ESIA process is presented in Chapter 6. Two site-specific ESMPs for priority defined investments (for new Koltsevaya 500 kV greenfield substation and for modernization of Tashkent 500 substation) have also been developed and disclosed. In reviewing the prel

ENVIRONMENTAL AND SOCIAL STANDARDS (ESS)	RELEVANCE RATE	MAIN REQUIREMENTS	ADRESSING ESSs
			strong and inclusive stakeholder engagement mechanisms to ensure that all potential beneficiaries are being reached by the project, and that affected persons have effective mechanisms for grievance and redress. Furthermore, strong labor management procedures are required.
ESS2: Labor and Working Conditions	Relevant	ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Receivers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. ESS2 applies to project workers including full-time, part-time, temporary, seasonal and migrant workers. Given these requirements, the NEGU will develop and implement written labor management procedures applicable to the project. These procedures will set out the way in which project workers will be managed, in accordance with the requirements of national law and this ESS. The procedures will address the way in which this ESS will apply to different categories of project workers, including direct workers, and the way in which the NEGU will require third parties to manage their workers in accordance with the ESS2.	The project includes direct workers (employees of NEGU) as well as contracted workers (employees of contractors). NEGU and project beneficiaries conducted screening for primary suppliers to ensure that they have no history of forced and child labor or other significant labor, environmental and social violations. No forced or unpaid labor will be used in any project activities or in any activities that may be related or associated with the project (e.g. public infrastructure constructed in support of project investments). NEGU is responsible for raising awareness on these provisions among relevant stakeholders (e.g.,local khokimiyats and communities) and monitoring their enforcement. For this purpose NEGU has prepared Labor Management Procedures (LMP) for the project, describing the types of workers, key elements of the national labor policy and regulations and gaps with ESS2, as well as labor management tools to be adopted in the course of the project. Bidders for civil work contracts required to express commitment to develop Contractor's LMP when selected and develop such C-LMP, consistent with the Project LMP, prior to the start of civil works. Grievance Mechanisms for all project workers were established, or – where one exists – were assessed and strengthened to comply with the objectives of ESS2. The Project and Contractor's LMP also includes Occupational Health and Safety measures. These include, among other issues, safety practices during construction, and handling of potentially dangerous or toxic materials.
ESS3: Resource Efficiency and Pollution Prevention and Management	Relevant	ESS3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services, and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of green- house gases	The ESMF includes sections on Pollution Prevention and Management with a focus on those issues which might arise while conducting civil works for facilities construction and rehabilitation activities. Assessment of associated with civil works risks and impacts and proposed mitigation measures related to relevant requirements of ESS3, including raw materials, water use, air pollution, hazardous materials, and hazardous waste included the relevant ESMPs. In order to make clear a possibility of traces of polychlorinated biphenyls (PCBs) in the existing transformer oil it was conducting the test of

ENVIRONMENTAL AND SOCIAL	RELEVANCE RATE	MAIN REQUIREMENTS	ADRESSING ESSs
STANDARDS (ESS)		(GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective resource use, pollution prevention, and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle consistent with Global	transformer oil. The transformer oil samples were examined in the chemical laboratory of TashGorMES branch at "Ozodlik" substation. Examination of the transformer oil for PCBs content was carried out by gas chromatograph, as a control was used the transformer oil HS-8900 CHI (BU-V1307), manufactured in China, the company "Shanghai Huishi".
ESS4: Community Health and Safety	Relevant	International Industry Practice (GIIP). ESS4 recognizes that project activities, equipment, and infrastructure can increase community expo- sure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities. ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Receivers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.	There is a specific regulation of the Receiver which relevant to emergency events – which for this Project would include substation operations (fires, explosions, etc.). The ESMF includes assessment of work-related health risks; works and traffic safety; excessive noise and dust levels, site safety awareness and access restrictions; and labor influx. All these issues were required to be included in the site specific ESMPs to be prepared once the investments are identified. It is essential that fencing is installed around all construction sites and areas where there is a risk to public health and safety. NEGU as well as all contractors developed and adhered to Codes of Conduct, including requirements for respectful behavior and interaction with local communities and within work sites, prohibition from engaging in illicit activities, sexual exploitation and abuse, or sexual harassment (SEA/SH), forced or child labor. Additional activities to prevent and mitigate risks of SEA/SH, to be conducted by NEGU, include establishing GBV sensitive Grievance Mechanism, training and awareness-raising for staff, contractors, and local communities (neighboring sites of construction sites) on SEA/SH risks, available support services, Codes of Conduct to be followed by NEGU staff and contractors, and available GBV-sensitive Grievance Mechanism. Furthermore, as per requirements of this ESMF, site specific ESMPs will include the necessary measures to ensure efficient waste management and handling of hazardous materials, as well as training requirements in this regard. Also the Receiver will follow the WBG Environmental Health and Safety Guidelines that are relevant/applicable to this project: including specifically the (1) WBG General EHS Guidelines and (2) WBG EHS Guideline for Electric Power Transmission and Distribution

ENVIRONMENTAL AND SOCIAL STANDARDS (ESS)	RELEVANCE RATE	MAIN REQUIREMENTS	ADRESSING ESSs
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant	ESS5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons. Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land, or loss of shelter), economic displacement (loss of land, assets, or access to assets leading to loss of income sources or other means of livelihood), or both. The term "involuntary resettlement" refers to these impacts. Experience and research indicate that physical and economic displacement, if unmitigated, may give rise to severe economic, social, and environmental risks: production systems may be dismantled; people may face impoverishment if their productive resources or other income sources are lost; people may be relocated to environments where their productive skills are less applicable. Where involuntary resettlement is unavoidable, it will be minimized and appropriate measures to mitigate adverse impacts on displaced persons (and on host communities receiving displaced persons) will be carefully planned and implemented.	This project provides for involuntary land acquisition during construction of substations and new transmission lines, although it is planned that most of the project activities will be carried out on public land plots specifically designated for project purposes. No additional land acquisition is required for the modernization of existing substations; all modernization activities will be carried out within the substation areas. However, in view of the specific land ownership structure in Uzbekistan where most lands are state-owned but used by private farmers under lease, economic displacement or physical displacement cannot be entirely ruled out under the project, and a Resettlement Framework (RF) was prepared for the Project applicable where land acquisition or involuntary resettlement are unavoidable. Impacts on private land, assets, or livelihoods were avoided to the extent possible, and where unavoidable, were minimized and mitigated following the principles and procedures outlined in the RF. The Project does not envision voluntary donations of land or assets of any kind.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant	ESS6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem services. ESS6 recognizes the importance of maintaining core ecological functions of habitats, including forests, and the	The activities envisaged in the substation modernization project are small in scale and are expected to be carried out in the existing 22 substations in 11 regions of the Republic - hence the standard for this sub-component of the project is not relevant; however, it can be applied to the construction of new substations and transmission lines. Once the detailed design is prepared, a clearer picture of potential project activities will be developed. Thus the activities under component 2 of the project include the main requirements of this ESS to be presented to the project stakeholders. For the other project components, unidentified risks to the sustainable

ENVIRONMENTAL AND SOCIAL STANDARDS (ESS)	RELEVANCE RATE	MAIN REQUIREMENTS	ADRESSING ESSs
		biodiversity they support. All habitats support complexities of living organisms and vary in terms of species diversity, abundance and importance. This ESS also addresses sustainable management of primary production and harvesting of living natural resources. This standard aims to protect natural habitats and their biodiversity; avoid significant conversion or degradation of critical natural habitats; and ensure the sustainability of the services and products that natural habitats provide to human society.	management of biodiversity and living natural resources are not expected to arise.
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not relevant		The Republic of Uzbekistan does not have such groups of people/communities and thus this ESS is not relevant.
ESS8: Cultural Heritage	Not relevant	ESS8 recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. It sets out measures designed to protect cultural heritage throughout the project life cycle. The requirements of ESS8 apply to cultural heritage regardless of whether or not it has been legally protected or previously identified or disturbed – apply to intangible cultural heritage only if a physical component of a project will have a material impact on such cultural heritage or if a project intends to use such cultural heritage for commercial purposes. A chance finds procedure is a project-specific procedure which will be followed if previously unknown cultural heritage is encountered during project activities. It will be included in all contracts relating	Project activities are not expected to impact on any physical cultural resources and thus to have a direct impact on heritage monuments. The indirect impacts of project-funded activities and mitigation measures envisaged in the preparation of the ESMF will be carefully considered. The ESMF includes a section on cultural heritage protection as well as appropriate 'chance finds' procedures to be included in the site-specific ESIA / ESMP and checklists.

ENVIRONMENTAL AND SOCIAL STANDARDS (ESS)	RELEVANCE RATE	MAIN REQUIREMENTS	ADRESSING ESSs
		to construction of the project, including excavations, demolition, movement of earth, flooding or other changes in the physical environment.	
ESS9: Financial Intermediaries (FIs)	Not relevant	ESS9 recognizes that strong domestic capital and financial markets and access to finance are important for economic development, growth and poverty reduction. Fls are required to monitor and manage the environmental and social risks and impacts of their portfolio and Fl subprojects, and monitor portfolio risk, as appropriate to the nature of intermediated financing. The way in which the Fl will manage its portfolio will take various forms, depending on a number of considerations, including the capacity of the Fl and the nature and scope of the funding to be provided by the Fl.	No financial intermediaries.
ESS10: Stakeholder Engagement and Information Disclosure	Relevant	This ESS recognizes the importance of open and transparent engagement between the NEGU and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. The NEGU will engage with stakeholders throughout the project life cycle, beginning such engagement as early as possible in the project design process and at a time that allows for meaningful consultation with stakeholders on project design. The nature, scope and frequency of stakeholder engagement will be proportionate to the nature and scale of the project and its potential risks and impacts. In consultation with	Project-affected parties include the farms where project activities may take place and the general public in the communities to which project activities will be directed. Other stakeholders include local authorities, energy sector representatives and central level authorities, including: Ministry of Energy; Ministry of Innovation; and Ministry of Investment and Foreign Trade, Ministry of Finance (MoF), State Research and Design Institute "Uzdavyerloyiha", Regional Cadastral Authorities, Khokimiyats, etc. As part of the preparation of the Stakeholder Engagement Plan, a mapping of other stakeholders such as other governmental institutions, NGOs, specific sector associations was carried out. Special efforts will be taken to identify and ensure inclusion of vulnerable people and communities in the stakeholder engagement process. NEGU will develop a Stakeholder Engagement Plan (SEP) which will include a complete stakeholder mapping, identify actions and timelines for engagement with different stakeholder groups throughout the project life cycle, define roles and responsibilities, human resources and budget needed to implement SEP activities. The SEP will be prepared with the participation of stakeholders and will reflect the methods of engagement that they consider to be most effective.

ENVIRONMENTAL AND SOCIAL STANDARDS (ESS)	RELEVANCE RATE	MAIN REQUIREMENTS	ADRESSING ESSs
		the Bank, NEGU will develop and implement a Stakeholder Engagement Plan (SEP) proportionate to the nature and scale of the project and its potential risks and impacts.	

6.2. Comparison of National and World Bank requirements on Environmental Assessment

- The main provisions of the National EA rules and procedures are similar to the World Bank's requirements, but have a number of important differences. These differences relate to the following issues:
 - Definition of the category of preliminary environmental assessment for the Project;
 - Structure of the Environmental and Social Management Plan (ESMP) of the project;
 - Disclosure of the results of the Environmental Assessment and their public consultation.

6.2.1. Differences in categories of environmental assessment

- In Uzbekistan, the system of environmental impact assessment is based on SEE developed more than 20 years ago. SEE is regulated by Law (№ 73-II of 05/25/2000) on Environmental Expertise (updated 14.09.2017) and the Decree of the Cabinet of Ministers (№ 491 of 12/31/2001, updated № 541 of 07.09.2020 on approval of the Regulation on State Environmental Expertise. As specified above, according these documents there are 4 project Categories:
- Category I (high risk),
- Category II (medium risk),
- Category III (low risk) and
- Category IV (local impact).
- 415. If the World Bank's EA requirements and national classification/requirements standards differ, the higher requirements apply. This is mainly for decisions on Low Risk Category projects national EA legislation does not apply to small-scale activities, including construction and renovation of various buildings. In such cases, the Client will be guided by the World Bank criteria.
- Category HR "high risk" (World Bank) Category I (Uzbekistan)
- Category SR "substantial risk " (World Bank) Category II (Uzbekistan)
- Category MR "moderate risk" (World Bank) Category III (Uzbekistan)
- Category LR "low risk" (World Bank) Category IV (Uzbekistan)
- In Uzbekistan, all projects with potential environmental impacts require appropriate mitigation measures. National legislation does not require a specific ESMP in which a monitoring plan and reporting requirements, institutional arrangements for implementation of the ESMP are required along with proposed mitigation measures, nor does it require the necessary capacity building activities and necessary expenditure in this area.

6.2.2. Differences in information disclosure and public consultation

- There are also differences between World Bank requirements and national requirements for public disclosure and public consultation. According to national legislation, disclosure of EA and public hearings is mandatory only for Categories I and II. At the same time, according to the Law on SEE, the public environmental expertise can be carried out at the initiative of NGOs and residents in any area and for all types of projects that must be environmentally sound. The public environmental assessment can be carried out independently from the state environmental expertise.
- 418. The conclusion of the public environmental expertise is advisory. In accordance with the World Bank's safeguard policy on EA, the NEGU is responsible for carrying out at least one public consultation on all "SR" category projects to discuss the issues to be addressed in the ESMP or to discuss the draft ESMP itself.
- 419. Based on the above, the NEGU should put the ESMP documentation out for public consultation. Based on the discussion of the ESMP, the NEGU will incorporate these issues into the contents of the ESMP.
- 420. The ESMP in Uzbek and/or Russian and the minutes of the public consultation shall be posted in the project area, and on the NEGU website. The EA of the project Category "MR", "SR" should be made available to project affected groups and local NGOs and posted on the NEGU website.

6.2.3. Involuntary Resettlement Issues

421. It is currently difficult to assess the potential impact on the land resources that will be required for the Project as there is no final design documentation available to assess the scale of the impact. It

is assumed that the construction works will take place mainly on public land designated for this purpose, on the territory of existing public institutions (substations), and partly on the territory of existing farms, in case of construction of new substations and transmission lines. As such, they are not expected to result in involuntary resettlement, but temporary and permanent land acquisition is planned. Which involves impacts on farm land and restrictions on land use. All site-specific investments under the project will be pre-screened for adverse land impacts or resettlement and, if such impacts are identified, the procedures for calculation and payment of compensation and mitigation described in the RF will be followed.

6.2.4. Applicable environmental standards:

- 422. Sub-projects requiring ESIAs must include mitigation measures to ensure compliance with environmental standards of operation. Where both Uzbekistan and the World Bank have standards for specific mitigation measures, the most stringent of the two standards apply. For example, if the environmental problem is high noise levels, and the World Bank noise standards are more stringent than in Uzbekistan, then the mitigation measure selected must meet the more stringent World Bank standards.
- The environmental and social impact assessment of the Project must comply with both national and WB requirements. A harmonized system of safeguards for the Project's ESIA study has been developed. Table 18 is provided below.

Table 18. Comparative table between WB Environmental and Social Framework requirements and Uzbek national environmental legislation

ASPECT	MAIN REQU	JIREMENTS	HARMONIZED FRAMEWORK
	WORLD BANK	UZBEKISTAN	
ESS1: Environmental and Soci	al Risks and Impacts		
A. ENVIRONMENTAL ASSESSMENT	Objectives: To identify, evaluate and manage	Environmental assessment and permitting procedure in Uzbekistan are set out in the following laws and	The project complies with the WB ESS1 and Resolution No. 541 dated July 07, 2020. However, there are some
Objectives and Scope of application	the environment and social risks and impacts of the project in a manner consistent with the ESSs. To adopt a mitigation hierarchy approach to: avoid, minimize, mitigate, compensate. To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project. To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project. Scope of Application: ESS 1 applies to all projects supported by the Bank through Investment Project Financing. ESS1 also applies to all Associated Facilities. Associated Facilities will meet the requirements of the ESSs, to the extent that the NEGU has control or influence over such Associated Facilities.	regulations: (i) The Law on Nature Protection (1992); (ii) The Law on Environmental Expertise(2000), and (iii) (iii) Resolution of the Cabinet of Ministers (RCM) № 541 of 07.09.2020 "On Approval of the Regulation on State Environmental Expertise". Environmental legislation base consists of the more than 100 laws, bylaws and other regulative documents, such as sanitarian norms and rules, standards and etc.	parameters in which national requirements and standards differ from the requirements and standards of the WB. In such cases, more stringent requirements will be imposed on the project, which will be established by national or WB legislation.

ASPECT	MAIN REQ	UIREMENTS	HARMONIZED I	FRAMEWORK
	WORLD BANK	UZBEKISTAN		
Screening and Categorization	The Bank will classify all projects (including projects involving Financial Intermediaries (FIs)) into one of four classifications: High Risk, Substantial Risk, Moderate Risk or Low Risk.	In Uzbekistan the EIA system is based on the State Ecological Expertise, which is regulated by Law № 73-II on Ecological Expertise (25.05.2000) and by RCM Regulation №541 "On Further Improvement of the Environmental Impact Assessment Mechanism" (07.09.2020).	WB and Uzbekistan p categorization coulds accepting the following WB (High Risk, Substantial Risk, Moderate Risk or Low Risk)	e harmonized by
			High Risk	Category I - (See selected activities specified in ESMF's Annex 1. Table 1)
			Substantial Risk	Category II – all other projects, not specified in ESMF's Annex 1. Table 1
			Moderate Risk	Category III-IV
			Low Risk	Not listed in the Attachment 2 c
	The Bank will review the risk classification assigned to the project on a regular basis, including during implementation, and will change the	The category of the project is defined in accordance with Appendix 1 to RCM # 541.		
	classification where necessary, to ensure that it continues to be	The Regulation stipulates 4 categories fordevelopment:		
	appropriate. Any change to the classification will bedisclosed on the	Category I (High Risk), Category II		
	Bank's website.	(Middle Risk), Category III (Low Risk),		
		Category IV (Local Impact).		
		If the activity is not included into the Appendix 1 to the regulation, EA is not		

ASPECT	MAIN REQU	UIREMENTS	HARMONIZED FRAMEWORK
	WORLD BANK	UZBEKISTAN	
		conducted.	
		Location of the potential project is not considered during categorization.	
			The proposed harmonized classification covers all activities included in Appendix 1 of RCM № 541 of 07.09.2020 The detailed revision of activities belongs to category II (national standards) but should be classified as category HR (WB) presented in Annex 1, Table 1 shows that these project activities are not included in Table 1. Therefore, all subprojects categorized as II (Uzbekistan) will belong only to MR or SR (WB) categories. All potential sub-projects will be reviewed on location regarding sensitive areas. In this case WB categorization will be applied and such sub-projects will not be included into
Environmental and SocialImpact Assessment	In accordance with WB ESS1, environmental and social impact assessment is prepared as part of the environmental and social assessment, and it includes the following chapters: (a) Executive Summary; (b) Legal and Institutional Framework; (c) Project Description; (d) Baseline Data; (e) Environmental and Social Risks and Impacts; (f) Mitigation Measures; (g) Analysis of Alternatives; (h) Design Measures; (i) Key Measures and Actions for the Environmental and Social Commitment Plan (ESCP); (j) Appendices.	RCM № 541 (2020) defines the contents of an EIA report for a project belonging to categories I-III. The report shall include: (i) baseline data, (ii) project description, (ii) anticipated environmental impacts, (iv) waste management, (v) emergency analysis, and (vi) and projected changes resulting from the project. Information on applicable laws and regulations is usually presented in the Introduction section. For Category IV projects, the EIA report is more simplified.	There are some gaps in content of ESIA and national EA: analyze of legislation base, identification of social risks and impacts, level of mitigation measures. The ESMF provides outline for ESIA as per ESS1 which will be developed under this project.
ESMP	An ESMP consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of a	National legislation on EA requires identifying possible impacts, but it does not require a preparation of separate ESMP or any other environmental	Based on results of sub-projects screening ESMP, ESMP or ESMP checklist will be developed in accordance with Table 20 of this

ASPECT	MAIN REQU	UIREMENTS	HARMONIZED FRAMEWORK		
	WORLD BANK	UZBEKISTAN			
	project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The ESMP also includes the measures and actions needed to implement these measures. The Receiver will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.	documents /plans/checklists. There are no requirements on environmental monitoring with specification of monitoring parameters and location.	document, and in compliance with ESF and the relevant ESSs.		
	Depending on the project, an ESMP may be prepared as a stand-alone document or the content may be incorporated directly into the ESCP. (The detailed ESMP content is given in WB ESS1)				
B. Environmental and Social Commitment Plan(ESCP)	ESCP for compliance in a specified time	No provision on development of ESCP	ESCP was developed by Implementation Agency with WB assistance		
C. Project Monitoring &Reporting	 Monitor proportionate to nature of project, risksand impacts, and compliance requirements Reports to World Bank 	Monitoring of requirements indicated in Environmental Expertise Conclusion duringconstruction phase Reporting on generated wastes,	ESMF provides requirements for monitoring andreporting		
		emissions inair and waste water			
D. Stakeholder Engagement and information Disclosure	Engage stakeholders through life cycle	Generally consistent but no requirement for project-specific stakeholder engagement plan	SEP outlines engagement activities to be followed throughout project implementation as per ESF.		
ESS2: Labor and Working Conditions					
A. Working conditions and management of labor relations	Written labor management procedures - Terms and conditions of employment	 Written employment contract required, including procedures and employment conditions 	LMP developed for the project. Terms and conditions in the LMP are consistent with national law and ESS2.		
	Nondiscrimination and equal opportunity Norker's organization	 No provision for Labor Management Plans. 			
	Worker's organization				

ASPECT	MAIN REQ	UIREMENTS	HARMONIZED FRAMEWORK
	WORLD BANK	UZBEKISTAN	
	Elaborate Labor Management Plans includingContractor's ESMP warranted		
B. Grievance mechanism	GM should be in place for direct and contractedworkers	 No project specific GM is warranted. However, it is allowed to apply to: a) conciliation commission; b) Labor Inspection under the Ministry of Employment and Labor Relations; and c) court 	NEGU will develop GM for its workers (Direct workers) as per this LMP. Contractors will develop C-LMP including provision to establish and maintain GM for their employees – all in accordance with ESS2
C. Category of workers	Specifies these following categories of workers: direct,contracted, community and primary supply workers	No reference to Community and Primary SupplyWorkers	Screening and monitoring measures for primary contractors will be introduced in accordance with this LMP.
D. Minimum age of workers	Persons 14-18 are prohibited from work considered hazardous, that will interfere with their education or be harmful to their health or development (physical, mental, spiritual, moral, or social).	- Employment permissible for 15 plus age, but for non-hazardous work, with limited hours, and guardian permission.	National law will be followed. No direct and contracted workers under 18 will be recruited.
ESS3: Resource Efficiency and	Pollution Prevention		
Energy Use	Adopt measures in EHSGs if project is significantenergy use	Indicated in number of documents related to increasing energy efficiency and state program on energy efficiency has been adopted	
Water Use	Assess water use and impacts and communities andadopt mitigation measures as needed	Standards for drinking water quality, permits for wastewater disposal, system of compensation payment. Standards comply with EHSG	
Raw Material Use	Use GIIP to reduce significant resource usage POLLUTION PREVENTION AND MANAG	Resource usage conditions permits	
Management			
Management of air pollution	Requires assessment of potential air emissions and implementation of technically and financially feasibleand cost-effective options to minimize emissions	Emissions limits. Standards for pollutants in aircomply with EHSG	
Management of Hazardous and non-	Apply mitigation hierarchy to waste management	Detailed requirements for hazardous andother wastes	

ASPECT	MAIN REQ	UIREMENTS	HARMONIZED FRAMEWORK
	WORLD BANK	UZBEKISTAN	
hazardous materials	 National and international conventions for hazardous waste management and movement Verify hazardous waste management contractors are licensed and disposal sites operate to meet standards. 	 Signatory to international conventions No requirements to verify haulers/contractors 	
Management of chemicals	Minimize use of hazardous materials Avoid use of internationally controlled materials	National law and international conventions. Special procedures on storage, handling and use of chemical.	
ESS4: Community Health and S	afety	Ş	
A. Community health and safety	 Evaluate risks to community health and safety and apply mitigation hierarchy and GIIP to reduce risks Consider third-party safety risks in designing infrastructure and equipment, with regard to high-risk locations Ensure safety of services provided to communities Identify traffic/road risks, assess risks if needed, consider safety in fleet decisions, take measures to protect public Assess and avoid impacts on provisioning and regulating ecosystem services as appropriate Avoid or minimize potential for disease transmission and communication, considering vulnerable groups Address risks to community of hazardous materialsmanagement Assess and mitigage gender based violence risks, specifically as related to 	General requirements to minimize risk, and specific requirements for organizing civil works on construction site, during application of chemicals, their storage and disposal, emergency preparedness and response No specific requirements for services, ecosystem services, gender based violence risksand etc.	ESMP will provide requirements for site specific measures for the mitigation of ESS4 risks. A GBV action plan will be developed by NEGU and its relevant provisions will be integrated in to site-specific ESMPs.

ASPECT	MAIN REQU	JIREMENTS	HARMONIZED FRAMEWORK
	WORLD BANK	UZBEKISTAN	
	SEA/SH.		
B. Security personnel	 Assess and address risks of security arrangements Apply principles of proportionality, GIIP, and law Verify contracted workers are not implicated in pastabuses and are trained Investigate incidents, report unlawful acts toauthorities 	RCM №60 dated from March 1 st 2002 "On approval of the typical regulation on departmental security service" Identifies tasks and responsibilities of security services, requirements for recruiting, training program, medical examination and conditions of usage of force and protection means	ESMP will provide requirements for site specific measures for the mitigation of ESS4 risks.
ESS5: Land Acquisition, Restric	tions on Land Use and Involuntary Reset	tlement	
Screening and Categorization	WB carry out project screening and categorization at the earliest stage of project preparation when sufficient information is available for this purpose.	According to legislation there are nocategorization in Resettlement documents.	Standard ESS 5 will be applied.
Compensation	A. PAPs with formal title have to be compensated for lost land/other assets. B. PAPs who do not have formal legal rights to land or assets, but have a claim to land and assets that is recognized or recognizable under national law have right to be compensated for lost land and assets. C. PAPs with no recognizable legal right or claim to the land and assets they occupy or use are compensated for loss of livelihood. D. In case of physical dislocation, all above categories have the right to receive resettlement assistance.	A. PAPs with formal title are compensated for lost land/other assets. B and C. PAPs with legalizable or no legal title: Legalizable are not distinguished and considered non-legal Non-legal PAPs have no right to be compensated for land and non-land assets.	A. Same in principle/application. B,C. and D WB policies will apply as outlined inRF.
Procedural mechanisms	A. Information disclosure. Resettlement-related documents to be timely disclosed in the PAP language. B. Public consultation. Meaningful public consultations are to be held with	 A. Information disclosure. Disclosure accordingly Resolution of the Cabinet of Ministers № 541. B. Public consultation. Matters of local importance to be publicly discussed 	Systematic and direct consultations and grievance redress as provided in this RF.

ASPECT	MAIN REQ	HARMONIZED FRAMEWORK	
	WORLD BANK	UZBEKISTAN	
	the PAPs. PAPs should be consulted about their entitlements and options, as well as resettlement alternatives.	with local authorities. But no requirement to consult directly the PAPs.	
	C. Grievance procedure. A Grievance Mechanism (GM) is to be established for each project. Information on GM to be communicated to the PAPs.	C. Grievance Procedures. Each state agency/ministry must follow to detail instructions (approved by government) on registering and reviewing the concerns and claims from citizens.	
	D. Asset acquisition conditions. Property can be acquired only after full compensation is paid to the PAPs.	D. Asset acquisition conditions. Property can be acquired only after full compensation is paid to PAPs.	
ESS6: Biodiversity Conservation	and Sustainable Management of Living	Natural Resources	
	 Consider direct, indirect, & cumulative impacts in ESS1 EIA Characterize baseline conditions Manage risks with mitigation hierarchy and GIIP, including adaptive management Differentiated habitats, ESS applies to all, provides for offsets ESS applies to modified habitat with significant biodiversity value Avoid natural habitats unless no feasible alternative; if affected achieve no net loss of biodiversity Critical habitat Requirements if a project will affect legally protected and 	Requires protection of biodiversity but lessdetailed requirements	Restriction on sub-projects implementation in the protected areas, critical habitats will be included in ESMF.

ASPECT	MAIN REQU	UIREMENTS	HARMONIZED FRAMEWORK				
	WORLD BANK	UZBEKISTAN					
ESS7: Indigenous Peoples/Sub-	ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities						
		Not applicable for the project in Uzbekistan					
ESS8: Cultural Heritage							
Application	Covers tangible and intangible (limited) cultural heritage, whether legally protected or not and whether previously identified or not	 Law covers non-material (language, customs, ceremonies and celebrations, knowledge and skills, traditional crafts, dancing, music, art, etc.) and material cultural heritage. 					
A. General	 Assess and avoid impacts on cultural heritage Follow chance find procedure if a find isencountered Involve experts if needed 	General requirements to protect cultural heritageand not to disturb sites of interest Law on Archeological heritages describe procedure and involved parties	Chance Finds Procedure is proposed under this Project				
B. Stakeholder consultation and identification of cultural heritage	 Identify and consult with affected and interestedstakeholders Maintain confidentiality if needed Allow continued access to affected sites 	No requirement for consultations except withMinistry of Culture representatives Must provide access	Question will be discussed during PC for sub-projects				
C. Legally protected cultural heritage areas	Comply with regulations and plans, consult withsponsors	Generally consistent					
ESS10: Stakeholder Engagemen	ESS10: Stakeholder Engagement and Information Disclosure						
A. Engagement during project preparation	 Identify and analyze stakeholders, including disadvantaged or vulnerable Stakeholder Engagement Plan (SEP) required, with detailed requirements for disclosure, timing of consultations, measures for disadvantaged or vulnerable, etc. Disclosure of information early to allow consultation on design Consultation to allow ongoing two-way communication throughout project life cycle 	 No requirement to analyze stakeholders No formal plan required Early disclosure required 	SEP will be developed and implemented for the Project in accordance with ESS10				
B. Engagement during	Engagement and disclosure of	No specific requirements	Implementation of SEP will be				

ASPECT	MAIN REQI	HARMONIZED FRAMEWORK	
	WORLD BANK	UZBEKISTAN	
project implementation and external reporting	information to continue throughout implementation, followingSEP		monitored underthe project
C. Grievance Mechanism	 Establish and implement prompt, effective, culturally appropriate, and discreet grievancemechanism No limit on legal remedies 	 Law "On Physical and legal entities" provides rights and describes procedure forappeal resolving 	GM will be developed for the project with consideration specificity of the project and national legislation

7. IDENTIFICATION OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

424. The initial environmental and social assessment of the types of sub-projects that can be supported by the project has revealed their environmental and social relevance. The project will provide positive socio-economic benefits through the establishment and maintenance of the necessary infrastructure, provided that negative environmental impacts are avoided, mainly during the construction/upgrading phase of the planned facilities. Their negative impacts may be related to waste generation, noise and air pollution, along with surface and groundwater pollution. A summary of potential environmental and social risks and impacts during implementation of the sub-projects to be potentially financed under the project, together with recommended mitigation measures, is presented in Table 19 below. The proposed measures can be used to develop the ESMPs for the individual sub-projects, taking into account local circumstances.

7.1. Potential environmental impacts and risks

The construction/modernization and operation of transmission lines cause small environmental impacts during their implementation, resulting in both positive and negative consequences.

7.2. Positive effects of the impact

7.2.1. Employment and improved service delivery.

- 426. The implementation of the project will lead to a partial increase of employment in 11 regions of the Republic and in Tashkent city as the labour force will be involved in the construction phase in these regions and the operation of both new substations and transmission lines as well as the modernized substations.
- 427. It is envisaged that for the successful implementation of the project, the NEGU will be staffed with additional personnel with appropriate skills for the maintenance and operation of relevant hardware and software. In particular, it is envisaged that the following personnel will be required: system administrator, programmer, maintenance mechanic, maintenance engineer, managers, RPAE service personnel with knowledge of modern technologies, etc. The labour market makes it possible to provide the project at the operational stage with appropriate labor resources.
- 428. The NEGU will hire managers and technicians who will work with a contractor who will also provide training in the operation and maintenance of the "digital substation". All parties will share responsibility for the successful commissioning of this facility. This approach will enable local staff to acquire the necessary skills and knowledge to operate the facilities once the project is complete.
- 429. In addition to highly qualified personnel for capital and current repairs of the main power equipment, the "digitalization" of the substation necessitates new professions for the maintenance of modern RPAE, APCS. In order to solve these issues, NEGU, together with the consultants hired at the beginning of the project, should determine the list of personnel, their qualification requirements, as well as draw up a training programme, including internships at similar facilities abroad.
- The construction and operation of the project facilities will create a certain number of jobs for the local population. This will have a positive impact on local socio-economic development.

7.2.2. Improving economic growth and increasing the reliability of electricity supply.

- 431. Long operation of energy equipment leads to the existing increase in fuel consumption for electricity and heat generation, deterioration of reliability indicators, and reduction of maneuverability. One of the solutions to the problem is the gradual withdrawal of obsolete equipment and commissioning of modern equipment, which ensures:
 - uninterrupted supply of electricity to consumers in the region;
 - gradual introduction of modern and efficient technologies for electricity transmission and distribution;
 - contribution to the electric power security of the Republic of Uzbekistan;

- contribution to stable development of the social sphere of the region with creation of additional jobs;
- reliable supply of electricity to the housing and utility sector and industrial enterprises of the region.
- 432. It should be noted that in recent years consistent work has been carried out to modernize and technically upgrade generating capacities, transmission lines and transformer substations, aimed at reliable supply and improving conditions for electricity supply to major consumers in the country.
- 433. Increased efficiency and reliability of electricity supply as a result of the project will have a positive impact on economic growth and poverty reduction in the region. The Project will improve the financial sustainability of the energy sector by reducing technical losses as well as lost profits from electricity under-supply. The Project will enhance the transmission and load management capacity of the NEGU. All this will contribute to increasing the stability of the energy system and reducing the number of power outages, which will be an important point for increasing economic activity and creating employment opportunities for the population of the Republic of Uzbekistan.
- 434. The implementation of this project will:
 - increase the reliability of electricity supply to consumers in Tashkent city and regions of the Republic, including the population, taking into account the growth of perspective demand (loads), developing social facilities, industry, new production facilities, as well as ensure the proactive and advanced development of main power grids to create conditions for the development of the region, creating opportunities to connect loads of newly commissioned facilities in the power system to the load center;
 - reduce electricity and grid deficits due to increased demand;
 - improve the reliability of the transmission grid;
 - ensure the transmission of generated capacity from the power plants to the main substations;
 - more reliable energy supply and reduction of power outages for further economic development in the region;
 - increase network capacity to promote expected load growth and transit, next generation connectivity, in the context of increased capacity in Uzbekistan;
 - improve the reliability of the regional network, the overall security of electricity supply and the operational problems of the system, such as stability;
 - reduce technical losses in the transmission system;
 - improve the quality of electricity supply (normalization of voltage levels, stabilization of load flow and frequency fluctuations, etc.).

7.3. Potential negative impacts

The project will create a number of environmental impacts and risks (the below is presented in a representative/generalized manner, and detailed assessment of sub-project specific impacts is to be done at ESMP stage):

7.3.1. Waste generation

- Waste generation will occur during the construction phase and during dismantling of rooms and individual elements of the structure at the SBS, installation of OHTL.
- 437. Soil waste from site preparation will be generated during construction activities during the construction of power lines, substations, which will be used for backfilling of trenches and pits. In addition, ferrous metal waste, residues of welding electrodes, concrete, reinforced concrete, waste mixture of mixed hardened plastics (paint packaging), paint waste, cleaning material contaminated with oils (oil content less than 15%), MSW (unsorted waste from temporary household premises, excluding bulky waste).
- 438. Storage of such waste in areas close to settlements and untimely or inappropriate disposal can

affect air quality, dust production and impact on neighbouring communities.

- The following types of waste will be generated during substation operation, repairs and OHTL installation: ferrous metal scrap, aluminium scrap; copper scrap, lead scrap, brass scrap, rubber scrap, waste silica gel, waste transformer oil, waste compressor oil, welding electrode stubs, cleaning material contaminated with oil products (oil content less than 15%), uncontaminated paper waste, waste paper and paper filters, waste LED lamps (not containing mercury). Municipal waste is expected to be generated from staff activities.
- When the LED lamps used for lighting office premises are activated, waste is generated in the form of used LED lamps (which do not contain mercury). There is an oil storage facility on the substation premises provided for the regeneration of transformer oil. The main part of the used oil is supposed to be regenerated on the territory of the central oil farms of the MES. Oil regeneration generates used silica gel, which is temporarily stored in polyethylene bags and then taken to a designated landfill site.
- 441. There is an electric welder on its premises to service the SBS equipment, which generates welding electrode residue during operation.
- 442. The SBS has air compressors that produce waste compressor oil in their crankcases during oil changes. Part of the waste compressor oil is reclaimed and part is sent to the relevant oil recycling facilities for disposal. In addition to this waste will also be generated, generally most of the waste that will be generated at this stage is recyclable waste, and its timely and proper disposal will ensure a minimal impact on the environment. Construction waste as well as other waste (paper, glass, plastic, etc.) should be classified in separate containers. Waste sites should be carefully selected at the construction site and waste classification rules and recycling rules should be prepared in environmental management plans.
- 443. Waste generation rates are determined on a case-by-case basis. Waste shall be collected and stored in designated areas and containers.
- 444. The contractor collects and temporarily stores MSW and industrial waste generated during demolition and construction works in specially arranged places with subsequent removal to specialized organizations for disposal in accordance with the concluded contracts. The contractor bears full responsibility for the sanitary, epidemiological and environmental situation to the customer and the inspecting authorities. The environmental impact from the use of waste collection and disposal measures during dismantling and construction works is unlikely to be significant.
- 445. Since there is a possibility of traces of PCBs in the existing transformer oil, in September last year at the initiative of "NEGU" JSC, testing of transformer oil samples for polychlorinated biphenyls (PCBs) content was carried out in the specialized chemical laboratory of TashGorMES branch at "Ozodlik" substation. Testing of transformer oil for PCBs content was carried out using the tester (gas chromatograph instrument) of transformer oil HS-8900 CHI (BU-V1307), manufactured in China, the company "Shanghai Huishi".
- 446. The test samples, 2 samples of the transformer oil (5 mg each), were taken at transformer substations within the framework of the project of modernization and reconstruction of main substations. During sampling it was ensured that there was no loss of detectable PCBs and the possibility of introducing additional interfering substances into the sample of the analysed transformer oil was excluded. The samples were stored in a dark place at a temperature of 2°C to 5°C.
- 447. The PCB analysis was carried out by a specific method, the specific method includes gas chromatography and mass spectrometry. This method is more accurate for the determination of PCBs.
- 448. Transformer oil testing for the presence of PCBs is an analysis of separation technology and analysis of multicomponent mixtures. It mainly exploits differences in the boiling point and polarity of the sample and the adsorption coefficient of the PCB tester column so that the different components in the PCB tester column can be separated and analysed qualitatively and quantitatively. Gas chromatography separates the components of the mixture and allows an electron capture detector to detect any component containing chlorine, including PCBs.
- 449. Given their unique retention times, PCBs can usually be isolated from the chlorine group using this technique. If closely related components are present in the sample, a mass spectrometry detector can identify PCBs and confirm their authenticity. The advantage of this method is the accuracy of the results and the ability to identify types of PCBs.

- The transformer oil board tester uses gas as the liquid phase (carrier gas). When the sample is fed into an injector (injection) and gassed, it enters a silica gel packed column or capillary column with carrier gas transfer due to differences in boiling point, polarity and adsorption coefficient of the sample, the different components in the column will be separated. Then detect the components on the column after the detector according to the physical and chemical characteristics of the components. Finally send it to a PCB test workstation via a local network, record and analyse the components of the gas chromatogram with the PCB test workstation and obtain a component analysis report.
- The analysis is carried out in accordance with the instrument operating manual under the conditions in which the instrument has been calibrated. Mass chromatograms are recorded, retention times are recorded and peak areas of the first and/or second selected analyte ions are measured. Test method:
- Connect the HS-8900 to a nitrogen-filled cylinder (N2 accuracy -99.999%) for a minimum of 6 hours before starting the test.
- After 6 hours, turn on HS-8900 and connect to computer for N2000 chromatogram program.
- Leave the instrument on for 2 hours.
- The instrument displays the following readings:

COL-250° - Temperature of the interior of the instrument

INJ1-280⁰ Injection temperature

DET- Temperature of test

- After the temperature equation, press start "BaseFlow"
- From each type of transformer oil take a sample of 0,2 g oil and mix it with 10 ml of H-Hexane (C6H1-99,999%) in a test tube.
- Take 0.1 ml of transformer oil + H-Hexane in a special syringe and inject it into the instrument.
- Simultaneously turn on the instrument in the computer program N2000.
- After 40 min. The results of the chromatogram appear on the computer screen.
- Time interval between tests 1 hour.

Test results:

Name of equipment: "Yulduz" substation Autotransformer 125 MVA T-1,T-2

Quantity, sample volume: 2 samples, 5 mg.

Instrument typ: CHI-made HS-8900 transformer oil tester (BU-V1307)

Name of the indicator to be	Unit of	Test results	PCBs by RD34 not
determined	measure.		exceeding
Polychlorinated biphenyls (PCBs)		1,5176	50
	ppm	1,5176	50

Name of equipment: "Yuksak" substation Autotransformer 125 MVA

Quantity, sample volume: 1 sample, 5 mg.

Name of the indicator to be	Unit of	Test results	PCBs by RD not
determined	measur e.		exceeding
Polychlorinated biphenyls (PCBs)	ppm	14,2977	50

Name of equipment: "Adolat" substation Autotransformer 200 MVA Quantity, sample volume: 1 sample, 5 mg.

Name of the indicator to be	Unit of	Test results	PCBs by RD not
determined	measure.		exceeding
Polychlorinated biphenyls (PCBs)	ppm	0,6346	50

³⁴ RD - regulatory documentation.

Name of equipment: "Sokin" substation Autotransformer 125 MVA

Quantity, sample volume: 1 sample, 5 mg.

Name of the indicator to be	Unit of	Test results	PCBs by RD not
determined	measure.		exceeding
Polychlorinated biphenyls (PCBs)	ppm	0,8253	50

- 452. Based on the above test results of the four autotransformers of different capacities, the PCB content in the transformer oil is below 50 mg/kg according to the RD, thus the transformer oil is considered non-toxic and therefore poses no risk to the environment. At the same time the transformers will be monitored in special warehouses for subsequent maintenance work. Every 2 years transformer oil must be tested for PCB content in order to avoid biodegradation, PCBs can accumulate in soil, water and atmospheric air and subsequently lead to environmental pollution.
- 453. PCBs (polychlorinated biphenyls) are one of the most common POPs chemicals. PCBs can cause serious harm to the environment and health, including carcinogenicity, loss of reproductive function, changes in the immune system, and loss of biodiversity.
- 454. Existing PCBs and all PCB-contaminated equipment must be disposed of by 2028 in an environmentally sound manner and without harming people and the environment. Most PCB-contaminated equipment is still in use in developing countries.

7.3.2. Air pollution.

- During construction/installation works, the impact on atmospheric air is determined by: exhaust gases from vehicles and construction machinery used for delivery of equipment and construction materials; during construction and installation works for construction of supports; inorganic dust during excavation works; welding aerosol, manganese compounds during welding works; organic solvent vapours, paints and varnishes aerosols during painting works. In other words, emissions are mainly from mobile vehicles and unorganised sources.
- 456. During construction/installation works, the impact on atmospheric air is determined by: exhaust gases from vehicles and construction machinery used for delivery of equipment and construction materials; during construction and installation works for construction of supports; inorganic dust - during excavation works; welding aerosol, manganese compounds - during welding works; organic solvent vapours, paints and varnishes aerosols - during painting works. In other words, emissions are mainly from mobile vehicles and inorganic sources. Particular care should be taken when coming into contact with toxic asbestos dust which can be generated when dismantling the roofs of buildings at SBS containing asbestos insulation gaskets. Personnel should wear protective masks. Rules for working with asbestos materials and precautions are given in Annex 2. Negative impacts can be prevented by applying best construction practices and appropriate mitigating measures. There is no atmospheric pollution during operation of the 220 kV and 500 kV overhead lines after construction is completed. During the operation of the substation, the release of oil hydrocarbons from the non-densities occurs during the operation of oil-filled equipment (current transformers, voltage transformers, reactors). In order to compensate for the loss of oil hydrocarbons due to evaporation from non-densities, oil topping up is carried out. The release of hydrocarbons into the atmosphere is not organized.
- 457. The release of pollutants (iron oxide and manganese compounds) in the substation area also occurs as a result of electric welding machine operation. The manual electric arc welding station provides current and overhaul repairs of machinery and equipment.
- 458. Based on the above, the impact on atmospheric air is insignificant with reversible consequences.

7.3.3. Noise impact

Noise impacts may occur mainly during equipment operation and truck movements. Noise levels are not expected to exceed the prescribed limits during project activities. Noise pollution can be mitigated through the use of recommended measures. Given the specific nature of the project, vibration is not expected to affect human health and structural durability as there will be no activities generating

significant vibration. To ensure acceptable noise levels in residential areas in Uzbekistan, Sanitary Rules and Regulations № 0267-09 apply. This code establishes allowable noise parameters for residential and public buildings and residential developments in settlements created by external and internal sources, with noise levels not exceeding 55dB (average) during the day and 45dB (average) at night. May arise mainly from equipment and truck traffic. It is not expected that noise levels may be exceeded during project activities. Noise impacts can be mitigated through the use of recommended measures. Given the specific nature of the project works, vibration is not expected to affect human health and the integrity of structures as no works generating noticeable vibration will be carried out.

- In order to reduce the negative impact of noise in the workplace, workers must use personal protective equipment anti-noise equipment meeting the requirements of GOST 15762-70, if it does not contradict the requirements of safe work performance. Noise impact will not exceed normative values: 45 dBA in residential area according to KMK 2.01.08-96 and 80 dBA at work places during construction and preventive maintenance works during operation of 220-500 kV OHTL and electric substations according to SanPiN № 0325-16 "Sanitary norms of permissible noise levels at work places"
- 461. All the noisiest construction operations for the installation of supports near residential buildings, in particular all earth moving work, should be restricted to daytime hours.
- Thus, noise associated with construction activities will be of a temporary and intermittent nature and will not exceed the noise standards.
- During OHTL operation, noise is caused by corona discharge on the wires. According to the design, the wires have been selected in such a way that the voltage on the wire surface does not exceed the initial corona discharge voltage. However, irregularities on the wire surface due to mechanical damage (burrs, scratches), contamination (grease drops, solid particles), precipitation (drops of rain, dew, snow, etc.) lead to a local increase in the electric field strength. As a result, corona discharge occurs on overhead line conductors at a voltage lower than that of an independent discharge on clean, undamaged conductors. Therefore, OHTL noise can also be heard in good weather, but is particularly amplified when it rains. The expected noise level at a distance of 100 m from a 220 kV OHTL is 17.70 dBA, which is lower than the permissible noise level of 45 dBA. No noise protection measures are required, as the noise level at the boundary of the nearest residential buildings does not exceed the permissible level according to KMK 2.01.08-96.

Impacts from vibrations are expected:

- during soil and pavement compaction;
- during the operation of demolition hammers;
- during compaction of concrete mixes;
- during the operation of conveyors to move bulk materials, e.g. sand.
- Vibrations associated with construction work will be temporary and intermittent, and vibration impacts will not extend beyond the boundaries of the worksite.

7.3.4. Magnetic field impact

- During OHTL operation, the expected maximum magnetic field strength will be 7.76 A/m, which is well below the permissible standards. The MPLs for magnetic field strength are based on occupancy. In accordance with hygienic requirements, eight hours' stay of personnel in a magnetic field of intensity up to 80 A/m for general exposure (to the whole body) and up to 800 A/m for local exposure (to extremities) is allowed).
- 466. Consequently, the impact of the overhead transmission line on the environment in terms of magnetic field strength is within the norm, no measures are required to protect personnel and the public from the magnetic field generated by EMF sources from the overhead transmission line wires.

7.3.5. Electric current impact

467. Construction of 220 kV and 500 kV OHTL is carried out in such a way that the impact of electric voltage and current is limited to the dimensions of the sanitary protection zone. Accepted design parameters of poles, conductor cross-sections, distances between phases and between phases and the

ground ensure the level of electric field intensity meeting the international requirements and exclude corona on wires. Dimensions from conductors to the ground and other constructions taken in accordance with EIC comply with biological norms.

- According to "Sanitary norms and rules for protection of population from impact of electric field created by overhead transmission lines" (SanPN 2971-84), the minimum boundary of the sanitary protection zone of 500V OHTL is defined as 30 m from the outermost wire, with no means of reducing the electric field strength on either side of it. The maximum permissible levels of electric field strength are 15 kV/m (SanPiN para. 3.1 block 5).
- The impact of electric current along an overhead line can be felt by maintenance personnel, as well as by people and animals when potential is removed from the earthing devices when short-circuit currents and lightning are flowing through them. The damaging effect of electric current on the human body is characterized by the cessation of heart, respiratory and nervous system operation and in extreme cases it can lead to death. According to GOST 12.1.038-82 the norm of electric current passing through human body without any harmful effect on health is 0.3 mA in case of accident-free operation of electrical equipment and 6 mA in case of emergency operation and duration of impact more than 1.0 sec.
- The support structures meet the requirements of the occupational safety standards system. To ensure the safety of repair and maintenance work on 220 kV OHTL, a protective earthing device is provided. The supports are designed in accordance with the system of occupational safety standards.

7.3.6. Pollution of surface watercourses, groundwater, soils.

- 471. Earthworks, oil storage, storage of hazardous materials will be sources of river water pollution if the watercourse is nearby. Oil spill, improper storage of hazardous materials, construction debris and household waste can cause chemical contamination. All fuel and chemical storage areas (if any) should be sealed inside the bund and protected by fencing. The storage area shall be located away from any watercourse or wetlands. The base and walls of the bund shall be impervious and have sufficient capacity to contain 110% of the volume of the tanks. Disposal of lube oil and other potentially hazardous liquids into the ground or water bodies is prohibited.
- 472. Impacts on surface watercourses. The main impact on surface watercourses may be associated with the construction of proposed OHTL routes that may cross multiple channels, collectors and sais (mountain streams). The characteristics of the watercourses to be crossed allow for a single span crossing and preclude the installation of intermediate supports in their floodplain and channel section. The absence of works in the floodplain-channel area will avoid impact on channel morphology, groundwater and surface water as well as floodplain biocoenosis and ichthyofauna.
- Thus, the design decisions regarding the selection of the surface watercourse crossing sections of the 220-500 kV OHTL route will ensure that no impact on surface water during construction works will occur and that the route will be safely operated in the river channel and the riparian zone.
- In the event of an accidental spillage, immediate clean-up will be carried out. All treatment materials must be stored in a safe place at a site where hazardous waste disposal is permitted. The surface water treatment plan must be carefully planned during the feasibility study to meet the discharge water quality standard. A sedimentation basin, neutralization tank, reserve pond should be prepared taking into account flooding. The plan shall be included in Site Specific Environmental Management Plans.

7.3.7. Land resource pollution.

- The main impact on land resources is soil contamination by construction waste and grease and pit latrine waste. Appropriate areas should be prepared for the collection and storage of construction waste and sediments to reduce the negative impact on the environment. Mechanical disturbance of relief occurs during construction works for excavations for support foundations, construction of assembly platforms and temporary roads.
- In the flat relief along the route, the impact is assessed to be minimal. Temporary excavation, followed by backfilling and compacting of the soil, excludes the creation of additional micro- and mesorelief forms. The impact on the relief in the flat part of the area is assessed as reversible. Soil

removal is excluded due to the complete use of soil from the excavation during backfilling, leveling and return of the upper humus horizon as a remediating layer at the site of the backfilled excavation.

- In areas where sands are present, the stability of the supports may be reduced, requiring the use of 0.1 m thick reed mats to secure the sands around the supports.
- 478. Thus, no impact on soils and groundwater is expected along the projected 220 kV OHTL route.
- When erecting a small shelf for the support in loess soils, the most dangerous negative processes are subsidence and erosion. The following measures will reduce the probability of erosion and subsidence at the support site:
- installation of footing areas in the watershed;
- installation of footings outside of known erodible slopes and erosion rills;
- compaction of the soil in the excavation during backfilling.
- 480. An important measure is to preserve the fertile humus horizon and turf. For this purpose, it is intended to remove the top 10-15 centimetre soil horizon, in which the bulk of the roots of ephemers and ephemeroids and sod grasses are preserved, before starting work on the site for the footing. The layer is stored in a heap at the edge of the work area and after the installation of foundations, backfilling the excavation and compacting the backfill soil, it is placed on top, as a reclamation horizon. Around the area of the excavation where the machinery was maneuvered, sod grass is sown.
- 481. Overall, across the entire route, impact on topography, loess-like soils and groundwater, permissible.
- During regular inspections of the OHTL equipment along the route during its operation, it is necessary to monitor the stability of the ground at the site, above and below the slope, in order to timely identify the manifestation of shrinkage, landslide, erosion processes, and in case of detection of negative slope processes to immediately carry out works on soil stabilization.
- 483. The contractor shall take all practicable measures to prevent degradation and erosion of soil, streets, roads, orchards and fields. The use of heavy machinery shall be limited as far as possible to avoid land compaction. Some project areas have hillsides, so construction of power lines on hillsides can cause gully erosion, which will spread and water runoff can transport land masses to settlements. Soil erosion and slope instability should be addressed by backfilling trenches, terracing hillsides, planting trees and building sediment retention fortifications.
- Worker and vehicle exclusion zones must be clearly defined and marked. These include areas with large trees, cropland or fruit trees, wetlands, physical cultural resources (e.g. graves, monuments), and sensitive environmental or social features identified by the project.

7.3.8. Asbestos dust pollution

- Asbestos dust from the removal of old roofs, rehabilitated/reconstructed buildings can cause serious health hazards to people living in houses near or in the vicinity of construction sites.
- 486. In such cases, the contractor should develop a specific Asbestos Containing Material Management Plan before carrying out construction work, using the template provided in Annex 2. The Asbestos Containing Materials Management Plan (ACMMP) describes and assesses the risk that contractors (and others) will encounter asbestos containing material (ACM) on Project construction sites during the Project phase; and it provides a procedure for the prompt and safe handling of any ACM that may be found. WB ESS 3: Resource Efficiency and Pollution Prevention requires that World Bank financed projects apply pollution prevention and control technologies and health and safety measures consistent with international best practice as reflected in international standards such as the IFC/World Bank General Health, Safety and Environment Guidelines (2007). Where national legislation differs from these standards, the Receiver is required to comply with more stringent requirements. There is a national procedure of Sanitary Norms and Rules (SanPiN) of the Republic of Uzbekistan № 0300-11 of 2011 "Organization of collection, inventory, classification, utilization, storage and reuse of industrial waste in the conditions of Uzbekistan" covering disposal of ACM in Uzbekistan. However, the procedure provides a clear description of the treatment of ACM, so the ACMMP follows the recommendations of the World Bank Guidelines.
- 487. The basic principles of the ACMMP are (i) prompt and effective action to limit and properly

manage ACM (including safe management and disposal); and (ii) the ongoing maintenance of the safety of site personnel and the general public. The ACMMP is intended to be used by the contractor, RPIUs and Project Implementation Unit (PIU) to manage the ACM risk of the project as a whole, and by contractors to effectively address any ACM issues they or their workers face. The procedural element of the ACMMP is therefore intended to provide unambiguous instructions that can be easily and quickly understood without the need for specialist knowledge and without reference to other sources.

7.3.9. Vegetation loss

- 488. Pruning trees to accomplish ESMP is requested. Depending on the density of plantings some trees will be removed under new TL. The Receiver will be responsible with the maintenance and removal of trees and other vegetation that might endanger the safe and reliable operation of poles and lines for the delivery of electricity.
- 489. When trees are dead or unhealthy, the NEGU representatives will discuss with the adjacent property owner the possibility of removing trees. A tree may have a defect(s), which might cause it to fail. In case if some large-growing trees are so close to the lines and have to be pruned so severely that it becomes necessary to take the tree or trees down.
- 490. Situations where tree removal may be preferable to line clearance pruning include:
 - Tall- or fast-growing species growing directly under the lines that require frequent pruning and will never be allowed to achieve any sort of natural form.
 - Saplings and brush under the lines, which have the potential to grow into the lines or clearance limits.
 - High-risk trees with a potential to fall into the lines or any other equipment such as transformers and poles.
- 491. The amount or distance cleared is determined by the amount of voltage the line carries; the greater the voltage, the greater the clearance required to meet national requirements and maintain safe distances. For example, a transmission line carrying 500/220 volts or more will require a 50-30 meters distance between the center point of the lines and the vegetation.
- 492. These distances are mandated by the Occupational Safety and Health Administration (OSHA) standards to protect NEGU specialists from injury and death.

7.3.10. Impact on biodiversity

- 493. No impacts on wildlife are expected during reconstruction/modernization of the existing substations.
- Impacts on some groups of animals and birds are expected along the entire length of the route during construction works and operation of the overhead line. The intensity, degree and scale of impact on individual species of fauna will vary due to differences in habitat ecology, food base, life regime.
- 495. Habitats of various animals, mainly rodents, lizards, amphibians and fish living in the river and birds nesting in the emergent aquatic vegetation and trees and shrubs growing along the projected power lines will be temporarily disturbed.
- 496. Once construction works are completed, the area will attract nocturnal animals as well as birds and reptiles. Thus, the impact on animals will be mild in severity and reversible.
- During the operation of 220-500 kV overhead lines, the impact of high voltage can be seen mainly for birds that use the supports for resting and less frequently for making nests. In general, the overhead supports are not favorable places for birds to nest, as the high voltage electric field causes disturbances of some physiological processes.
- 498. Negative consequences for birds using overhead line supports for temporary resting occur when they take off and touch the wires and the traverse with their wings. In this case, birds are killed by electric shock.

- 499. To prevent death and illness of birds that use OHTL towers for resting and nesting, special bird deterrent devices in the form of ruffs, prickly three-leg trident, spring structures that create temporary vibrating effects are provided on the supports. More recently, special colored umbrellas have been adopted, which are mounted above the strings. They not only deter birds by their bright color, but also protect the strings from being contaminated by droppings, which prolongs the operation of OHTL without additional cleaning and emergency shutdowns.
- 500. Direct impacts related to disturbance of dwellings and partly to destruction of foraging habitat may be related to species such as small birds, rodents, medium and small mammals.
- Impacts associated with the destruction of animal dwellings will be limited and localized, as the excavation and road-shelf works will occupy small areas. However, areas with dens and other types of animal dwellings will need to be avoided when pads and road shelves are being constructed.
- 502. In order to reduce the impact on the young stock during brood rearing and feeding, construction work should be carried out in late summer and autumn.
- 503. All fauna groups are expected to be affected by construction noise. Noise impacts from construction equipment will be intermittent, not intense, increasing slightly once the equipment arrives at the site. Due to the gradual increase in the volume of work associated with the arrival of machinery, noise as a disturbance factor will allow animals to migrate a safe distance away from the construction site.
- 504. Impacts on ichthyofauna of surface watercourses crossed during construction of the OHTL route are avoided due to the use of a single span crossing, without crossing supports and construction works outside the water area, at 60-100 m from the water edge.
- The impact on the animals of the agricultural irrigated area is low in intensity, as there are almost no valuable wildlife species among the agricultural lands. In order to preserve the biodiversity of animals that live near irrigated land and among fields, construction work on the OHTL route should be carried out in spring, before ploughing starts in the areas allocated for spring crops, and in autumn, before the start of agricultural work, in the areas allocated for winter crops.

7.3.11. Impacts related to the withdrawal of natural resources from the environment

- This project assumes that the modernization of the existing substations will not require additional land acquisition and all works will be carried out within the substation area.
- The construction of new substations and OHTL is associated with land alienation, and during the construction period tens of times more land will be allocated for temporary use of the overhead lines than for permanent use during operation. Alienation of land for the planned 220 kV and 500 kV OHTL is performed in accordance with KMK 2.10.08-97 "Norms of land acquisition for electric networks of 0,4 750 kV". A disorderly location of OHTL structures may affect agriculture and compromise the integrity of fields and forage land.
- 508. The project defines the land areas allocated for permanent use for OHTL supports and the land areas provided for temporary use for the construction period, which are defined as the sum of the areas of the sites for installation of the supports and the strip along the OHTL route.
- 509. Different types of land (mainly cultivated land used in agriculture (arable land) as well as non-cultivated land not used in agriculture) are being set aside.
- 510. The land allocation is calculated based on the norms of land allocation for 0.4-750 kV electric networks (according to KMK 2.10.08-97), taking into account the distance between supports of 300 350 m. When constructing overhead lines of 220 kV or 500 kV, protective zones are provided in the form of a 20 m or 30 m wide strip in each direction from the outermost wire, within which any kind of construction work is prohibited. At the same time, tree and shrub plantings of 3-5 m in height are allowed, while the width of the operational corridor under the overhead line is 2.5 m.
- 511. At the end of the construction period, land designated for temporary use must be returned to the land user after the necessary remediation work has been carried out on the disturbed land.
- The project envisages measures for the restoration of land taken for temporary use: remediation and re-vegetation, backfilling of excavations and trenches with soil, turfing of slopes and side slopes.

- 513. Compensation for the land to be alienated for permanent, temporary use and in case of the distrubance of land access use will be made immediately prior to construction. Costs will be determined in a RAP developed on the basis of the project RF.
- 514. Natural resources used as construction materials (gravel, sand, gravel) are expected to be withdrawn during the construction phase. Gravel, sand, gravel is expected to be delivered by road, mainly when purchased from trade organizations.

7.4. Chance finds

- Historical monuments or cultural objects may be discovered on project sites during excavation works, especially when excavating for trenches as part of substation and overhead line construction/rehabilitation sub-components. A representative of the regional or city Inspectorate for Cultural Heritage Protection shall be monitoring the works at the project sites during construction time. In case of archaeological discoveries, the ESMP requires the publication of special notices, cessation of works and compliance with excavation procedures.
- Some historic monuments and sacred burial sites may not yet be known, or may be known only to local residents and not included in official lists. The use of land with tangible cultural resources ("archaeological, palaeontological, historical, architectural, religious, aesthetic or other cultural significance") shall not be allowed for the project in order to avoid conflicts between individuals and communities. The Contractor shall protect any valuable landscapes and sites, including archaeological and palaeontological remains. If such remains are discovered during the works, the "Chance finds" procedure developed under the ESMP will be applied and included in the Contractor's contract. An announcement must be made to the relevant authorities and permission obtained to proceed with the work after the inventory or inspection of the remains. Construction work may not be carried out within 100 m of archaeological remains without prior permission. A more comprehensive inventory of the tangible cultural resources in the project areas, including verification of the feasibility of local sites with relevant local stakeholders, is therefore necessary during the detailed design, ESIA/ESMP phase.

7.5. Health and safety of workers and community

- For workers Safety and health non-compliance may create a risk for construction workers. The Contractors will have to follow Occupational Safety and Health rules, which include among others strictly implementation established norms and procedure H&S which depends on type on conducting works, usage of PPE (Personal Protective Equipment), training activities and monitoring. In addition, all workers need to be introduced to working procedure with hazardous materials (such as asbestos materials, etc.). Contractors have to provide workers with appropriate living conditions: safe water supply, washing conditions, rooms for rest and etc.
- For community Inadequate lighting and fencing of construction sites inside of settlement areas can be dangerous for pedestrians and vehicles especially during the night time. Increase of traffic due to trucks and vehicles movements to construction sites may cause inconvenience for local population as well. In addition, some construction/rehabilitation activities will cause temporary blockage of household access. 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. Moreover, a movement of heavy tracks may destroy or deteriorate conditions of roads inside settlements. ESMP will include all mitigation activities to prevent these risks.
- Security Forces It is anticipated that during construction and operation phases(more likely during the operation of the substations workers will be contracted to ensure the safety of personnel and property, they will assess the risks posed by these safety measures to those inside and outside the construction site of the project. In order to avoid such risks, it will be necessary to strive to ensure that the employees of the State Security Service deployed to ensure security act in accordance with the Resolution of the Cabinet of Ministers No. 60 of March 1, 2012 The NEGU will assess the risk of using security forces is supposed to ensure that the security personnel acts in accordance with national law and GIIP, and only use force for defensive purposes.
- 520. The summary of the potential environmental and social risks and impacts during the implementation of the project, along with the overall mitigation measures, is presented in Table 19 below.

7.5.1. Traffic and safety on construction sites

- 521. The Contractor shall plan how to avoid safety problems related to traffic and excavator operation at the work sites and during transport of materials. Traffic planning is necessary to minimize the negative impact of project traffic on all settlements affected by construction. This includes measures to minimize disturbance to existing road infrastructure, settlements adjacent to the road network and natural resources as well as measures to prevent damage to household and community property.
- Planning of roads as well as safe work areas, parking areas and maintenance areas for trucks and excavators must be carried out before work commences. Planning shall include the access route and entry points to the construction site without affecting households and associated structures, cultivated land, fruit trees or any other potential source of income. Access to commercial and residential properties must be maintained.
- 523. The Contractor shall provide, install and maintain road signs, road markings, lights, barriers and traffic signals and other measures as may be necessary to ensure traffic safety around the Project construction sites. Rehabilitation works may require the closure or rerouting of some existing public or private roads or footpaths, either permanently or for a temporary construction period. Residents of communities affected by traffic are encouraged to provide sufficient information on the impacts of project-specific traffic. In cases where the roads that children use to get to schools are used for traffic safety, traffic safety education should be provided in schools.
- 524. During the construction phase of the Project, air pollution in the form of dust may occur as a result of truck traffic. This problem can be solved by setting a speed limit of 30 km/h on untreated roads in dry conditions.
- 525. Injury or fatal accidents resulting from road traffic crashes should be prevented through site planning, warning signs, barriers and driver training. Environmental and safety training for drivers should also include emergency response.

7.6. Greenhouse gas emissions

- According to the World Bank experts, the project will improve the efficiency of the energy sector by reconstructing 22 priority substations in Tashkent and in 10 regions of the country. By improving efficiency and reducing electricity losses, the project will contribute to the reduction of greenhouse gas emissions equal to the annual energy consumption of over 6 million households in Uzbekistan.
- Uzbekistan is endowed with enormous renewable energy potential, including hydropower, solar and wind energy³⁵. Of these potentials, hydropower is the most developed, with an installed capacity of 1,800 megawatts (MW), representing 13.5% of the total installed capacity. This represents only 20% of the country's technical hydropower potential. To improve the country's energy security and reduce greenhouse gas emissions, the government has adopted an investment programme of USD 2.6 billion to increase hydropower capacity to 3,000 MW by 2025³⁶. The commissioning of new hydropower projects, in addition to reducing greenhouse gas emissions, will further reduce the path in the cost of electricity. Economic opportunities to increase gas exports and improve the reliability and efficiency of the power system will be additional benefits.
- 528. Electricity consumption in Uzbekistan is estimated to double by 2030 [117 terawatt hours (TWh)]. If this growth is caused by burning fossil fuels, especially natural gas, it will lead to an even greater increase in carbon dioxide emissions. Given that 90% of carbon dioxide emissions come from the energy sector, the greater problems of environmental sustainability and response to climate change will remain critical if the sustainable use of clean and renewable resources by indigenous peoples is neglected.

World Bank or Asian Development Bank (ADB). 2012. Central Asia Regional Economic Cooperation: Regional Energy Sector Master Plan, Manila (TA 7335-REG).

³⁶Government of Uzbekistan. 2017. Decree of the President of the Republic of Uzbekistan № PP-2947 of 2 May 2017 "On the Program of Measures for the Further Development of Hydropower for 2017 - 2021". Tashkent.

In 2018, Uzbekistan renewed its plans and commitments to adopt cleaner energy by ratifying the Paris Agreement, following the announcement of the first scheduled national contribution in 2017. Uzbekistan's energy policy is shifting towards low greenhouse gas (GHG) emission pathways, an emphasis on energy efficiency and deployment of renewable resources with the aim of doubling the share of renewable energy by 2030.

7.7. Measures for adaptation and climate change

- The national energy, industry and transport reports highlight several climate change adaptation measures:
- Legislation. Improving the regulatory framework for municipal building and road construction;
- Infrastructure. Improving the reliability of infrastructure sectors (transport and communication, electricity system, heating system, water supply system, gas and oil pipelines);
- Technology and infrastructure. Improve access to electricity for the population of small remote settlements, taking into account the negative impacts of climate change;
- Adjust hydropower operation methods to take into account changes in water flow and projected climate impacts;
- Universal training and capacity building. Training programs to carry out adaptation in these sectors, including professional and managerial development;
- Science and information. Using the latest climate data during the analysis of natural compounds of petroleum products and natural gas, when assessing the value of fuel standards and lubricants);
- Analysis of the status of hydropower and other energy sources in the country;
- Creation of special climate zones and development of new approaches to climate integration;

Actions on the substance of the problem. The Draft Framework for Adaptation to Climate Change in Kazakhstan (UNDP, 2010) proposes three main recommendations for these sectors:

- Strengthening the reliability of the infrastructure sectors of the economy (transport and communications, electricity);
- Improving the regulatory framework for municipal road building and construction;
- Improving access to electricity in small remote settlements, taking into account the negative impact of climate change.

Table 19. Potential Environmental and social impacts of the project and proposed mitigation measures³⁷

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	COMPONENT 1: DIGITALIZATION C	F THE ELECTRICITY TRANSMISSION	N SECTOR
1	1. Introduction of new digital technologies	Generation of waste packaging materials	Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1).
	2 Installation of telecommunication systems	Impact on operating personnel when installing telecommunication systems	 ✓ Compliance of health and safety regulations; ✓ Compliance with the rules for earthing elements of telecommunication distribution systems. ✓ Compliance with relevant regulations and instructions to ensure electrical and fire safety.
		Waste generation	✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1).
	3. Establishment of a fibre optic network for the introduction of modern control systems	Land acquisition;Land disturbance	Land allocation for designed fibre optic networkis performed in accordance with KMK 2.10.08-97 "Land Allocation Norms for 0.4 - 750 kV Electricity Networks". At the end of the construction period, land designated for temporary use must be returned to the land user after the necessary work to reclaim the disturbed land has been carried out. Compensation for land a lienated for permanent use will be made immediately prior to construction. Costs will be determined on in an RP developed on the basis of the project RF.

³⁷ These are generalized impacts and mitigation measures, and the specific impacts, mitigation and monitoring measures will be developed for each subproject including the preparation of ESIA and ESMPs for the new T-line and substation and ESMPs for substation works and underground cable installation.

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		Air pollutant emissions from trenching, (dust, water pollution due to sedimentation/runoff, traffic disruptions, OHS issues, vehicle emissions from cable delivery and construction equipment materials, welding aerosol from fibre optic welding).	 ✓ Dust suppression during construction period; ✓ Do not allow excessive amounts of vehicles in the area, to reduce gas and dust pollution; ✓ Do not burn rubbish and other materials ✓ Use of construction equipment and vehicles complying with national or international standards; ✓ Covering the body with a tarpaulin when transporting loose material. ✓ Prohibiting machinery from being parked with the engine running.
2	Installation of an automatic fire extinguishing system, with replacement of fire water pipes	 Waste generation: (elements of deteriorated structures of old fire water pipelines) Impact on ground, soil during system installation and water leakage 	 ✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1); ✓ Use of waste containers; ✓ Trenches shall be backfilled with soil compaction after laying the water line. ✓ Contractor shall take all practicable measures to prevent soil degradation and erosion. ✓ Use of heavy machinery shall be limited as far as possible to avoid land subsidence and compaction. ✓ Revegetation of disturbed land cover (ShNK 2.05.02 - 07; KMK 2.05.03-97 2);
	2. Installation of pipes from the nearest water source for the fire tank, overhaul of the fire tank, construction of a fire extinguishing pump station;	 Disturbance of ground, soil and vegetation cover. 	 ✓ Revegetation of disturbed land cover (ShNK 2.05.02 - 07; KMK 2.05.03-97 2); ✓ Prior to the start of major construction work on the water line, topsoil is removed and moved to a temporary storage site. ✓ Construction area is cleared of debris and landscaped after

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		 Air pollutant emissions from trenching, (dust, construction vehicle emissions) Noise from machinery in operation 	the construction work is completed. During subsequent trenching the soil is stockpiled along the water pipeline route. Trenches shall be backfilled with soil compaction after laying the water line. Use of heavy machinery shall be limited as far as possible to avoid land subsidence and compaction. Dust suppression during construction period; Do not allow excessive amounts of vehicles in the area, to reduce gas and dust pollution; Do not burn rubbish and other materials Use of construction equipment and vehicles complying with national or international standards; Covering the body with a tarpaulin when transporting loose material. Prohibiting machinery from being parked with the engine running. Limiting work time to daytime hours; (SanPin RUz № 0267-09 3; SanPin № 0120-01 4). Provide construction workers with safety instructions (ShNK 3.06.03 - 08; KMK 3.06.04-97); Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPin RUz № 0267-093; SanPin № 0120-014); Locate sources of noise and vibration as far away from houses as possible; Equipment equipped with a silencer; Noise-suppression devices Internal combustion engines with noise mufflers; Pneumatic tools with a silencer:

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		Blocked access	 ✓ Fence off the work area for the safety of the public; ✓ Inform the public about temporary restrictions related to repair and construction works.
			 ✓ Contractor will provide an alternative road to bypass the construction site, if any. ✓ Contractor will arrange the works in such a way that access to residences, income generating assets and public facilities is not blocked.
		Accidents at construction site	✓ Contractor will consider mitigation measures to avoid or reduce safety risks, particularly, ensure, that they use personal protective gear, workers receive safety training, workers operating large equipment are properly trained, that construction equipment is properly licensed and inspected, first aid medical kit and fire- fighting equipment is on site, active work sites are fenced.
		Unequal opportunities for vulnerable groups of workers	 ✓ Promote fair treatment, non-discrimination and equal opportunities for workers. Ensure that a Contractor's LMP is drawn up and implemented. ✓ Develop a code of conduct for the workforce to follow in relation to the worksite and surrounding community. ✓ Worker behavior and community awareness on GBV ✓ Establish a GBV grievance mechanism.
		Labor influx, forced and child labor	✓ Prohibit forced labor, target local workers where possible. In case of shortage of local skilled workers, the ESMP or another appropriate social risk mitigation plan should be developed to mitigate adverse social impacts due to the influx of labor.

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		Damage of existing underground infrastructure, such as electric and communication cables, water and sewage systems and other linear communication.	✓ Use a utility engineering survey map to identify existing underground utilities along the corridor prior to excavation work to prevent damage and destruction of utilities.
	3. Deep well pump and oil sump repair	 Pollution of ground, surface water and groundwater due to oil leaks 	 ✓ Fuel and lubricant tanks must be filled in accordance with regulations; no waste petroleum products should be discharged onto the ground. ✓ Eliminate oil pollution at the transformer site by diverting oil from the oil receivers to an oil tank designed for the entire oil volume and 80% of the transformer's water consumption for firefighting;
	4. Overhaul of substation control house and road to SBS	 Waste generation (construction waste); Land disturbance Air emissions (dust, asbestos dust from asbestos roof replacement, emissions from construction machinery); 	 ✓ Collection and sorting of waste with subsequent disposal (landfill or site removal) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011 2); ✓ Preparatory environmental protection measures aimed at preservation of topsoil and shrub vegetation (SC 2.05.02-07; KMK 2.05.03-976, RCM RUz № 506 of 22.11.1997) ✓ Dust suppression;
		 Noise during operation; 	✓ Noise levels in the surrounding residential areas should not exceed 55 dB during the day and 45 dB at night. (SanPin RUя № 0267-093; SanPin № 0120-014)
		 Restrictions on the movement of vehicles and pedestrians. 	 ✓ Landscape the area along the roads with climate based broadleaf vegetation species (RCM RUz № 506 of 22.11.1997);

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
			✓ Fencing of the work area.
		Blocked access	 ✓ Contractor will provide an alternative road to bypass the construction site, if any. ✓ Contractor will arrange the works in such a way that access to residences, income generating assets and public facilities is not blocked.
		Accidents at construction site	✓ Contractor will consider mitigation measures to avoid or reduce safety risks, particularly, ensure, that they use personal protective gear, workers receive safety training, workers operating large equipment are properly trained, that construction equipment is properly licensed and inspected, first aid medical kit and fire- fighting equipment is on site, active work sites are fenced.
		Unequal opportunities for vulnerable groups of workers	 ✓ Promote fair treatment, non-discrimination and equal opportunities for workers. Ensure that a Contractor's LMP is drawn up and implemented. ✓ Develop a code of conduct for the workforce to follow in relation to the worksite and surrounding community. ✓ Worker behavior and community awareness on GBV ✓ Establish a GBV grievance mechanism.
		Labor influx, forced and child labor	 ✓ Prohibit forced labor, target local workers where possible. In case of shortage of local skilled workers, the ESMMP should be developed to mitigate adverse social impacts due to the influx of labor. ✓ Use a utility engineering survey map to identify existing underground utilities along the corridor prior to excavation
		 Damage of existing underground infrastructure, 	work to prevent damage and destruction of utilities.

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		such as electric and communication cables, water and sewage systems and other linear communication.	
	5. Construction of checkpoint building, toilets, showers	 Land disturbance. Air pollutant emissions during excavation (dust, construction vehicle emissions, welding aerosol during welding) Noise from machinery in operation 	 ✓ Restoration of disturbed ground cover (ShNK 2.05.02 - 07; KMK 2.05.03-97 2); ✓ Dust suppression - watering the construction site, equipping the construction equipment with gas cleaning equipment; ✓ Limiting work time to daytime hours; (SanPin RUz № 0267-09 3; SanPin № 0120-01 4). ✓ Provide construction workers with safety instructions (ShNK 3.06.03 - 08; KMK 3.06.04-97) ✓ Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPiN RUz № 0267-093; SanPiN № 0120-014); ✓ Locate sources of noise and vibration as far away from houses as possible; ✓ Equipment equipped with a silencer; ✓ Noise-suppression devices ✓ Internal combustion engines with noise mufflers; ✓ Pneumatic tools with a silencer; ✓ Ensure that pit latrines are waterproofed and that sludge
		and groundwater from toilet (pit latrine) and shower water discharge	trucks are taken to the sewage treatment plant in a timely manner.
	6. Partial replacement of the grounding contour	 Waste generation; 	✓ Collection and sorting of waste with subsequent disposal (landfill or site removal) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011 2);

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		 Exposure of SBS personnel to electric current 	 ✓ In order to reduce the impact of the electric field on personnel, it is necessary to: a) use metal structures of galvanized, aluminized or aluminium elements for SWYD; b) ladders for climbing the traverses of metal gantries should be placed inside their posts (ladders placed outside should be fenced with shielding devices to ensure acceptable levels of electric field strength inside). ✓ Compliance of health and safety regulations; ✓ Compliance with relevant regulations and instructions to ensure electrical and fire safety.
	7. Construction of canteen building, two-car garage;	 Disturbance of ground, soil and vegetation cover. Air pollutant emissions from trenching, excavation, foundation work (dust, construction vehicle emissions, welding aerosol during welding, painting aerosol during painting) Noise from machinery during construction 	 ✓ Restoration of disturbed ground cover (ShNK 2.05.02 - 07; KMK 2.05.03-97 2); ✓ Dust suppression - watering the construction site, equipping the construction equipment with gas cleaning equipment; ✓ Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPiN RUz № 0267-093; SanPiN № 0120-014); ✓ Locate sources of noise and vibration as far away from houses as possible;
			 ✓ Equipment equipped with a silencer; ✓ Noise-suppression devices ✓ Internal combustion engines with noise mufflers; ✓ Pneumatic tools with a silencer;

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	 8. Replacement of two existing entrance gates. 9. Repair of main control room, fire pumping station buildings with roof covered with profiled sheeting, fire pond with replacement of system pipes; 	 No environmental impact Impacts on soil and vegetation cover; Waste generation Air pollutant emissions (dust, welding aerosol during welding, painting aerosol during painting) 	 ✓ Restoration of disturbed ground cover (ShNK 2.05.02 - 07; KMK 2.05.02 - 07; KMK 2.05.03-97 2); ✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1). ✓ Hydro-dust suppression, choice of painting technology to ensure that solvent emissions, spray painting sprays do not exceed permissible limits outside the SBS area.
	10. Asphalting the access road to the SBS;	 Air pollutant emissions (hydrocarbons and construction vehicle emissions); Noise during the work process; Pollution of water from 	 ✓ Dust suppression - watering the construction site, equipping the construction equipment with gas cleaning equipment; choice of painting technology to ensure that solvent emissions, spray painting sprays do not exceed permissible limits outside the SBS area. ✓ Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPiN RUz № 0267-093; SanPiN № 0120-014)) ✓ Equipment equipped with a silencer; ✓ Noise-suppression devices ✓ Internal combustion engines with noise mufflers; ✓ Pneumatic tools with a silencer; ✓ Ensure drainage of surface and drainage runoff from work sites; clean construction waste from work sites in a timely

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		construction sites;	 manner, carry out rehabilitation work in disturbed areas; ✓ Fuel and lube tanks shall be filled in accordance with the established norms; ✓ Do not allow discharge of waste oil products onto the terrain, follow refuelling and transportation rules.
		Operating personnel	 ✓ Limiting work time to daytime hours; (SanPin RUz № 0267-09 3; SanPin № 0120-01 4). ✓ Provide construction workers with safety instructions (ShNK 3.06.03 - 08; KMK 3.06.04-97) 5; ✓ Fence off the work area for the safety of the public; ✓ Inform the population about the temporary restrictions, ✓ Protective shoes with puncture resistant, heat resistant soles; protective gloves that have a proven resistance to high temperatures should be used to protect personnel during road construction. Use weatherproof clothing when working outdoors in rain or snow. A person working on the road must wear protective clothing that is suitable for the purpose and meets the requirements for personal protective equipment.
	11. Replacement of cabling and wiring of upgraded outdoor lighting equipment.		 ✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1). ✓ Replace fluorescent lamps with LED energy-saving lamps (mercury-free). The spent lamps should be taken to the "Selta" facility for recovery of mercury, in accordance with the regulations on the transport and storage of mercury-containing materials.
		 Impact of electric current on operating personnel 	 ✓ Compliance of health and safety regulations; ✓ Compliance with relevant regulations and instructions to ensure electrical and fire safety.
			✓ Restoration of disturbed ground cover (ShNK 2.05.02 - 07;

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	12. Construction of a 50 m³ open fire pond, a guardhouse with a checkpoint, a new control room building of 500 m², (12.5 x 40 m), a sanitary building, and repair of the control room building with a roof covered with profiled sheeting	 Disturbance of ground, soil and vegetation cover. Air pollutant emissions from trenching, excavation, foundation work (dust, construction vehicle emissions, welding aerosol during welding, painting aerosol during painting). 	 KMK 2.05.03-97 2); ✓ Dust suppression - watering the construction site, equipping the construction equipment with gas cleaning equipment; choice of painting technology to ensure that solvent emissions, spray painting sprays do not exceed permissible limits outside the SBS area.
		 Noise from machinery during construction 	 ✓ Limiting work time to daytime hours; (SanPin RUz № 0267-09 3; SanPin № 0120-01 4). ✓ Provide construction workers with safety instructions (ShNK 3.06.03 - 08; KMK 3.06.04-97) ✓ Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPiN RUz № 0267-093; SanPiN № 0120-014); ✓ Locate sources of noise and vibration as far away from houses as possible; ✓ Equipment equipped with a silencer; ✓ Noise-suppression devices ✓ Internal combustion engines with noise mufflers; ✓ Pneumatic tools with a silencer;
	13. Reconstruction of I-II SSh-110 kV with construction of OSSh and OV-110 kV cells ³⁸ ;	Waste generation	 ✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1). ✓ To ensure the safety of the installation and maintenance work on the substation, provision is made for:

³⁸ SSh - busbar section: OSSh - transfer busbars; OV - bypass breaker;

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
			 - enclosure of live parts; - required insulation distances between live parts and individual connections; - pedestrian and vehicular traffic; - electromagnetic and mechanical interlocks to prevent personnel error when making -operational switching; - operational switching operations; - protective earthing device; - remote control of 110 kV circuit-breakers; - main - 10 kV circuit-breakers; - control and automation system for operating modes; - short-circuit and overvoltage protection; - working and emergency lighting. ✓ Compliance of health and safety regulations;
	14. Replacement of cabling and wiring (for upgraded equipment, LSA and insulators, lighting of main control room, 110/35 kV SWYD, LSA and insulators, grounding contour	 Impact on operating personnel 	 ✓ Compliance with relevant regulations and instructions to ensure electrical and fire safety. ✓ In order to reduce the impact of the electric field on personnel, it is necessary to: a) use metal structures of galvanized, aluminized or aluminium elements for SWYD; b) ladders for climbing the traverses of metal gantries should be placed inside their posts (ladders placed outside should be fenced with shielding devices to ensure acceptable levels of electric field strength inside). ✓ SWYD busbar should be rigid, made of aluminium alloys.
		 Waste generation 	 ✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1). ✓ Compliance of health and safety regulations;

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	Update the disconnector operational blocking;	 Impact on operating personnel 	✓ Compliance with relevant regulations and instructions to ensure electrical and fire safety.
		 Waste generation 	✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1).
			 ✓ Collection and sorting of waste with subsequent disposal (landfill or site removal) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011 2);
	16. Replacement of 220/110/6 SWYD grounding contour, busbars and insulators of 110 kV.	 Impact on operating personnel 	 ✓ To ensure the safety of the installation and maintenance work on the substation, provision is made for: enclosure of live parts; required insulation distances between live parts and individual connections; pedestrian and vehicular traffic; electromagnetic and mechanical interlocks to prevent personnel error when making -operational switching; operational switching operations; protective earthing device; remote control of 110 kV circuit-breakers; control and automation system for operating modes; short-circuit and overvoltage protection; working and emergency lighting.
		Impact on personnel	✓ In order to reduce the impact of the electric field on personnel, it is necessary to: a) use metal structures of galvanized, aluminized or aluminium elements for SWYD; b) ladders for climbing the traverses of metal gantries should be placed inside their posts (ladders placed outside should be fenced with shielding devices to ensure acceptable levels of electric field strength inside).

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS			
	17. Overhaul of roads for SBS, substation control building, fire tank;		 Collection and sorting of waste with subsequent disposal (landfill or site removal) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011 2); Carry out a range of ground compaction, land levelling, asphalt laying, kerb design and re-vegetation; Preparatory environmental protection measures aimed at preservation of topsoil and shrub vegetation (SC 2.05.02-07; KMK 2.05.03-976, RCM RUz № 506 of 22.11.1997); Hydro-dust suppression; Dust suppression - watering the construction site, equipping the construction equipment with gas cleaning equipment; Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPiN RUz № 0267-093; SanPiN № 0120-014) Locate sources of noise and vibration as far away from houses as possible; Equipment equipped with a silencer; Noise-suppression devices Internal combustion engines with noise mufflers; Pneumatic tools with a silencer; Provision of diversion of surface and drainage runoff from work sites; timely cleanup of construction waste, rehabilitation of disturbed areas; Urgent pipeline restoration and land reclamation works; Landscaping of roadside area with climatically appropriate broadleaf vegetation (RCM RUz № 506 dated 22.11.1997); Fencing of the work area. 			
	COMPONENT 2: Power grid strengthening and renewable energy integration					

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
2	II. Construction of a new substation with associated new transmission lines, namely: 500 kV "Koltsevaya" substation, 500 and 220 kV transmission lines;		
	Construction of SWYD, substation control house; reactor installation; closed switchgear with reactor chambers;	vegetation cover.	 ✓ Restoration of disturbed ground cover (ShNK 2.05.02 - 07; KMK 2.05.03-97 2); ✓ Dust suppression - watering the construction site, equipping the construction equipment with gas cleaning equipment;
	Construction of warehouses, water tower, observation tower, gatehouse, diesel building	 Noise from machinery during construction 	 ✓ Limiting work time to daytime hours; (SanPin RUz № 0267-09 3; SanPin № 0120-01 4). ✓ Provide construction workers with safety instructions (ShNK 3.06.03 - 08; KMK 3.06.04-97) ✓ Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPiN RUz № 0267-093; SanPiN № 0120-014); ✓ Locate sources of noise and vibration as far away from houses as possible; ✓ Equipment equipped with a silencer; ✓ Noise-suppression devices

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		Blocked access	 ✓ Internal combustion engines with noise mufflers; ✓ Pneumatic tools with a silencer; ✓ Contractor will provide an alternative road to bypass the construction site, if any. ✓ Contractor will arrange the works in such a way that access to residences, income generating assets and public facilities is not blocked.
		Accidents at construction site	✓ Contractor will consider mitigation measures to avoid or reduce safety risks, particularly, ensure, that they use personal protective gear, workers receive safety training, workers operating large equipment are properly trained, that construction equipment is properly licensed and inspected, first aid medical kit and fire- fighting equipment is on site, active work sites are fenced.
		Unequal opportunities for vulnerable groups of workers	 ✓ Promote fair treatment, non-discrimination and equal opportunities for workers. For large-scale construction, ensure that a Contractor's LMP is drawn up and implemented. ✓ Develop a code of conduct for the workforce to follow in relation to the worksite and surrounding community. ✓ Worker behavior and community awareness on GBV ✓ Establish a GBV grievance mechanism.
		Labor influx, forced and child labor	✓ Prohibit forced labor, target local workers where possible. In case of shortage of local skilled workers, the ESMMP should be developed to mitigate adverse social impacts due to the influx of labor.
		Damage of existing	✓ Use a utility engineering survey map to identify existing

PROJECT COMPONEN Nº AND ACTIVITIES	тѕ	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		underground infrastructure, such as electric and communication cables, water and sewage systems and other linear communication.	underground utilities along the corridor prior to excavation work to prevent damage and destruction of utilities.
3. Construction of management room extinguishing pump si	·		 ✓ Collection and sorting of waste with subsequent disposal (landfill or site removal) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011 2); ✓ In order to ensure explosion protection, the oil room is provided with a supply and exhaust ventilation system with explosion-proof electric motors and lamps. ✓ Design the ventilation systems of the SBS so that the concentration of hazardous volatile substances in the rooms does not endanger human life and health and the possibility of explosions and fires. ✓ Provide for mercury-free LED energy-saving lamps. ✓ Oil collection and removal devices should be provided in the substation switchgear area (if oil-filled equipment is present) in order to avoid the possibility of oil spreading into the area and entering a water body in case of an accident. ✓ Provide water tanks for firefighting of at least 200 m³. ✓ Provide access to buildings and structures for fire engines. ✓ The construction of an oil receiver under each transformer is envisaged and is based on the ability to take in the full volume of oil, as well as an oil pan, which is connected to the oil receiver by an oil pipeline. ✓ The oil reservoir is designed to simultaneously receive emergency oil discharge from the 1 largest transformer, transformer fire extinguishing water, rainwater and

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	4. Installation of lightning protection, relay protection and automation for the substation	 Impact on birds Direct lightning strikes at the substation 	 ✓ With the envisaged post-fire water-oil emulsion treatment measure, the concentration of water entering the river will not exceed the maximum permissible concentration of oil products in fishery water bodies (0.05mg/l). ✓ In open switchgears of substations, high voltage outputs of power transformers, line entrances to closed switchgears and other equipment elements pose a particular threat to birds. In this case, in order to prevent bird deaths, mesh fences and covers are installed on the equipment elements where bird deaths occur most often. ✓ Grounding of structures ✓ Protection against direct lightning strikes in 220 kV SWYD and above must be provided by lightning rods, usually installed on the SWYD structure. ✓ From the 110 kV SWYD posts with lightning rods, lightning rods must be discharged through the grounding paths in at least two or three directions. In addition, one or two vertical electrodes 3 to 5 m long must be installed at a distance of at least the length of the electrode from the post on which the lightning rod is installed. ✓ The airborne distance from the SWYD structures on which lightning rods are installed to live parts must be at least the length of the string. ✓ Lightning rods are not permitted to be installed on the SWYD less than 15 m away from transformers to which rotating machines are connected by flexible busbars or open busbars; ✓ The portals of transformers connected by open busbars or flexible busbars to rotating machines must be located in the protection zone of freestanding lightning rods or those installed on other constructions. ✓ In accordance with the EIC requirements, the area of the

Nº	AND ACTIVITIES	ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	5. Installation of oil collectors, water storage tanks; end support, etc.	 Contamination of soil, surface water and groundwater with oil and oil-contaminated water 	 substation is provided for: ✓ Installation of an enclosed oil pipeline; ✓ Bundling the oil collector; ✓ Oil collectors are designed to contain 100% of the oil contained in the largest transformer, 80% of the design water flow from the automatic fire extinguishing system, with a provision for signalling the presence of conditionally clean water, with a signal output to the control panel. ✓ Tanks containing waste oil must be fitted with metal drip trays. The tray must be capable of holding oil in case of an overflow of at least 5% of the volume.
	6 Procurement of equipment for operation and maintenance. Construction of high voltage transmission lines	 Generation of waste packaging materials 	✓ Waste collection and sorting with further disposal (landfill or recycling facilities) (SanPin RUz № 0329-161, RCM № 266 of 21.09.2011. 1).
	7. Preparatory works (alignment of support centres and axis of high voltage route, rearrangement of engineering structures on the high voltage route)		Land allocation for designed 220 kV and 500 kV OHTL is performed in accordance with KMK 2.10.08-97 "Land Allocation Norms for 0.4 - 750 kV Electricity Networks". When constructing 220 kV or 500 kV OHTL, protection zones are provided in the form of a 20 m or 30 m wide strip in each direction from the outermost wire. At the end of the construction period, land designated for temporary use must be returned to the land user after the necessary work to reclaim the disturbed land has been carried out. Compensation for land alienated for permanent use will be made immediately prior to construction. Costs will be determined in a RP developed on the basis of the project RF. ✓ Dust suppression during construction period; ✓ Do not allow excessive amounts of vehicles in the area, to

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	8. Marking out of foundation trench, excavation and foundation and earthing equipment, assembly, installation, alignment and anchoring of supports.	trenching, excavation, foundation work (dust, construction vehicle emissions, welding aerosol during welding, painting aerosol during painting.	 reduce gas and dust pollution; ✓ Do not burn rubbish and other materials ✓ Use of construction equipment and vehicles complying with national or international standards; ✓ Covering the body with a tarpaulin when transporting loose material. ✓ Prohibiting machinery from being parked with the engine running.
	9 Installation work (unrolling and connecting wires and cables, hoisting them onto supports, tensioning and securing them on supports)	 Noise from construction work. 	 ✓ Noise levels in nearby residential areas should not exceed 55 dB during the day and 45 dB at night. For workers, the noise level in the workplace should not exceed 70 dB. (SanPiN RUz № 0267-093; SanPiN № 0120-014); ✓ Locate sources of noise and vibration as far away from houses as possible; ✓ Equipment equipped with a silencer; ✓ Noise-suppression devices ✓ Internal combustion engines with noise mufflers; ✓ Pneumatic tools with a silencer;
	10. Pre-commissioning and commissioning of the OHTL	 Waste of ferrous metal, residues of welding electrodes, concrete, reinforced concrete, waste mixture of mixed hardened plastics (paint packaging), paint waste, cleaning material contaminated with oil (oil content less than 15%), MSW (unsorted waste from temporary household premises, excluding bulky waste. 	 ✓ They must be stored temporarily in designated areas for each type of waste and disposed of in a timely manner within the company or taken to secondary facilities for recycling, release to consumers or landfill. ✓ Temporary storage of waste in special containers or containers at designated sites, compliance with their norms and regulations, timely disposal of waste will not lead to negative environmental impacts beyond the boundaries of the substation area. ✓ Fuel and lubricant tanks must be filled according to the prescribed standards; ✓ Do not allow the discharge of waste petroleum products onto the terrain and observe the rules for refuelling and transport. ✓ Storage of such waste in areas close to settlements and

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		 Impact on surface watercourses when installing intermediate supports in the floodplain-channel part of watercourses Pollution of surface water, groundwater, soil, groundwater from oil leaks, improper storage of hazardous materials, construction waste and domestic waste 	untimely or inadequate disposal can affect air quality, dust production and impact on neighbouring settlements. ✓ Provision should be made to cross watercourses with a single span to avoid installing intermediate supports in their floodplain-channel part. ✓ The absence of works in the floodplain-channel part of the watercourses will exclude impacts on channel morphology, groundwater and surface water as well as on floodplain biocoenosis and ichthyofauna. ✓ All fuel and chemical storage areas (if any) should be placed on a sealed base inside the bund and protected by fencing. ✓ The storage area shall be located away from any watercourse or wetlands. The base and walls of the bund must be impermeable and of sufficient capacity to hold 110% of the volume of the tanks. ✓ Disposal of lube oil and other potentially hazardous liquids into the ground or water bodies is prohibited.
		 Impacts on ground, soil when laying the route Impacts on vegetation when 	 ✓ Soil removal is excluded due to the complete use of the excavation backfill, levelling and the return of the upper humus horizon as a reclamation layer in place of the backfilled excavation. ✓ In areas where sands are present, the stability of the supports may be reduced, it is necessary to secure the sands around the supports with 0.1 m thick reed mats. ✓ The following measures will reduce the potential for erosion and subsidence at the footing site: ✓ Construction of support pads in the watershed; ✓ Compacting the soil in the excavation during backfilling. ✓ Preservation of the fertile humus horizon and turf. For this purpose, it is intended to remove the top 10-15 centimeters

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		laying the route	soil horizon, in which the bulk of the roots of ephemeroids and ephemeroids and turf grasses are preserved, before starting work on the site under the support. The layer is stored in a heap at the edge of the work area and after the installation of foundations, backfilling the excavation and compacting the backfill soil, it is placed on top, as a reclamation horizon. Around the area of the excavation where the machinery was manoeuvred, sowing of turfgrass is carried out. ✓ Before work commences, ensure that the route of the power line does not require the cutting of ornamental and fruit trees, that the route does not affect land occupied by valuable agricultural crops, nature reserves and nature conservation areas. ✓ For tall ornamental trees, carry out crown pruning. Ensure that the necessary conditions for gaps between wires and trees of at least 4 m are met. Fruit trees shall not be trimmed or uprooted for the project, as the route supports shall be installed on elevated ground before and after the crossed orchard areas and the distance from dwarf fruit trees to OHTL wires shall comply with regulations.
		 Impacts on animals and birds 	✓ To prevent death and illness of birds that use OHTL towers for resting and nesting, special bird deterrent devices in the form of ruffs, prickly three-leg trident, spring structures that create temporary vibrating effects are provided on the supports. More recently, special colored umbrellas have been adopted, which are mounted above the strings. They not only deter birds by their bright color, but also protect the strings from being contaminated by droppings, which prolongs the operation of OHTL without additional cleaning and emergency shutdowns.
		 Disturbance of animal habitats, mainly rodents, lizards, 	✓ When carrying out works on pads and road shelves, avoid areas with burrows and other types of animal housing. In

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		 amphibians and fish living in the river and birds nesting in the emergent aquatic vegetation. Accidental historical monuments or cultural finds from excavations, especially when excavating trenches and pits Health and safety of workers and population 	order to reduce the impact on young animals during hatching and feeding, construction work should be carried out in late summer and autumn. To avoid impacts on ichthyofauna of watercourses to be crossed, the overhead line route should be constructed using a single-span crossing, without crossing supports and construction works outside the water area, at 60-100 m from the water's edge. In order to conserve the biodiversity of animals that live near irrigated land and among fields, construction work on the OHTL should be carried out in spring, before ploughing in areas allocated for spring crops, and in autumn, before the start of agricultural work, in areas allocated for winter crops. A representative of the Regional or Municipal Inspectorate for Cultural Heritage Protection shall permanently supervise the work on the project site. In the event of archaeological finds, the Plan requires the publication of special notices, the cessation of work and compliance with excavation procedures. Construction work may not be carried out within 100 meters of archaeological remains without prior permission. Strict adherence to health and safety rules of established standards and procedures which depend on the type of work being carried out, use of PPE, training activities and monitoring. In addition, all workers shall be made aware of the procedures for working with hazardous materials (such as asbestos materials, PCBs, etc.). Contractors shall provide workers with appropriate accommodation: safe water supply, washing facilities, rest rooms, etc. For population. Environmental and social conditions, including the location of settlements and sensitive and protected areas, shall be taken into account in the design of project facilities. The Contractor shall adequately protect all

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
			 buildings, structures, works, services or facilities from damage, disturbance or deterioration during the duration of the contract. ✓ Good lighting and fencing of construction sites within settlements will reduce hazards for pedestrians and vehicles, especially at night ✓ Timely and efficient disposal of municipal solid waste and other wastes and proper sanitary conditions for construction workers on construction sites - to reduce environmental pollution and improve the health of workers and the local population.
		Traffic and safety on construction sites	 ✓ Traffic planning to minimize impact on human settlements, pavement disturbance and natural resources; ✓ Planning of roads as well as safe working areas, parking areas and maintenance areas for trucks and excavators must be carried out before work commences. ✓ Planning includes the access route and entry points to the construction site without compromising households and associated structures, cultivated land, fruit trees or any other potential source of income. ✓ Injuries or fatalities resulting from road traffic accidents should be prevented by planning the terrain, warning signs, barriers and driver training. ✓ Environmental and safety driver training should also include emergency response.
		■ Impact of electric current	 ✓ Impact of electric voltages and currents must be limited to the dimensions of the OHTL sanitary protection zone. ✓ Accept design parameters of supports, conductor cross-sections, distances between phases and between phases and earth to ensure a level of electric field intensity which meets international requirements and eliminates corona on

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		Blocked access	Take dimensions from conductors to the ground and other structures in accordance with EIC. ✓ According to the "Sanitary Rules and Regulations for the Protection of the Population from the Impact of Electric Fields Created by Overhead Transmission Lines" (SanPN 2971-84), the minimum boundary of the sanitary protection zone of OHTL of 220V and 500V is defined as 20 and 30 m, respectively, from the extreme wire, with no means of reducing the electric field strength on either side of it. The object of exposure to electric current along the overhead line can be maintenance personnel, as well as people and animals - when potential is removed from the earthing devices when short-circuit currents and lightning are flowing through them. ✓ According to GOST 12.1.038-82, the standard for the passage of electric current through the human body without any adverse effect on health is 0.3 mA in accident-free operation of electrical equipment and 6 mA in emergency operation and duration of impact more than 1.0 second. ✓ Support designs meet the requirements of the occupational health and safety standards system. ✓ A protective grounding device is provided to ensure the safety of repair and maintenance work on 220 kV OHTL. ✓ The support structure must meet the requirements of the occupational health and safety standards system.
			to residences, income generating assets and public facilities is not blocked.

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
		 Accidents at construction site Unequal opportunities for vulnerable groups of workers Labor influx, forced and child labor 	 ✓ Contractor will consider mitigation measures to avoid or reduce safety risks, particularly, ensure, that they use personal protective gear, workers receive safety training, workers operating large equipment are properly trained, that construction equipment is properly licensed and inspected, first aid medical kit and fire-fighting equipment is on site, active work sites are fenced. ✓ Promote fair treatment, non-discrimination and equal opportunities for workers. Ensure that a Contractor's LMP is drawn up and implemented. ✓ Develop a code of conduct for the workforce to follow in relation to the worksite and surrounding community. ✓ Worker behaviour and community awareness on GBV Establish a GBV grievance mechanism. ✓ Prohibit forced labour, target local workers where possible. In case of shortage of local skilled workers, the ESMP or an another appropriate social mitigation plan should be developed to mitigate adverse social impacts due to the influx of labour.
	COMPONENT 3: NEGU INSTITUTIO	NAL DEVELOPMENT AND PROJECT	IMPLEMENTATION SUPPORT
3	Strengthening the financial position and commercialization of the NEGU	No environmental and social impact	
	8. Establishing the institutional capacity of the NEGU9. Strengthening the NEGU capacity in PCB management and laboratory capacity to	No environmental and social impact	

Nº	PROJECT COMPONENTS AND ACTIVITIES	EXPECTED ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS	PROPOSED MEASURES TO PREVENT/MITIGATE NEGATIVE IMPACTS
	correctly sample, test and detect PCB content in transformer oils.		
	COMPONENT 4: ELECTRICITY MAR	RKET DEVELOPMENT	
4	1. Establishment of a regulatory body responsible for economic, technical regulation and market development in the energy sector	No environmental and social impact	-

7.8. Potential social impacts and mitigation

- Social risks related to the physical footprint of the project are predictable and manageable via measures included in ESMF and RF. Direct social risks under the project relate to land acquisition or land use restrictions, as well as to community, health and safety and labor /OHS risk in project activities. No significant risks related to labor influx, gender-based violence (GBV) or community health and safety are expected under the project, as most project workers will be recruited locally. The GBV risk is assessed as moderate mostly due to the status ofnational GBV legislation, gender norms, and the rural location of most project activities.
- Social risks under each sub-project will be screened, mitigation measures proposed, and monitored via the following steps: initial screening and risk categorization of the sub-project; preparation of ESMP/ESMP Checklist, and where applicable RAP; for large civil works sub-projects inclusion of contractor requirements to prepare and implement Contractor's ESMP, LMP, and other relevant sub-management plans (e.g. traffic safety, community engagement, emergency response plan, etc. implementation of stakeholder engagement by NEGU as outlined in SEP.
- The Environmental and Social Management Framework (ESMF) and Resettlement Framework (RF) have been developed to provide guidelines, to provide details on procedures, criteria, and responsibilities for subproject screening, preparing, implementing and monitoring of subproject specific ESIAs and preparation of site-specific Environmental and Social Management Plans (ESMP) for subprojects. The resettlement impacts under each sub-project will be identified as follows:
 - a. For projects with minor land acquisition or restrictions on land use, as a result of which there will be no significant impact on income livelihoods, the plan will establish eligibility criteria for affected persons, set out procedures and standards for compensation, and incorporate arrangements for consultations, monitoring and addressing grievances;
 - b. For projects causing physical displacement, the plan will set out the additional measures relevant to relocation of affected persons;
 - c. For projects involving economic displacement with significant impacts on livelihoods or income generation, the plan will set out the additional measures relating to livelihood improvement or restoration; and
 - d. For projects that may impose changes in land use that restrict access to resources in legally designated parks or protected areas or other common property resources on which local people may depend for livelihood purposes, the plan will establish a participatory process for determining appropriate restrictions on use and set out the mitigation measures to address adverse impacts on livelihoods that may result from such restrictions.
- 534. Land for land compensation will be applied to PAPs who might lose their land. All PAPs irrespective of their status or whether they have formal titles, legal rights or not, squatters or otherwise encroaching illegally on land, are eligible for some assistance if they occupied the land before the entitlement cut-off date. Persons who encroach on the area after the socio-economic study (census and valuation) are not eligible for compensation or any form of resettlement assistance. There will, therefore, be a package of compensation and other resettlement measures to assist each category of eligible PAPs to achieve the objectives of the policy. Eligibility criteria will also be determined by:
 - i. Loss of property
 - ii. Loss of wages
 - iii. Cut-off date.
- All involuntary land acquisitions will be compensated at replacement cost as per the ESS 5 and the PAPs will be assisted to re-establish their living standards (affected shelter and incomes) to a level to or better than their living condition prior to the project. In accordance with the Cabinet of Ministers Resolution № 911 (16.11.2019), a replacement cost, including compensation on market value and losses shall be paid to PAPs. So, the valuation of affected structures can be valued by independent valuation companies without deducting any depreciation. Land-based compensation is provided by local Hokimiyats on the basis of land acquisition acts at respective cities.
- 536. In accordance with the principles of the RF, all displaced HH and persons are entitled to a combination of compensation packages and resettlement assistance depending on the nature of ownership rights on lost assets and scope of the impacts including socio-economic vulnerability of the

displaced personsand measures to support livelihood restoration if livelihood impacts are envisaged.

- DPs meeting the cut-off date requirements will be entitled to a combination of compensation measures and resettlement assistance, depending on the nature of ownership rights of lost assets and scope of the impact, including the social and economic vulnerability of the displaced persons. Unforeseen impacts will be mitigated in accordance with the principles of this RF.
- An Entitlement Matrix summarizes the types of losses and the corresponding nature and scope of entitlements and is in compliance with National Laws and World Bank ESS 5.

7.9. Vulnerable and disadvantaged groups

- As described above, by its design the project does entail negative impacts on individuals or communities. However, in the event that such impacts should occur, certain social groups may be more vulnerable to being disproportionately affected, and have weaker means to gain information, pursue their entitlements, and/or receivefair compensation. Similarly, some individuals or households may be less able to benefit from the project's activities due to social barriers such as their social or economic status, gender, disability, etc. The project will put in place measures to ensure that all eligible beneficiaries have equal opportunities to access project benefits, including, by providing targeted outreach, information, and assistance. Similarly, the project will ensure that feedback from vulnerable and disadvantaged groups can be received and taken into account in the course of project implementation. In the event that any impacts on project-affected parties occur, tailored assistance measures will be provided to vulnerable groups to ensure that living conditions and livelihoods are improved.
- In the context of the Project, the following groups may be particularly at risk or considered as disadvantaged and vulnerable: women, female-headed households and women farmers who by virtue of limiting social norms and social networks may find it harder to obtain information about the benefits of the project; poor households; households involving persons with disability or ethnic/language minority groups; as well as landless households.
- 541. The project will undertake stakeholder engagement activities described in SEP.
- 542. The project will be implemented in accordance with relevant national legislation and the WB ESS 2, which guarantees the protection of project workers, including vulnerable workers such as women, disabled, children (of working age, in accordance with this ESS) and migrant workers, as appropriate, and provides equivalent working conditions for both men and women.
- With regard to labor practices, the project will be implemented in accordance with relevant national legislation and WB ESS 2 which guarantee to protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, as appropriate and provides equivalent working conditions for both male and female. The Project's LMP includes provisions to ensure that equal opportunity and non-discrimination principles will be followed in all project-related employment and compensation, i.e. receiving formal contract, being aware of its terms and conditions, providing equal pay for equal work in accordance with national labor legislation, among others. Contractors will be required to prepare and disseminate a code of conduct and be accountable for its implementation, as well as maintain a grievance mechanism for their employees. Such measures will be put in place in order to prevent hostile or abusive workplace environment, including issues of sexual exploitation and abuse and sexual harassment.
- In accordance with RF, particular attention will be paid to the needs of vulnerable groups among those economically and/or physically displaced, including women headed households, low income households, households headed by elderly, by a single parent or by a person with disabilities with no other breadwinner, or other economically and/or physically displaced persons who are not eligible for compensation as of Uzbekistan's land compensation legislation.
- RF's Entitlement Matrix provides additional allowances for vulnerable households: one-time subsistence allowance of equivalent to three months minimum wage for women-headed HH who are required to relocate due to the project.
- 546. ESS 5 highlights that particular attention will be paid to the needs of the most vulnerable households. Vulnerable HH, including women headed HHs, Low-Income HHs, a HH by elderly with no support and HH headed physically challenged people will be provided with a one-time additional allowance equivalent to 3 months minimum wage income in accordance with proof provided by Makhalla. In addition, members of vulnerable HHs are to be prioritized in project related employment. The Makhallas

and district government have a record of all HHs in the communities and will be tapped in identifying and certifying vulnerable HH. Encroachers who are found to be vulnerable group will be provided compensation in the form of replacement cost for affected building and structures.

7.10. Gender

- The level of electrification of households in Uzbekistan is almost 100%, but the country's electricity networks are in need of modernization, especially in rural areas. The main problems are an unstable electricity supply with frequent interruptions, poor quality and power surges. Unstable electricity supply affects women's use of their time in traditional social roles, and creates barriers for women workers. As women housewives usually assume most household and family responsibilities, they are the main consumers of electricity in households. Women cannot use household appliances, such as washing machines or electric cookers. With stable electricity, it is easier for women to manage their time and divide it between bathing the children, laundry, cooking and other household chores, as well as engaging in productive activities.
- 548. Women workers are doubly affected by unstable electricity supplies:
 - They have to take care of their work duties as long as there is electricity.
 - At the same time, they have to take care of the needs of the household and family.
- However, ensuring a quality and sustainable electricity supply will not automatically mean that women will spend less time on housework if these activities are not accompanied by education about energy efficient and labour saving devices, and awareness of time use and redistribution of work within the family.
- 550. In smaller towns and rural areas, there are problems related to inadequate lighting of public spaces, streets and bus stops, which pose safety risks and lead to discomfort, especially for girls and women. At present, criteria and regulations for street lighting are not synchronized across the country and focus mainly on large cities.
- Another issue relates to electricity tariffs charged to home-based businesses, which are 25-30% higher than the household tariff, despite the fact that it is impossible to separate the costs of home-based production from household electricity consumption. The current tariff mechanisms for home-based businesses need to be reviewed to allow households, including women, to benefit more from them.
- 552. The project will address two gender gaps (lack of technical and business skills and access to sustainable electricity supply and services) and help reduce gender stereotypes in the energy sector.
- At the institutional level, women are under-represented in the energy sector, accounting for about 17% of the industry's workforce. Most women are not employed in higher level positions such as engineers, scientists or managers, reducing their role in decision making. Reasons for women's under-representation may include a lack of necessary technical education, awareness of job opportunities and options available, limited opportunities to develop professional skills, and prevailing stereotypes that energy is a technical engineering field and a high-risk profession unacceptable to women.
- 554. The project will address the gender imbalance in the energy sector which impedes skills development and technical education among women:
 - (i) gender training for NEGU staff and regional units;
 - (ii) establishment and strengthening of the gender coordinator position at the regional level;
 - (iii) review of recruitment and promotion policies;
 - (iv) provision of a comfortable and safe working environment, with a sufficient number of toilets and showers:
 - (v) assistance to the women's association and its integration into the NEGU trade union organization.
- 555. The project will contribute to reducing gender bias in the energy sector by incorporating specialized knowledge and capacity building services that do not restrict women to certain gender roles and social expectations. The project will include outcome indicators to monitor these actions.

- 556. With regard to gender risks in employment, the Project is expected to strengthen labor management practices, following the provisions of the ESS2 and LMP, namely the requirement that all workers have written contracts with conditions that comply with national legislation, equality and non-discrimination in recruitment and remuneration, decent working conditions and health and safety standards tailored to women and men.
- The project is assessed as having a moderate risk of gender-based violence. It is expected that local community workers are likely to be hired for transmission line and substation construction activities. However, the fact that the legal and institutional framework for GBV prevention, referral and service provision in Uzbekistan has not been fully developed increases the risk factor for GBV. In addition, many project activities are expected to take place in rural areas where gender norms are likely to be more conservative and the lack of reporting on GBV is likely to be higher.
- NEGU will develop a GBV action plan, whose activities will also be integrated into Contractors' ESMP. Such activities include at minimum the development and adoption of Codes of Conduct (by NEGU and civil works contractors), awareness raising and training of all direct and contracted employees as well as local government, local leaders, and communities on the risks and project mitigation measures related to gender based violence, and establishment of a GBV-sensitive Grievance Mechanism. Project training and capacity-building activities will include special modules targeted at GBV to increase understanding of all project staff and key stakeholders of GBV risks and required mitigation measures under the project.
- Statistical data on the prevalence of GBV in Uzbekistan is not available. Global practice and qualitative data show that even where statistical data is available the scale of gender based violence is likely to be underreported due to underlying social norms. Rural women and girls have been reported as particularly vulnerable to violence due to their "disadvantaged status" in family and society. In 2015 CEDAW indicated on, "the persistence of deep-rooted patriarchal attitudes and stereotypes concerning the roles and responsibilities of women and men in the family and insociety"... as the root causes of violence and that survivors of domestic violence hesitate to report on incidents, because they consider such acts as "a private matter...". Several treaty bodies including CEDAW have expressed concern about cases of forced and early marriage, bride abductions, especially in rural areas, and the persistence of the de facto polygamy, despite the legal prohibition against such practices. The UNCT report to UPR (2018) stated that, "the most child marriages were not officially registered or only registered after the couple reached the legal age for marriage". There has been an increasing trend in the number of children born to girls and women aged 15-19 from 14,032 in 2005 to a peak of 38,572 in 2011, though the number had decreased to 33,035 (4.5%) in 2015.
- Uzbekistan has made a number of legal advancements in the area of gender equality and violence prevention and protection. It became party to the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1981, while still part of the Soviet Union, and subsequently ratified or signed a number of key international instruments on protecting women and girls from violence including the Beijing Declaration and Platform for Action, Convention on the Rights of the Child, Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and Children. In March 2019 the Presidential Decree № PP-4235 requested the Women's Committee and the Ministry of Justice to develop and submit in 2 months-time the draft 'Law on Guarantees for Equal Rights and Opportunities for Men and Women'. A draft Law on Preventing Domestic Violence was developed by the Ministry of Justice in 2018 and considered but not yet adopted by the legislative organ of Uzbekistan. The Family Code and Criminal Code regulate relationships at household level; adherence to these are monitored by the Makhalla self-governance bodies.
- There is a wide and expanding network of services in support to GBV survivors and evidence of take-up of these services by women, though a comprehensive study of the quality of such services has not been yet conducted and their coverage is more limited in rural areas. The Women's Committee of Uzbekistan (WCU) is one of the most important institutions responsible for policy elaboration, service provision and monitoring implementation of issues related to gender equality and assistance to women and girls in difficult situations. Chaired by the Deputy Prime Minister, it has a wide network of branches in every administrative–territorial body—with a mandatory position of adeputy head on women's issues". In February 2018 order №: PP-5325 requested radical improvement of measures in support of women and families in difficult situations and in July same year with the order № PP-3827 approved the initiative of the WCU, research center "Oyla", foundation "Makhalla" and other NGOs on the establishment of the National Center for Rehabilitation and Adaptation of Survivors of Family Violence and the Prevention of Suicide. The Centre provides anonymous emergency healthcare, psychological, social, educational, legal

and other assistance to those in difficult social situations including those encountering difficult family issues and domestic violence. Establishment of the rehabilitation centers was declared to proceed in 3 stages: establishment of center per Republic of Karakalpakstan and city of Tashkent (1st stage), increase the number of centers in regions depending on the need (2nd stage) and ensure centers encompassing all country (3rd stage). The ministries of Healthcare, Education, Employment/Labor, and the Ministry of Internal Affairs have been obliged to ensure functioning of relevant specialists in the centers. To date, 136 Social Adaptation Centers have been established countrywide.

- WCU has also established the nation-wide 24/7 hotline 1146 providing confidential psychological, legal and medical assistance to the survivors of violence. Additionally, the Ministry of Internal Affairs of Uzbekistan operates a 24/7 emergency hotline 102 and additional "Trust line" 1102 for all appeals from citizens based on the provisions of the Law "On Appeals of Individuals and Legal Entities".
- The project GBV action plan will build on the above network of services and actively promote the awareness of all project staff, contracted workers, and communities of GBV (SEA/SH) requirements under the project as well as support services in local areas. With a view towards adopting a survivor centered approach, the project GM will incorporate a protocol detailing handling of GBV-related cases including information on available services to which GBV survivors can be referred.

7.11. LAND ACQUISITION AND INVOLUNTARY RESETTLEMENT

- The project will support investments in the modernization of existing substations and the construction of new substations as well as transmission lines. Construction works to be carried out for modernization purposes will be carried out on public land designated for this purpose and on the land of existing substations. As such, they are not expected to result in forced land acquisition or resettlement. However, there will be impacts on farm land and restrictions on land use during the construction of new substations and transmission lines. All site-specific investments under the Project will be screened in advance for adverse land or resettlement impacts and, if such impacts are identified, compensation and mitigation procedures described in the Project Resettlement Framework (RF) will be followed.
- The Project will avoid adverse impacts on private or privately-used land and property to the extent possible, and will clearly document all efforts undertaken to avoid impacts of land restriction and resettlement. Where such impacts are unavoidable, they will be minimized to the extent possible and the project will follow the procedures outlined in the RF to ensure appropriate compensation and rehabilitation measures for project-affected people. The RF outlines procedures for: (i) land acquisition (after all technical alternatives have been exhausted), (ii) addressing any residual impacts from land acquisition (i.e. identifying, valuing and compensating people who have suffered economic loss or loss of private property), (iii) monitoring and verifying compliance with policies and procedures and (iv) Grievance Mechanisms.
- 566. Subproject-specific RPs will be prepared in accordance with the RF. The corresponding safeguards document for other social and economic impacts not associated with land acquisition and restrictions is the Environmental and Social Management Framework.

8. ENVIRONMENTAL AND SOCIAL ASSESSMENT RULES AND PROCEDURES

- According to WB ESF each project has to comply with national Environmental and Social regulatory framework and WB Environmental and Social Standards (ESS). The next para provides guidance on actions required for environmental and social assessment in accordance with national legislation and WB ESSs. To conduct Environmental Assessment the following tools could be applied:
- 568. **Environmental and Social Impact Assessment (ESIA)** is an instrument to identify and assess the potential environmental and social impacts of a proposed project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures. In some cases, for small scale project Partial ESIA could be conducted in order assess its location relative to the protected areas or presence of habitats. Indicative outline of ESIA is presented in Annex 3.
- Environmental and Social Management Plan (ESMP) is an instrument that details (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts, or to reduce them to acceptable levels; (b) the actions needed to implement these measures. Example of ESMP is presented in Annex 4
- 570. **ESMP Checklist** simplified ESMP which as a rule used for construction and for reconstruction activities with more typical impacts. Example of ESMP is presented in Annex 5-6.
- 571. Besides these WB's EA tools, national environmental documentations have to be prepared as part of national Environmental Impact Assessment. Content of national environmental documentation is presented in further paras.

8.1. Environmental assessment procedure

8.1.1. Main stages of national EA procedure

- Taking into account the EA requirements specified in the National Legislation, as well as the WB ESSs the ESA process for selected sub-projects would involve three or four steps:
 - (i) based on the preliminary project description prepare the Draft Environmental Impact Statement (DEIS / PZVOS) which should be presented to the State Ecological Expertise (SEE) for its review and approval;
 - (ii) based on the detailed project design prepare the ESMP for the project implementation phase;
 - (iii) during projects implementation and before its commissioning when needed (this is specified in the decision of the SEE on the DEIS), prepare the Environmental Impact Statement (EIS / ZVOS); and
 - (iv) before commissioning the project (only for category 1-3 projects (Uzbekistan) prepare Statement of Environmental Effects (SEE / ZEP). Preparation of SEC is not needed for the projects belonged to category IV projects.
- First stage Draft Environmental Impact Statement (DEIS). This document must be prepared by the NEGU and/or a consultant hired on its behalf. RCM № 541 (2020) defines the content of the DEIS. The content of the document for Category IV projects differs from the content of DEIS developing for Category 1-3 projects. As shown in Table 18, Category 1 is similar to the High Risk WB (HR) category. Categories 2 and 3 are equivalent to Substantial Risk (SR) and Moderate Risk (MR), respectively. The content of the DEIS for Category 4 projects is more simplified than for Category 1 to 3 projects. The full DEIS should specify a large spectrum of environmental and social issues, based on the technical and economic substantiation of the sub-project and in particular the following: (a) environmental, social and economic baseline; (b) situational plan showing existing recreational areas, settlements, irrigation, reclamation facilities, farmland, power lines, transport communications, water, gas pipelines and other information about the area; (c) description of project activities and used technologies; (d) expected emissions, discharges, wastes, their negative impact on the environment and ways of neutralization; (e) warehousing, storage and disposal of wastes; (f) analysis of the alternatives of the proposed or existing activity and technological solutions from the perspective of environmental protection, taking into account the achievements of science, technology and best practices; (g) organizational, technical, technological solutions and activities, excluding the negative environmental impacts and mitigating the impact of the expertizing object on the environment; (j) analysis of emergency situations; and (i) forecast

environmental changes and environmental impacts as a result of the implementation of the expertizing object.

- For the projects belonged to Category 4 (Uzbekistan) which is equivalent to WB Moderate Risk the following information have to be presented in EA report: (a) location plan with indication of land usage of area; (b) description of production technology, (c) information on existence of sewage network and requirements for sewage discharge; (d) amount and content of discharges/emissions, (e) amount and storage conditions of wastes, (f) environment protection measures.
- The DEIS has to be reviewed and approved by the national level of Glavgosekoexpertiza (for the projects belong to category 1-2 (Uzbekistan) or Category HR or SR (WB)) or provincial level of Gosekoexpertiza (for the projects belong to category 3-4 (National) or category MR and LR (WB) under State Committee for Ecology and Environmental Protection (national and regional level accordingly). The SEE confirms the project category and specifies the main issues on what the project beneficiary has to be focused during the next steps of the EA process and during project implementation (construction or rehabilitation activities).
- 576. **Second stage** development of ESMP needs to be done in accordance with the requirements of the WB ESS 1 (Attachment 1, chapter E). These requirements for the ESMPs and its structure are provided below and in the current ESMF document.
- 577. **Third stage** development of EIS. This stage has to be implemented if it is required in Environmental Conclusion issued by DEIS. Usually such documents are developed to fulfill information provided into DSEI or provide investigation on indicated parameters. EIS needs to be developed before construction activities launching.
- 578. **Fourth stage** development of Statement of Environmental Effects (SEE / ZEP) (for subprojects belonged to categories 1-3 (Uzbekistan) or Category HR, SR and MR (WB)) will need to be developed prior the selected sub-projects will start operation. For the sub-projects which are not included into the list with activities which are object of national EA no needs to conduct impact assessment.

8.1.2. ESA process for subprojects screening

- 579. Conducting subprojects Environmental and Social Assessment requires the following steps:
- Step 1: Screening. The NEGU and its regional branches will carry out screening of sub-projects in categories HR, SR, MR or LR. It is expected that all selected sub-projects will be categories MR, SR and LR, but in rare potential cases if it is decided that the sub-project has more risks than a regular SR, MR, LR project, the project will not be eligible for project financing. In general, a project will be classified as a Category HR project if it: creates an impact affecting an ecologically sensitive area, especially if the project is located less than 1000 meters from any designated wildlife sanctuary, national park, other sanctuary, or area of international importance or cultural heritage and archaeological sites identified by UNESCO and/or the Government of Republic of Uzbekistan; and exists and already passes through any ecologically, culturally and archaeologically sensitive areas.
- Sub-projects that do not relate to any of these conditions defined above are classified as SR, MR or LR. The PIU Environmental Safeguards Specialist will also verify the suitability of the subproject for the IFC Exclusion List (Annex 4) before deciding to include the subproject in the program. The project category should be defined according to both the RCM № 541 (2020) and the World Bank ESP as explained above. For the project category, it is determined which documents should be prepared in accordance with the environmental requirements of the sub-project. If a subproject is classified as Category HR (WB) which is equivalent to Category I (Uzbekistan), it must be excluded from the Project. A detailed definition of WB categorization, the main stages of environmental assessment, subproject screening are outlined in Chapter 4. Only projects with categories II-IV (Uzbekistan) or categories SR, MR and LR (WB) can be included in the project. Once the environmental assessment process confirms that a subproject proposal can be included in the Project, the PIU Environmental Safeguards Specialist will identify the necessary tools to conduct the ESA. The Category SR and MR projects (substantial to moderate impact) that may have some environmental and social impacts, can be financed under the project, subject to have in place a site specific ESMP and/or an ESMP Checklist.
- 582. **Step 2: Subprojects Environmental and Social Impact Assessment**. For subprojects that are identified under Category II-IV (or Category SR, MR), a national DEIS and/or EIS environmental

assessment document will be prepared and is likely to contain information on mitigation measures, but no details on their costs and the institutions designated to implement them or a detailed monitoring plan.–In order to comply with WB standards, the NEGU will be carry out the following:

- for the two new T-Lines and the new substation an ESIA and associated ESMP be developed consistent with WB ESSs
- For the rehab/construction works at existing substations a specific ESMP be developed based upon EHS audit. The PIU will develop stand-alone ESMP which would lead to the preparation of C-ESMP by construction contractor to reflect site specific conditions
- For comp 1 underground cable construction works that a specific ESHS screening be done by PIU and a ESMP be required by construction contractor (based upon a standard/base set of mitigation and monitoring measures developed by PIU) and if deemed necessary by screening any other specific ESHS assessment
- Require an EHSMP for operation phase for comp 2 substations and T-lines. This will involve updating existing plans (if exist) or developing new ones for new works. The PIU will do this in conjunction with the entities responsible for operation of substations and T-Lines.
- Step 3: Public Consultation. Once the ESIA is conducted and an ESMP is prepared these documents are subject to public consultation. Due to COVID-19, stakeholders will be kept informed of the ongoing process virtually accordingly to WB guidelines re COVID-19 measures in infrastructure project. During the public consultation process, ESIA and/or ESMP documents will be distributed to all interested parties and local population, by posting them on the web sites and by submitting them to the local councils. Minutes of public meetings will be kept and will be included in the final ESMP/ or ESMP checklists. During the consultation session, the ESA team in cooperation with the PIU ESS and Regional specialists will present the ESIA/ESMP (project, its location and implementation schedule, overview of the ESA process, and any conclusions on impacts, proposed mitigation measures and benefits). These data should be defined as preliminary or intermediate, indicating that input from participants can still be applied to project planning. Participants will be invited directly (not by order) to submit comments and corrections to what is presented. Adequate and convenient contact information will be provided to participants.
- The public consultation on the ESMP of a particular sub-project will include an announcement of PIU meetings on the website at least two weeks before the session, with a brief description of the project, location and specific contact details (including telephone numbers). In addition, the ESA team, in collaboration with the PIU, will make an announcement in the local, regional Khokimiyats about holding a public consultation by means of a written short booklet together with an invitation to participate in the meeting. Documentation for the consultation should be submitted to PIU in NEGU. Versions in Uzbek and/or the local ESMP language and records of the public consultation should be posted in a public place close to the construction site, as well as on the NEGU's website. Specific ESMP sub-projects will also be available to affected groups and local NGOs in an easily accessible location and on the website of the NEGU.
- 585. **Step 4: WB clearance**. The ESIA/ESMPs documents for first three subprojects from each participating province as well as for first three subprojects will be prior reviewed by the WB. After that such prior review will be requested only for full subprojects with Substantial risks, which would require a partial ESIA and ESMP
- 586. **Step 5: ESA Information Disclosure**. For all approved sub-projects, the PIU/Regional PIUs will ensure that printed copies of the final ESIA/ESMP/checklists in the local language are available in a public place. The PIU will post the final documents on the website of the NEGU. Before the final approval of the sub-project, the NEGU will also submit to the WB the English versions of the ESMMP final documents for its own records.
- 587. **Step 6: Integration of ESIA requirements into project documents.** All sub-project bidding documents shall include a requirement for implementation of the ESMP/checklist and other standard ESHS terms and conditions, and the documents shall be attached to the bidding documents and then to the construction contracts.
- Step 7: E&S Monitoring. PIU/Regional PIUs will carry out regular monitoring of sub-projects during construction and operation to ensure that ESMF/ESMP/checklists are properly implemented. If PIU/Regional PIUs notices any problems in implementation, it will inform the relevant contractor and agree with him on corrective action to be taken. The PIU will present its findings to the WB in the project progress

report twice a year or more frequently and bring issues to the attention of the WB as necessary.

8.2. Implementation of EA instruments

- Once the project category has been determined, the documents to be prepared in accordance with national legislation and the WB ESS need to be determined. Category Substantial (SR) and Moderate (MR) projects will require the development of a site-specific an environmental and social impact assessment (ESIA) and an ESMP (see Annex 3 for typical ESIA TOR and Annex 4 for a template and requirements for a standard ESMP).
- 590. For sub-projects that are associated with the potential adverse risks and impacts on human populations and/or the environment are not likely to be significant, because the sub-project is not complex and/or large, does not involve activities that have a high potential for harming people or the environment, and is located away from environmentally or socially sensitive areas Category Moderate the development of Partial ESIA or only ESMP willbe required.
- 591. For category Low (LR) projects which have potential adverse risks to and impacts on human populations and/orthe environment are likely to be minimal or negligible, only ESMP Checklist is needed and no further Environmental assessment following the initial Environmental Screening Checklist (Form 1, Part 1-2).
- As described in Chapter 4, there are some differences in the categorization of the project and the actions required between the WB ESS 1 and national environmental legislation. In accordance with national legislation, an environmental assessment and further action is not required for existing facilities if: (i) The planned rehabilitation/repair of some of the facilities will be carried out without expanding the area of the facilities to be constructed, and (ii) natural resource consumption and waste generation, discharges and emissions will not increase during the operational phase. The legislation does not require the preparation of a separate ESMP or any other environmental documents/plans/checklists. However, WB ESS 1 requires the development of separate Environmental and Social Management Plan (ESMP) Checklist for activities that have a low environmental impact. Taking into account that for this project it is necessary to apply more stringent requirements, as subprojects/activities that are not included in the list of mandatory state environmental impact assessment (RCM № 541 (2020), Appendix 2), but that are under the activities with low impact (category MR), preparing of ESMP Checklist list will be required (see Annex 5).

8.3. The role of different involved parties in the environmental screening, ESA process and monitoring of the ESMP implementation

- This section provides description of the responsibilities of all involved in the ESA process parties as well as of the documents that needs to be prepared and by whom. For the sub-project initiators: complete the Form 1 of Environmental Screening Checklist (ESC) (Annex 6; Form 2) to identify possible environmental and social impacts of proposed activities. In completing these forms, the subproject applicants will use the info presented in the Draft Environmental Impact Statement (DEIS) to be presented to the SEE and approved by this body. They are also responsible for obtaining appropriate permits and approvals that may be required for the activity to be financed, and, are issued by the local authorities responsible for environmental issues. This document along with the detailed subproject proposal is presented to the NEGU Regional Offices. It is expected that the majority of sub-projects will fall into categories MR and LR.
- NEGU's Regional Specialists conduct screening of applications on subprojects including for project eligibility (Annex 3, 4 and 5), environmental and social impacts, ensuring required permits and approvals have been obtained and filling respective part of the screening forms (Annex 6/Form 2). Per the results of environmental screening and in the case the subproject is qualified as categories SR, MR and LR, ensures respective EA documents are prepared (Site Specific ESIA, Partial ESMP, ESMP, ESMP Checklist). The Regional Specialist, when needed, will carry out field site visits for on-site environmental site visits (specifically, for sub-projects classified as category MR with new sites), verifying the environmental and social data provided by applicants, assisting in identification of mitigation measures, and confirming that the environmental category is appropriate and that the ESMP is adequate and filling a special form (Annex 6/Form 3). When the Regional Specialist visits reveals environmental and social risks, the subproject applicant will hire a consultant to prepare a site specific ESIA and/or an ESMP. The cost of the ESIA can be included in the subproject amount retroactively, if it has already been approved.

- 595. The PIU review the quality of environmental screening of applications on the subproject activities, done by the Regional Specialists, including the quality of the environmental and social impact assessment study, verifying necessary permissions and approvals and filling screening checklist (Annex 6/Form 4). Before starting subproject implementation, the PIU will conduct the final assessment of the ESA activities, filling the all forms (Annex 6/Forms 1-4) and Annex 7.
- During the project implementation the PIU will also conduct randomly monitoring of compliance of project activities with ESMP requirements; provide advice to Regional Specialist on specific issues that may arise including ESMP preparation and assistance to category MR projects through site visits; monitor cumulative impacts; provide training on environmental and social issues; provide training on ESA rules and procedures for all project components.
- 597. In the case of non-compliance, PIU and Regional Specialist will investigate the nature and reason(s) for non-compliance, and a decision is taken about what is needed to bring a sub-project into compliance, or whetherfinancing should be suspended.
- 598. Categories of potential environmental impacts and required actions for each Project's activities under the Component 1-4 are presented in Table 20.

Table 20. Screening of categories for proposed types of sub-projects and suggested EA instrument

	Types of potential sub- components	Proposed Categories		Proposed EA	Requirements of
Nº		WB	Uzbekistan	document (WB)	national legislation
1	COMPONENT 1: Digitalization of the electricity transmission sector				
	Introduction of new digital technologies	LR	-	No actions after filling ESC	Not required
	2. Installation of telecommunication systems	LR	Category 4	No actions after filling ESC	DEIS
	3. Establishment of a fibre optic network for the introduction of modern control systems	LR	Category 4	No actions after filling ESC	DEIS
2	COMPONENT 2: Power Grid strengthening and renewable energy integration – Subcomponent 2.1: power grid modernization				
	Installation of an automatic fire extinguishing system, with replacement of fire water pipes	LR	-	No actions after filling ESC	Not required
	2. Installation of pipes from the nearest water source for the fire tank, overhaul of the fire tank, construction of a fire extinguishing pump station	MR	Category 4	ESMP Checklist	Draft EIS
	3. Deep well pump and oil sump repair	LR	-	No actions after filling ESC	Not required
	Overhaul of substation control house and road to SBS	LR	Category 4	ESMP Checklist	DEIS
	5. Construction of checkpoint building, toilets, showers	MR	Category 4	ESMP Checklist	DEIS

Types of potential sub-	Proposed	Categories	Proposed EA	Requirements of
6. Partial replacement of the grounding contour	LR		No actions after filling ESC	Not required -
7. Repair of fire extinguishing pump station, installation of oil collector and replacement of fire water main	LR	Category 4	ESMP Checklist	For Category 4 Draft Environmental Impact Statement (DEIS)
8. Construction of canteen building, two-car garage;	MR	Category 4	ESMP Checklist	DEIS
9. Laying drinking water and fire protection pipes;	LR	Category 4	ESMP Checklist	DEIS
10. Replacement of two existing entrance gate.	-	-	Not required	Not required
11. Repair of main control room, fire pumping station buildings with roof covered with profiled sheeting, fire pond with replacement of system pipes;	LR	Category 4	No actions after filling ESC	DEIS
12. Asphalting the access road to the SBS;	MR	Category 4	ESMP Checklist	DEIS
13. Replacement of cabling and wiring of upgraded outdoor lighting equipment.	MR	Category 4	ESMP Checklist	DEIS
14. Construction of a 50 m³ open fire pond, a guardhouse with a checkpoint, a new control room building of 500 m², (12.5 x 40 m), a sanitary building, and repair of the control room building with a roof covered with profiled sheeting.				
15. Reconstruction of I-II SSh- 110 kV with construction of OSSh and OV-110 kV cells ³⁹	MR	Category 4	ESMP Checklist	DEIS
16. Replacement of cabling and wiring (for upgraded equipment, LSA and insulators, lighting of main control room, 110/35 kV SWYD, LSA and insulators, grounding contour	LR	Category 4	ESMP Checklist	DEIS
17. Update the disconnector operational blocking;	LR	-	No actions after filling ESC	Not required
18. Replacement of 220/110/6 SWYD grounding contour, busbars and insulators of 110	LR	-	No actions after filling ESC	Not required

³⁹ SSh - busbar section: OSSh - transfer busbars; OV - bypass breaker;

Tvi	pes of potential sub-	Proposed	Categories	Proposed EA	Requirements of
kV.	oes of botelitial sub-			TODOSCU LA	
	erhaul of roads for SBS, ion control building, fire	MR	Category 4	ESMP Checklist	DEIS
nearest	aying pipes from the water source (200 mm er) to the fire tank	LR	Category 4	No actions after filling ESC	DEIS
expansi 500 substati	nponent 2.2: Power grid on (construction of new kV "Koltsevaya" on, 500 and 220 kV ssion lines);				
substat installat	onstruction of SWYD, ion control house; reactor tion; closed switchgear actor chambers;	MR	Category 3	Construction on the new site Partial ESIA and ESMP Checklist	DEIS, SEE
water t	struction of warehouses, ower, observation tower, use, diesel building	MR	Category 4	Construction on the new site Partial ESIA and ESMP Checklist	DEIS
manage	onstruction of an oil ement room; fire ishing pump station	MR	Category 4	Construction on the new site Partial ESIA and ESMP Checklist	DEIS
protecti	stallation of lightning on, relay protection and tion for the substation	LR	Category 4	No actions after filling ESC	Not required
5. Insta water support	allation of oil collectors, storage tanks; end c, etc.	LR	-	No actions after filling ESC	Not required
	urement of equipment for on and maintenance.	LR	-	No actions after filling ESC	Not required
	struction of on-site roads ved areas	MR	Category 4	Construction on the new site	DEIS
of supp high rearran	paratory works (alignment port centres and axis of voltage route, gement of engineering res on the OHTL route)	MR	Category 3	Partial ESIA and ESMP Checklist	DEIS, SEE
trench, foundat equipm installat	ent, assembly,	MR	Category 3	Construction on the new site	DEIS, SEE
	<u> </u>	LR	-	No actions after filling ESC	Not required

	Types of potential sub-	Proposed (Categories	Proposed EA	Requirements of
ì	securing them on supports)			11020004 27	
	11. Pre-commissioning and commissioning of the OHTL	LR	-	No actions after filling ESC	Not required
3	COMPONENT 3: NEGU Institutional Development and Project Implementation Support				
	Strengthening the financial position and commercialization of the NEGU	No risk	-	No actions after filling ESC	Not required
4	2. Establishing the institutional capacity of the NEGU	No risk	-		
	COMPONENT 4: Electricity Market Development				
	1. Establishment of a regulatory body responsible for economic, technical regulation and market development in the energy sector	No risk	-		

8.4. Social screening

- 599. Social screening is a Mandatory Procedure for the identification of possible involuntary resettlement in accordance with ESS 5 of the World Bank. The screening will be done as part of the ESMF and the development of site-specific ESIA/ESMPs. The social screening is the one of the key steps in identification of further resettlement planning in the projects. The social screening serves to ensure that the process for screening remains simple and concise. Specific questions based on each activity of the Project might be added as seen relevant by external consultants and the PIU Social Safeguard Specialist. The list of project activities that have potential resettlement issues will then be subjected to a comprehensive analysis and consultation process with the potentially impacted communities and the outcome of this process would be documented for each subproject.
- 600. The list and the outcome of the consultative process for each site/project activity on the list would then be sent to the respective implementing agencies in the jurisdiction mandated to confirm, approve, disapprove, refer for further consultation and/or take a final decision on each proposed site/project activities. Carrying out the screening process in this way is designed to give it the integrity and transparency it needs to allow all stakeholders to have confidence in the process.
- 601. For project activities that do not have any resettlement issues and do not trigger ESS 5, the provisions of a RF of the ESMF does not apply and the reference is the Environmental and Social Management Framework (ESMF).
- The screening and categorization of impact on involuntary resettlement will be initiated by RPIU eitherwith its own social safeguard specialist and other relevant staff or, if there are no such skills, with the help of external consultants. The social screening report will be prepared by the Consultant or RPIU's Social Safeguard Specialist and reviewed by PIU Director. The Social Safeguard Specialist and PIU Director will finally endorse the social screening and safeguard categorization of the proposed sub-project.

9. MONITORING AND REPORTING ACTIVITIES

9.1. General requirements for environmental and social monitoring and reporting

603. Environmental and social monitoring during the implementation of sub-projects shall contain information on key environmental and social aspects of sub-projects, their impact on the environment,

social consequences of impacts and the effectiveness of measures taken to mitigate the consequences. This information allows the PIU to monitor the performance of environmental measures, assess the effectiveness of mitigation measures, and allow timely implementation of corrective action(s) that need to be observed how often, where and by whom monitoring shall be carried out.

Monitoring of the implementation of environmental measures shall be carried out by Regional Environmental and Social Specialist of the NEGU. Representatives of the State Committee for Ecology and Environment Protection may also be involved in monitoring. The aim is to verify the main points of compliance with the ESMF, the progress of implementation, the scope of consultations and the participation of local communities. The standard checklist prepared during the evaluation studies will be used for the activities report. In the medium term of the project implementation and at the end of the project, an independent audit will be carried out in the field of environmental, social, health and safety. The audits are necessary to ensure that (i) the ESMF has been properly implemented and (ii) mitigation measures are identified and implemented accordingly. The audit will be able to identify any amendments to the approach to the ESMF to improve its effectiveness.

Monitoring for social part will be done on the continuous bases by the Social Specialists of the PIU to ensure, that there is no any unanticipated impact during construction works on land, productive assets, informal users, people's livelihood, assess to the assets etc. Monitoring will also cover health and labor issues. If some issues are identified, the mitigated measures will be proposed in the progress reports or separate Corrective Action Plans (CAP) (details are presented in the below section on the Environment and Social reporting).

9.2. Environmental and Social Monitoring

606. In order to ensure the implementation of the environmental measures specified in the ESMP, monitoring should be carried out as follows:

- a. Visual monitoring during the construction stage of the sub-projects Regional Specialist shall continually monitor the performance of ESMP by sub-contractors. This will be achieved through monthly inspections of construction / reconstruction projects by specialists throughout the whole construction period. The Regional Specialist has the right to suspend work or payments if the sub-contractor breaches any obligation on ESMP implementation. For monitoring, it is recommended to use special checklists, that can be compiled based on ESMP with the attachment of photos from the monitoring site.
- b. For functioning facilities, the NEGU National Environmental Specialist shall verify the timeliness of the sub-receiver's reporting on discharges to water bodies, air emissions and solid waste, which the sub-contractor shall submit on a periodic basis to the regional ecology and environment protection committees.
- c. Instrumental monitoring of environmental quality, such as air and water quality. Taking into consideration the types of activities that will be implemented within the framework of this Project, instrumental monitoring may not be carried out. However, in the case of complaints of violations or inconveniences from the local population, instrumental measurements of air or water quality shall be carried out by the sub-contractor through the hiring of a certified laboratory. In case of national standards exceeding, the sub-contractor shall be obliged to take additional measures to reduce the detected exceedances to meet the standards.
- 607. Sub-projects will be monitored on a regular basis through the monitoring of ESMP implementation by contractors throughout the construction phase.
- 608. Environmental and social issues included in the mitigation framework are monitored by designated specialists through the PIU and Regional Specialists. Although the environmental and social impacts are expected to be not significant, the potential negative impacts on the environment are planned to be prevented or mitigated during the construction and operation phases. Monitoring is based on impact / mitigation / monitoring issues as defined in the ESMP and/or ESMP checklists of subprojects. Observation monitoring will be carried out through weekly audits of the environmental performance by contractors throughout the construction period. The PIU has the right to suspend work or payments if the Contractor is in breach of any of its obligations to implement an ESMP.

609. Separately, the World Bank experts will also annually visit certain sites to monitor the compliance. As has been mentioned above, in the case of non-compliance, Regional Specialist / PIU will investigate the nature and cause(s) of the non-compliance and, if necessary, decide what is necessary to ensure the compliance with the sub-project or financing shall be suspended.

9.3. Environmental and Social Reporting

- 610. Environmental activities performance, including monitoring, shall be properly documented and reported. In accordance with national legislation for the facilities under construction each contractor shall keep a log withinformation on training for workers and another log for the registration of accidents during construction works. In the case of instrumental monitoring, the original records of the results of the required instrumental environmental monitoring (air and water quality) shall also be stored in a separate file for records.
- For sub-projects related to construction / modernization, it is recommended that sub-contractors, with the assistance of the PIU, develop a format (checklist) for site inspection to optimize the environmental supervision process before commencement of the work. The format can be in the form of a checklist with a list of mitigation measures to be implemented at construction sites, the status of their implementation and some explanations on the status of implementation, as required. On monthly basis the sub-contractors will present short reports on ESMP implementation. The list of measures that are checked by the Safeguards Specialists when visiting the site shall correspond to the measures specified in the ESMP for the controlled sub-project. Information on the results of the monitoring on the construction / modernization of facilities shall be submitted to the Regional Specialist to the PIU (Tashkent) on a quarterly basis. Based on received from the Regional Specialist's reports on semiannually basis the PIU will prepare a brief report on ESMF and ESMPs implementation to be included in the progress reports to be submitted to the WB.
- 612. Monitoring reports during the project implementation will provide information on key environmental and social aspects of the project activities, especially regarding environmental impacts and the effectiveness of mitigation measures. Such information will allow the PIU and the World Bank to evaluate the success of measures to mitigate the consequences within the framework of project supervision, and allow, if necessary, to take corrective actions.
- 613. The sub-projects ESMP monitoring section will provide:
 - (a) details of monitoring measures, including parameters to be measured, methods used, samplinglocations, frequency of measurements; and
 - (b) monitoring and reporting procedures: to (i) ensure early identification of conditions requiring mitigation measures; and (ii) provide information on the progress and results of mitigation.
- 614. The PIU will provide brief information on the implementation of the ESMF and the environmental and social activities of the sub-project as part of the progress reports to be submitted to the WB every six months.
- If social monitoring identified any impacts, it should be mitigated immediately. If there is an impact on land, productive assets, informal users, people's livelihood, assess to the assets etc. The subproject construction works should be stopped and the PIU needs to be informed immediately. A Corrective Action Plan (CAP) needs to be developed. The CAP should contain information on the subproject, status of the civil works, impact types and social impact assessment, proposed mitigation measures. CAP should be prepared by the subproject implementer and approved by the PIU. All unanticipated impacts within the sub-project to be compensated / mitigated by the Contractor. This shall be reflected in the tender documents.
- 616. PIU is responsible for the overall compilation of progress and results. Semi-annual and quarterly reports are expected to be submitted to the World Bank. These reports shall include community scorecards on project implementation and success, as well as financial reports, project implementation reports, social audit meetings, and feedback and complaints received. The outcome measures are the outputs defined in the results framework and the set of output indicators defined in the POM (Project Operations Manual). The PIU will be responsible for preparing the completion report. All environmental and social issues are monitored and controlled by the PIU or Regional Specialist. Although social impacts are minor, potential adverse impacts should be prevented or mitigated during the construction

and operation phases.

617. Environmental and social monitoring system starts from the preparation phase of the subproject throughthe operation phase in order to prevent negative impacts of the project and observe the effectiveness of mitigation measures. This system helps the WB and the NEGU to evaluate the success of mitigation as part of project supervision and allows taking an action when needed. The monitoring system provides technical assistance and supervision when needed, early detection of conditions related to mitigation measures, follows up on mitigation results, and provides information of the project progress. Monitoring Plan identifies monitoring objectives and specifies the type of monitoring, and their link to impacts and mitigation measures. Specifically, the monitoring section of the ESMP provides: (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements; and, (b) monitoring and reporting procedures to: (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

9.4. Occupational Health and Safety (OHS) issues reporting

- OHS issues must be covered in all supervision and monitoring activities. That means specifically observing whether the enterprise adheres to good OHS practices, asking whether all employees have received OHS training, whether there have been any incidents, checking logs and the availability and use of protective and preventative equipment. Respectively, the safeguards sections of all progress reports include statements indicating that the PIU have checked occupational health and safety issues, and existing procedures in this regard, and asked if there have been any serious incidents or fatalities. Similarly, the PIU will ensure that at the project launch workshop and in the operational manual contain adequate provisions for occupational health and safety.
- Any incidents occurring on project sites and/or within project-supported activities should be reported immediately, e.g., by the contractor to the PIU, and then to NEGU. All incidents should be reported to the World Bank no later than 48 hours from their occurrence.
- Details on any incidents that have occurred, or lack thereof, will be provided in regular progress reports to NEGU and the World Bank. The relevant text on OHS to be included in the progress reports might be as follows: The project has reported X Occupational Health and Safety (OHS) incidents since its start. Of these, Xare classified as SEVERE, X as SERIOUS, and X as INDICATIVE. All incidents are confirmed accounted through the Environment and Social Incident Response Toolkit (ESIRT) (see below). During this mission period, the PIU checked with all contractors and consultants under all project activities, including under subprojects financed under the credit line, if any OHS incidents occurred, either reported or not yet reported. The PIU found (EITHER) (i) no new incidents occurred during this supervision period, or (ii) X incidents occurred (include classification, brief description of event and follow-up actions, and confirmation event was reported via SIRT)]. Monitoring activities during the report period found that OHS practices have been observed / partially observed / not observed. The following deficiencies were found: ... The following recommendations have been made to [XX Contractor].
- The World Bank Environment and Social Incident Response Toolkit helps to manage incidents consistently by providing clear guidance on how to classify the incident's severity, how to provide a proportional response according to severity, and clarifies roles and responsibilities. ESIRT also requires a root cause analysisto be done by the Receiver when there is a severe incident.
- "Incident" is defined as an accident, incident, or negative event resulting from failure to comply with identified Safeguards measures OR conditions that occur because of unexpected or unforeseen Safeguards risks or impacts during project implementation. Examples of Safeguards incidents include: fatalities, serious accidents and injuries; social impacts from labor influx; sexual exploitation and abuse (SEA) or other forms of gender- based violence (GBV); major environmental contamination; child labor; loss of biodiversity or critical habitat; loss of physical cultural resources; and loss of access to community resources. In most cases an incident is an accident or a negative impact arising if the contractor does not comply with the WB security policy or unforeseen events which occurred during the Project implementation.
- 623. The WB ESIRT does not replace monitoring procedures and implementation of regular monitoring of the implementation of the project safeguard provisions. The document includes the following six stages of the incident management and reporting process:

- 624. **Stage 1. Initial informing about the incident.** The contractor, executor, supervisor, is informing the PIU, local authorities, the WB, the public, providing urgent health care and providing the necessary safety measures for workers. All measures must be taken immediately. In parallel, all necessary data about the incident are collected its scope, degree of danger to public health and environment, location, cause of occurrence, duration, what decisions are taken by the Executor, what actions should be taken next, etc.
- **Stage 2. Assess severity of the incident**. The Executor (should promptly provide information to the WBabout the incident and its degree of danger.
- 626. **Stage 3. Notification**. The Executor is preparing an incident notification for the WB. Submission of a notification in the event of an incident should be determined when signing a contract with the Contractor.
- Stage 4. Investigation of the incident. The Executor provides any information requested by the WB and does not prevent to visit the incidence scene. The Executor is also obliged with the assistance of the Contractor to analyze the causes of the incident and to document the information received. The Executor may need to involve external experts in investigation of the incident. The term of the investigation should not exceed 10 days after the incident. The findings of the investigation should be used by the Executor and the Contractor to develop corrective actions and draw up a corrective action plan (CAP) to avoid any future repetition of what happened. Besides, the conclusions should be submitted to the WB.
- Stage 5. Corrective Action Plan. The Executor develops a CAP with specific actions, responsibilities, implementation dates and monitoring program and discusses it with the WB. In case of serious incidents, the WB and the Executor agree on a set of measures to eliminate the major causes of sources for such incidents. The CAP indicates actions, duties and terms that should be performed by the Executor and the Contractor. The Executor is responsible for implementation of the CAP. The CAP may include development or modernization of technical measures to protect the environment and prevent further pollution, conduct training, including on issues of emergency health care, compensation for insurance claims of injury or death. If the WB considers that the CAP measures are not effective, and/or the Executor has shown unwillingness or inability to take corrective measures, the WB may consider a decision on complete or partial suspension of the loan payments until such actions are taken, or in some cases it may consider a question of cancellation of the whole or part of the Project after its suspension. Such decisions of the WB are transferred to the PIU and the Ministry of Energy authorities to determine the appropriate actions of the WB.
- **Stage 6. Monitoring execution of the CAP**. The Executor performs the CAP, monitors execution of individual CAP items and provides a report on implementation to the WB.
- 630. It will be mandatory for all project participants immediately report on the OHS (on severe and serious) incidents. It is required that World Bank has to be notified about each severe and serious incident within 24hours.

9.5. Integration of ESMF into the project documentation

- The ESMF requirements will be integrated in the Project Operational Manual while the ESMPs requirements, in construction contracts for all sub-projects, both into specifications and bills of quantities, and the Contractors will be required to include the cost for ESMP implementation in their financial bids. Based on the ESMF there will be highlighted the roles and responsibilities of all involved parties in the ESA process. Finally, based on the requirements of ESMF and ESMP, monitoring and evaluation of mitigation / avoidance measures identified in the site-specific review and ESMP will become an integral part of sub-project implementation, including inclusion of binding contracts, and contractors will comply with environmental and social obligations during construction activities. Furthermore, all contractors will be required to use environmentally acceptable technical standards and procedures during carrying out of works. Additionally, as specified in the ESMF, the contract clauses shall include requirements towards compliance with all national construction, health protection, safeguard procedures and rules as well as on environmental protection.
- The provisions of the ESMF will be used for the following:
 - (i) Inclusion of the ESMF requirements into the Operational Manual of the project;

- (ii) Inclusion of environmental and social guidelines, ESMP into the construction contracts for individual sub-projects, both in specifications and statements of work, Contractors will be required to include the cost of ESMP implementation in their financial proposals;
- (iii) Allocation of subsequent responsibility of ESMF within the framework of the PIU and RPIU;
- (iv) Specifying mitigation and prevention measures during the implementation of selected subprojects;
- (v) Monitoring and evaluation of mitigation/prevention measures identified in the site-specific review and in the ESMP. The required mitigation measures will be an integral part of the sub-project, including contracts requiring contractors to meet environmental and social obligations during construction.
- All contractors shall use environmentally acceptable technical standards and procedures during the work. In addition, the contract provisions shall specify the requirements for compliance with all national building codes, health, protective procedures and regulations, as well as environmental protection.
- Monitoring Indicators on the Social Impacts are among others the general project acceptance by community; success/acceptability of the compensation/ resettlement process; restoration of areas temporarily disrupted by construction.
- The responsibilities for monitoring and evaluation are shared between the PIU and the NEGU. The PIU is responsible for record-keeping, management and internal monitoring of the GM. The NEGU is responsible for coordinating external monitoring and evaluation of the project implementation. It's worthy to get opinion of PAPs representatives of the impacts and the effects of the project through a household survey to be undertaken as a monitoring and evaluation exercise.
- 636. *Internal and external monitoring*. At this stage it is not yet decided if any Consulting company (CC) would be contracted to undertake concurrent M&E of RP implementation. As usual the project must involve a Cadastral and Civil Engineer who can assess the provided land.
- 637. If a Specialist is hired, he/she will be required to monitor and review the RP implementation processes and activities and submit quarterly reports. Consulting Company will also conduct a post-implementation evaluation of the RP to determine whether the RP objectives have been achieved. It is the responsibility of the CC to identify gaps through desk reviews and field visits, and to make timely corrections to the NEGU course to improve implementation and results, recommend actions needed to build capacity and provide necessary training to the implementation staff and other stakeholders such as civil works contractor. Some of the key activities will include monitoring and verification:
 - timely payment of compensation and assistance and prior to the commencement of civil works;
 - processes followed in the dissemination of information on the project and eligible entitlements as wellas the quality of consultations;
 - processes followed by the relocation of PAPs in accordance with the resettlement plan, in case of resettlement;
 - provision of replacement cost (towards the cost of structures, relocating and replacing the house);
 - provision on livelihood support measures, training towards rehabilitation;
 - provision of work opportunities to PAPs and other community members during civil works;
 - grievances must be received, considered and redressed.
- 638. **Social impact assessment.** The project impact assessment should be carried out twice during the mid-term period of the project. An end term impact assessment should be carried out within two months of the completion of the RP. This includes evaluation of RP implementation activities, processes and results; acceleration, if there are any unresolved issues and making recommendations to improve results, if any. The key socio-economic indicators developed during the SIA (social impact assessment) and presented in the RP should be used for the impact assessment. It is recommended that prior to the assessment, these indicators are refined and improved by NEGU.

10. ESA RESPONSIBLE UNITS AND CAPACITY BUILDING ACTIVITIES

10.1. Project coordination

- 639. The main initiator and executing agency of the project is the Joint Stock Company "National Electric Grid of Uzbekistan" (NEGU). The NEGU was established on 27 March 2019 as an authorised state body responsible for the efficient development, construction, reconstruction and management of transmission lines and substations in Uzbekistan, as well as for the modernization of existing transmission lines by attracting foreign investment.
- 640. The NEGU is responsible for coordination with key ministries and public authorities, including the State Investment Committee, Ministry of Finance, Ministry of Investment and Foreign Trade, as well as regional and local authorities of the project areas during project implementation.
- 641. Under the new energy sector structure, the National Grid Networks of Uzbekistan (NEGU) will be supported as the state utility responsible for planning, design, development, operation and maintenance of the electricity transmission system, and as the sole buyer of electricity in Uzbekistan. The company will also be the operational backbone of the new electricity market to be established in Uzbekistan.
- 642. In addition, due to the rapid expansion of the energy system in Uzbekistan, including large-scale renewable energy and gas projects promoted and financed by the private sector, investments in the modernization, expansion and digitalization of outdated transmission infrastructure will also need to be accelerated. There is a need to keep pace with the expansion of electricity generation and the growing demand for electricity in order to ensure a secure, reliable and affordable electricity supply for households, businesses and industries. Modern digital technology must be built into the transformation of the electricity grid infrastructure and the commercialization of the transmission company.
- 643. The organizational and implementation arrangements of the project were based on the experience of the WB in the energy sector in Uzbekistan. The main institutions involved in the implementation of the proposed project are, Ministry of Energy, Ministry of Finance, Ministry of Investment and Foreign Trade, at national level NEGU and RENU (Regional Electric Networks) and PIU at local level. The regional administrations (khokimiyats) will facilitate the implementation of the project at local level and will be indirect beneficiaries of the project.

10.2. Project Implementation Unit

- To assist in the day-to-day implementation of the project, the NEGU will form a Central Project Implementation Unit (PIU) within its current structure, and will use its 13 regional offices in all regions.
- 645. The PIU will be staffed with the required personnel, including environmental and social specialists in the PIU. NEGU will be responsible for the selection of a Construction Supervision Consultant (CSC).
- 646. The Social Safeguard Specialist and the Environmental Specialist in the PIU should ensure that project activities are carried out in accordance with the 10 WBs ESS Standards and national policies and procedures. The main responsibilities of the Specialist in the PIU will include: a) ensuring that contractors comply with all requirements of the RP; b) coordinating all environmental and social issues associated with the project; c) providing oversight and monitoring and evaluating the social, environmental and EHS impact and effectiveness of mitigation measures, and identifying issues of non-compliance or adverse trends in outcomes and implementing programmes to correct any problems identified; (d) providing advice and guidance to contractors on social and environmental issues where appropriate; and (e) reporting to the PIU on the implementation of project activities and the implementation of the Grievance Mechanism.

10.3. Regional Project Implementation Units

647. The project will be implemented at the local level through 10 regional PIU/RPIU representatives who will work closely with the respective regional khokimiyats. The regional specialist, in addition to the overall coordination of the project in the region, will be responsible for the implementation of project activities in accordance with World Bank environmental and social standards and procedures, and national environmental impact assessment norms and procedures.

- 648. The main responsibilities of the regional safeguard specialists are: environmental and social screening of potential facilities, identification of required environmental permits and land title documents, monitoring of environmental implementation during construction and reconstruction, preparation of reports and their submission to the PIU in Tashkent. The specialists of the regional offices will report to the PIU.
- 649. **Khokimiyats** (municipalities, administrative units) are key actors in project implementation. The institution is required to be continuously assisted and present throughout the project implementation. The Departments for Coordination of Land Acquisition and Compensation under the regional and district khokimiyats will be responsible for coordinating implementation procedures, obtaining approval from local kengashes (councils) of people's deputies and justice authorities and holding open public hearings (public consultations) on the project (as per CoM Resolution № 911) and implementing compensation payments together with the NEGU PIU.
- 650. According to the new Presidential Decree № 1047, local municipalities must apply to the Republican Centralized Fund in order to receive compensation for affected households. Once the application is approved and the necessary budget for compensation to affected households is allocated from the RCF, the regional municipalities can transfer the required amount to the affected households.
- 651. **The regional cadastral bodies** (departments of the State Committee for Land Use and Geodesy and Cartography) are the key executive authority: (i) determine the losses of land incurred by owners and land users, as well as losses of agricultural produce; (ii) determine the extent and area of land reclamation, including removal and temporary storage of productive soil layer; (iii) determine the need for protective sanitary protection and water protection zones around structures under construction and the regime of their use; (iv) prepare proposals for the allocation of land of equal value in place of acquired land; (v) assess the cost of development of replacement land; (vi) approve the Benchmarking Act and its accompanying plan; (vii) amend government acts on land use and land tenure.
- 652. **State Research and Design Institute "UzDavYerLoyiha".** In accordance with Cabinet of Ministers Resolution № 317, UzDavYerLoyiha is the only authorized body to calculate agricultural losses due to permanent and temporary land allocation. It is also responsible for identifying and verifying the accuracy of property boundaries and the existence of property rights during the preparation of the Land Allocation Act.
- 653. **The Regional Department of Environmental Protection:** i) assesses the environmental impact of construction projects; ii) approves the location of facilities affecting the state of the land; iii) develops land protection measures for projected facilities and commissioned facilities affecting the state of the land; iv) approves the law on land allocation.
- 654. **Makhalla.** Representatives of local self-government bodies will be involved in resettlement activities to ensure that the rights and interests of the RAP are adequately taken into account. RAP implementation will require close coordination with local mahalla committees. This coordination will assist EA in the following areas: (i) disseminating information related to the RAP; (ii) verifying the timeliness of compensation payments to PAPs (iii) receiving early warning of PAPs complaints; (iv) verifying that vulnerable households have been identified as required under the RAP; and (v) receiving information on any unintended consequences, if any, that may arise for affected households.

10.4. Capacity building activities

- 655. The ESMF implementation requires special knowledge from the beneficiaries and all project participants at each stage of the project. To ensure the effective implementation of the project and a clear understanding of the requirements for safeguards of the project, a capacity-building program is proposed under this project.
- The program provides training in both general environmental policy principles of the World Bank, relevant national legislation, and in certain specific aspects relevant to this project. It is planned to conduct training and provide information on such topics as the introduction of ESMF, reporting on ESMF/ESIA/ ESMP.
- 657. NEGU has experience in implementation of investment projects funded by various IFIs. Under these projects sets of training were provided as a part of capacity building. Nevertheless, taking into account specificity of the project, wide range of planning activities it is essential to increase capacity in implementation of safeguards requirements.

- 658. For the said purpose, prior to commencement of construction work, NEGU will hire a Consultant with knowledge of the national environmental and social management requirements, as well as substantial knowledge of the policies and requirements of the World Bank's safeguards, who will develop training materials and trainings themselves. The training will include basic WB requirements, national rules and procedures for safeguards, as well as case studies in this regard. All developed training materials, after the first series of trainingsby the Consultant will be transferred to the NEGU for further application.
- The proposal for capacity-building of the Project on environmental and social issues will cover three basic areas:
 - a. PIU and RPIU potential capacity for the implementation of ESMF during the process of sub-projects selection, stages of construction and functioning of the sub-projects. A hired Consultant will provide appropriate training for PIU, RPIU and Environmental and Social Specialists on the requirements of ESF of the World Bank, assist in developing ESMPs for the rest of substations, and further assistance in the monitoring of social aspects and ESMP. The training can be conducted in the regional centers of project sites with practice of on-site visits and videoconferencing format.
 - b. **NEGU's capacity.** Even though the NEGU provides training on the implementation of safeguards measures for projects currently under implementation, on general environmental measures during the life of projects the Consultant together with the PIU Safeguards Specialist will develop and deliver a training program on the general overview of the World Bank's ESF and national environmental and social requirements. The purpose of this training will be to present the World Bank ESF and national environmental requirements for the different types (categories) of projects and further necessary actions
 - c. **Contractor's capacity** introduction training on WB and national environmental requirements, content of ESIA, ESMP documents, environmental monitoring reporting during the project implementation. Also, training will include for the entity responsible for operation of substations and T-lines on EHS management

Another set of training were conducted for specialists of regional committees of ecology and environmental protection, developers of documents on environmental assessment. The purpose of this training was to build the capacity of beneficiaries in the field of WB safeguards policies and preparation of documents onenvironmental assessment in accordance with these requirements.

Table 21. Preliminary capacity-building plan and training program (ESMF budget)

	Torget Arranger Estimated cost						
	The name of the training	Time and estimatedduration of training	Target group	Arranger	Estimated cost		
1	Review of WB safeguards and their implementation during the project cycle.	During the first yearof the Project implementation Duration - 1 day	NEGU - Heads of PIU and their experts	Consultant	2,000 US dollars		
	National environmental requirements for project preparation and implementation.						
2	Implementation of ESMF, ESMP, ARAP/RAP, LMP, SEP	Prior to selection of sub-projects Duration - 2 days	SS of the PIU and RPIU	Consultant	2,500 US dollars		
3	Implementation of ESMF, ESMP, socialscreening	Prior to the start of construction activities	Contractors	Consultant	3,000 US dollars Total 3,000 US dollarsfor 1 training		
		Duration - 1 day			in Tashkent		
4	Development of ESIA, ESMP	Up to 2 days	Regional environment al	Consultant	3,000 US dollars each.		
			committees, developers		Total 33,000 US dollarsfor 11 regions		
	GBV training and awareness-raising / implementation of	Half-day workshop for each target group (where possible, a	NEGU staff Contractors	Consultant,	3,000 USD at the start of the project,		
5	GBVaction plan	combined method will be used)	Local self- government / makhallas / community	PIU	plus 3,000 USD for training at substation construction sites.		
			members		Total 12,000 USD		
6	Stakeholder Engagement Plan	At the beginning and in the middle of the project 0.5 days	PIU and RPIU	Consultant	2,000 US dollars		
	Total				54,500 US dollars		

11. Grievance Mechanism

11.1. Existing grievance mechanism in Uzbekistan

661. Any citizen of Uzbekistan has several channels to submit his or her complaints.

> On village (makhalla) level):

- Physical visit to Mahalla Citizens' Assembly Office to meet with Chair;
- Call to President's Virtual reception (tel number is 1000 or 0-800-210-00-00) or send message to President's Virtual reception online (www.pm.gov.uz);
- Call to hotlines established at each district or regional Khokimiyat;
- Send written complaint (letter) to district/regional Khokim/ line Ministry/President;
- Attend meetings with district/regional Heads of Sectors on integrated socio-economic development of regions (4 sectors established in each district);
- Attend meetings with leadership of line ministries and agencies that have to regularly meet withcitizens in rural areas.

662. If a citizen is not satisfied with reply provided by Makhalla Chair, or s/he has received incomplete response, the citizen can apply to upper level, specifically to District Khokimiyat.

District level:

- Physical visit to Khokimiyat on citizens reception days to meet with district Khokim or deputy Khokims
- Call to hotlines established in each Khokimiyat
- Physical visit to Public reception offices under President's Virtual reception and established in each district nationwide
- Call to President's Virtual reception (tel. number is 1000 or 0-800-210-00-00) or send message to President's Virtual reception online (www.pm.gov.uz)
- Send written complaint (letter) to district Khokim/ line Ministry/President
- Attend meetings with district/regional Heads of Sectors on integrated socio-economic development of regions (4 sectors established in each district)
- Attend meetings with leadership of line ministries and agencies that have to regularly meet with citizens in rural areas.

663. If a citizen is not satisfied with reply provided on district level, or he has received incomplete response, citizen can apply to upper level, specifically to Regional Khokimiyat.

> Regional level:

- Physical visit to Khokimiyat on citizens reception days to meet with regional Khokim or deputy Khokims
- Call to hotlines established in each Khokimiyat
- Physical visit to Public reception offices under President's Virtual reception and established in each regional center nation wide
- Call to President's Virtual reception (tel. number is 1000 or 0-800-210-00-00) or send message to President's Virtual reception online (www.pm.gov.uz)
- Send written complaint (letter) to regional Khokim/ line Ministry/President
- Attend meetings with regional Heads of Sectors on integrated socio-economic development of regions (4 sectors established in each district)
- Attend meetings with leadership of line ministries and agencies that have to regularly meet with citizens in rural areas.

11.2. Objectives

- 664. In accordance with the WB Environmental and Social Standards, a project Grievance Mechanism (GM) must be established during the life of the project. The main objectives of the GM are to ensure that grievances and concerns raised by project-affected persons are received and addressed in a timely manner, and that grievances are resolved at the project level and prevent escalation to the national courts or the WB accountability mechanism.
- 665. All stakeholders and others who wants to lodge complaints about the project will be fully informed of their rights and of the procedures for addressing complaints whether verbally or in writing

during consultation, survey, training and time of compensation. The grievance mechanism shall not impede access to the country's judicial or administrative remedies. Affected persons can approach a court of law at any time and independent of the project level grievance redress process. Along with the WB requirements on development and approval of Grievance 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" (No ZRU-378, 03 December 2014). According to the "Law on the order of submission of appeals of physical and legal entities" the application or complaint shall be considered within fifteen days from the date of receipt in the state authority, which is obliged to resolve the issue on the merits, as well as require additional study and (or) check, a request for additional documents - up to one month. The submission procedure for grievances and citizens' applications has been discussed during the public consultations in the project districts and was also agreed with PIU representatives.

11.3. Grievance Mechanism

The proposed GM for the current project takes into account national legislation, project site specificities and consultation with NEGU PIU staff. The PAPs will have the right to submit complaints and queries on any aspect and the PIU (NEGU) will be responsible for establishing the GM once the project comes into force and will act as an oversight body of the GM to ensure that the GM actually works and is able to effectively address the environmental and social concerns of the PAPs. The proposed GM has been discussed with the PIU representatives and should be further presented and discussed with the PAPs during project implementation.

11.4. Records and Documentation

Most of grievances on land acquisition and resettlement issues are redressed at 1-2 levels. All grievances received from the population will be registered in a logbook⁴⁰, which should be available at all levels: at the site office of Contractor, makhalla committee of project area district. Besides, there are also logbooks in project district khokimiyat where the grievances from the population are usually registered. All the grievances submitted through the various channels and any measures undertaken to address such grievances, should be submitted to the representatives of PIU on the project site for the accounting all grievances. Thereafter the information on all received grievances will be collected and sent to the PIU NEGU.

11.5. Proposed grievance mechanism

668. A two-level GM is proposed for this project, as presented in Table 22.

Table 22. Grievance Mechanism and its Levels

Level/Steps	Process
Level 1-	The aggrieved person applies directly to local Makhalla committee or working office of Contractor or Site Engineer of NEGU ⁴¹ . PIU Social specialist will be in charge of collecting/receiving and registration complaints from makhalla committee, Contractor offices, site engineer(s) and from khokimiyat on a weekly
Site engineer of	base.
NEGU, the working office of Contractor, makhalla committee, and district khokimiyats	The alternative entry point for complaints will also be khokimiyats due to their obligations defined by national legislation; After registration of received complaints, the PIU Social specialist will review the nature/specificity of the complaint and will forward it to the relevant party for resolving. In parallel, the PIU Resettlement specialist will inform the PIU in Tashkent about the received complaint and further actions undertaken for its resolution. Depending on the nature of a complaint, it may go to the Contractor, Land Cadaster bodies, Makhalla committees, district branches of Nature Protection Committee or

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⁴⁰ The logbook should sequentially numbered and pags have been bound securely.

⁴¹ During the consultations on GM issues the representatives of NENU ensured that it is the common practice for the organization to have a supervising engineer in each construction site.

Level/Steps	Process
	newly created "Centralized Fund for the Compensation of Losses of people and legal entities after land acquisition for the needs of the state and society." At this level, the complaint should be resolved in two weeks.
Level 2 – PIU in Tashkent and a Grievance	In case the grievance was not redressed at the first stage or the applicant is not satisfied with the decision made/solution, s/he can submit the grievance directly to the PIU secretariat in Tashkent. By established procedure, the secretariat of the PIU will review the complaint and will forward complaints to the respective department to a made decision on its redress. In case the grievance is not related directly to the project, any further instance will be recommended to the applicant where s/he should apply for the decision making.
and a Grievance Redressal Committee headed by the PIU/NEGU	If the complaint requires more time and resources for resolution, the PIU may establish a Grievance Redressal Committee with following members such as representatives from secretariat PIU and NEGU high-level management staff, district Khokimiyat, cadastral and Nature protect departments etc. All complaints will be resolved in 15 days, and in case additional details are required, a maximum of 30 days will be used to resolve and close the complaint with prior notification of complainant.

669. If the issue was not solved or the applicant is dissatisfied with the decision/resolution, an aggrieved person at any stage of the GM process may submit the grievance to Economic Court (Court of Law) where a decision will be made by relevant national legislation.

12. ESMF DISCLOSURE AND PUBLIC CONSULTATION

670. ESMF and RF preparation has been highly participatory. ESF instruments were disclosed incountry on March 31st, 2021 and consulted on April 7, 2021 with stakeholders, including the public, local/district/region authorities, regional units of the NEGU, etc. Based on the suggestions received during the consultations, the ESMF, ESMPs, LMP, SEP and RF were updated, finalized and published on NEGU's website and will be published on the World Bank external website. The minutes of the consultations are provided in Annex 8.

ANNEXES

Annex 1. Map of the main electric power networks of Uzbekistan

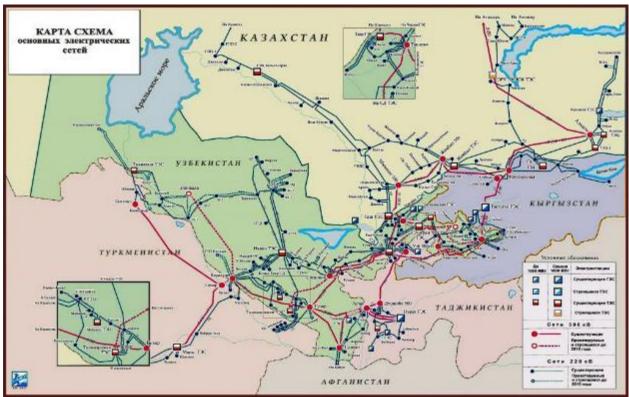


Figure A1: Map of the main electric power networks of Uzbekistan

Annex 2. Asbestos Containing Material Management Plan (Example)

Applicability

The Asbestos Containing Material Management Plan (ACMMP) applies to all project construction or reconstruction sites and any related areas. 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 procedure must be used to ensure the safe handling, removal and disposal of any and all Asbestos Containing Materials (ACM) from those areas.

Immediate Action

On discovering ACM on a Project site, the contractor must:

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

Equipment

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

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

Personal Protective Equipment (PPE)

- a) All personnel involved in handling ACM must wear the following equipment, provided by the contractor:
- b) Disposable overalls fitted with a hood;
- c) Boots without laces;
- d) 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;
- f) There must be no smoking, eating or drinking on a site containing ACM.

Decontamination Procedure 1: Removing small pieces of ACM

- a) Identify the location of all visible ACM and spray each lightly but thoroughly with water;
- b) Once the ACM is damp, pick up all visible ACM with shovels and place in a clear plastic bag;
- c) If ACM debris is partially buried in soil, remove it from the soil using a shovel and place it in the plastic bag;
- d) Insert a large label inside each plastic bag stating clearly that the contents contain asbestos and are dangerous to human health and must not be handled;
- e) ie the plastic bags securely and place them into labelled asbestos waste containers (clean metal drums) and seal each drum;
- f) Soil that contained ACM debris must not be used for backfill and must instead be shovelled by hand into asbestos waste containers;
- g) At the end of the operation, clean all shovels and any other equipment with wet rags and place the rags into plastic disposal bags inside asbestos waste containers.

Decontamination Procedure 2: Removing ACM-contaminated backfill

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

Disposal

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

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

a) Personal Decontamination

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

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

b) Clearance and Checking-Off

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

TRAINING

RPIU's Environmental Specialist may hire the specialized companies to conduct training on ACCMP implementation for Contractors staff and RPCU and PIU. The training will include a session focusing on ACM, which covered:

- a. Risks of contact with ACM;
- b. Responsibilities for dealing with ACM on project's construction sites;
- c. The Project's ACMMP and the Protocol for site clean-up:
- d. Awareness-raising for the contractors' workforce.

COST ESTIMATE

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

Annex 3. Indicative outline of ESIA

Where an environmental and social impact assessment has to be prepared for a sub-project it will include the following:

(a) Executive Summary

Concisely discusses significant findings and recommended actions.

(b) Legal and Institutional Framework

- Analyzes the legal and institutional framework for the project, within which the environmental and social assessment is carried out, including the issues set out in ESS1, paragraph 26-27
- Compares the Receiver's existing environmental and social framework and the ESSs and identifies the gaps between them.
- Identifies and assesses the environmental and social requirements of any co-financiers.

(c) Project Description

- Concisely describes the proposed project and its geographic, environmental, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power supply, water supply, housing, and raw material and product storage facilities), as well as the project's primary suppliers.
- Through consideration of the details of the project, indicates the need for any plan to meet the requirements of ESS1 through 10.
- Includes a map of sufficient detail, showing the project site and the area that may be affected by the project's direct, indirect, and cumulative impacts.

(d) Baseline Data

- Sets out in detail the baseline data that is relevant to decisions about project location, design, operation, or
 mitigation measures. This should include a discussion of the accuracy, reliability, and sources of the data as well
 as information about dates surrounding project identification, planning and implementation.
- Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions.
- Based on current information, assesses the scope of the area to be studied and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences.
- Takes into account current and proposed development activities within the project area but not directly connected to the project.

(e) Environmental and Social Risks and Impacts

Takes into account all relevant environmental and social risks and impacts of the project. This will include the
environmental and social risks and impacts specifically identified in ESS2–8, and any other environmental and
social risks and impacts arising as a consequence of the specific nature and context of the project, including the
risks and impacts identified in ESS1, paragraph 28.

(f) Mitigation Measures

- Identifies mitigation measures and significant residual negative impacts that cannot be mitigated and, to the extent possible, assesses the acceptability of those residual negative impacts.
- Identifies differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable.
- Assesses the feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of proposed mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the proposed mitigation measures.

 Specifies issues that do not require further attention, providing the basis for this determination. (g) Analysis of Alternatives.

(g) Analysis of alternatives

- Systematically compares feasible alternatives to the proposed project site, technology, design, and operation—including the "without project" situation—in terms of their potential environmental and social impacts.
- Assesses the alternatives' feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of alternative mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the alternative mitigation measures.
- For each of the alternatives, quantifies the environmental and social impacts to the extent possible, and attaches economic values where feasible.

(h) Design Measures

Sets out the basis for selecting the particular project design proposed and specifies the applicable EHSGs or if
the ESHGs are determined to be inapplicable, justifies recommended emission levels and approaches to
pollution prevention and abatement that are consistent with GIIP.

(j) Appendices

- List of the individuals or organizations that prepared or contributed to the environmental and social assessment.
- References—setting out the written materials both published and unpublished, that have been used.
- Record of meetings, consultations and surveys with stakeholders, including those with affected people and other interested parties.

The record specifies the means of such stakeholder engagement that were used to obtain the views of affected people and other interested parties.

- Tables presenting the relevant data referred to or summarized in the main text.
- List of associated reports or plans

Annex 4. Indicative outline of ESMP

An ESMP consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The ESMP also includes the measures and actions needed to implement these measures. The Receiver will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

Depending on the project, an ESMP may be prepared as a stand-alone document or the content may be incorporated directly into the ESCP. The content of the ESMP will include the following:

(a) Mitigation

• The ESMP identifies measures and actions in accordance with the mitigation hierarchy that reduce potentially adverse environmental and social impacts to acceptable levels.

The plan will include compensatory measures, if applicable. Specifically, the ESMP:

- (i) identifies and summarizes all anticipated adverse environmental and social impacts (including those involving indigenous people or involuntary resettlement);
- (ii) describes—with technical details—each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;

This may be particularly relevant where the Receiver is engaging contractors, and the ESMP sets out the requirements to be followed by contractors. In this case the ESMP should be incorporated as part of the contract between the Receiver and the contractor, together with appropriate monitoring and enforcement provisions.

- (iii) estimates any potential environmental and social impacts of these measures; and
- (iv) takes into account, and is consistent with, other mitigation plans required for the project (e.g., for involuntary resettlement, indigenous peoples, or cultural heritage).

(b) Monitoring

• The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP.

Specifically, the monitoring section of the ESMP provides (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

(c) Capacity Development and Training

- To support timely and effective implementation of environmental and social project components and mitigation measures, the ESMP draws on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the agency and ministry level.
- Specifically, the ESMP provides a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).

• To strengthen environmental and social management capability in the agencies responsible for implementation, the ESMP recommends the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

(d) Implementation Schedule and Cost Estimates

• For all three aspects (mitigation, monitoring, and capacity development), the ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

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Annex 5. Environmental and Social Monitoring Plan (Example)

	What	Where	How	When	Why	Cost	Who
Phase	(Is the parameter to be monitored?)	(Is the parameter to be monitored?)	(Is the parameter to be monitored?)	(Define the frequency / or continuous?)	(Is the parameter being monitored?)	(if not included in project budget)	(Is responsible for monitoring?)
During activity preparati on	Access to the traffic management site availability of waste disposal facilities hazardous waste inventory (asbestos) construction material quality control (eg. paints / solvents))	at the site at the site in site vicinity on site Contractor's store / building yard	check if design and project planning foresee diligent procedures visual / analytical if in doubt visual / research on toxic material databases	before launch of construction before start of rehabilitation works before approval to use materials	safety of general public, timely detection of waste disposal bottlenecks public and workplace health and safety	marginal, within budget marginal, within budget; (prepare special account for analyses at PIU	Contractor, Engineer
During activity supervisi on	noise emissions waste and wastewater types, quality and volumes surface drainage soundness	on site and in immediate neighborhood, close to potential impacted residents at discharge points or in storage facilities	visual consultation of local residents visual / analytical if in doubt Records of off-site transport of waste, checking flow rates and wastewater routing	Daily Daily Continuous Daily Continuous	avoidance of public nuisance avoidance of negative impacts on ground/ surface waters ensuring proper	marginal, within budget	Contractor, Engineer
					waste management and disposal		

Annex 6. Environmental Management Plan Checklist

(for small scale construction and reconstruction activities)

FORM 1: PROJECT INFORMATION

INSTITUTIONAL AND AD	MINISTRATIV	E ARRANGEMENTS		
Country				
Project title				
Scope of project and activity				
Institutional arrangements (Name and contacts)	WB (Project Team Leader)	Project Management	Local Counterpart Recipient	and/or
Institutional arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision	Contactor
SITE DESCRIPTION				
Site name				
Description of the site location			Attachment 1: Sit	te Map []Yes []
Who owns the land?			-	
Geographical description				
LEGISLATION				
Identify national &local				
legislation & permits that				
apply to project activity				
PUBLIC CONSULTATION	l			
Identify when /where the				
public consultation				
process took place				
INSTITUTIONAL CAPACI	TYBUILDING			
Will there be anycapacity building?	[] N or []Y if program	Yes, Attachment 2 includes	the capacity building	

Beneficiarv:	Signature:	Date:

FORM 2: SAFEGUARDS INFORMATION

ENVIRONMENTAL /SOC	CIAL SCREENING		
Will the site activity	Activity	Status	Triggered Actions
include/involveany of the	A. Building rehabilitation	[] Yes [] No	See Section B below
following??	B. New construction	[] Yes [] No	See Section B below
	C. Individual wastewater treatmentsystem	[] Yes [] No	See Section C below
	D. Historic building(s) and districts	[] Yes [] No	See Section D below
	E. Acquisition of land 42	[] Yes [] No	See Section E below
	F. Hazardous or toxic materials ⁴³	[] Yes [] No	See Section F below
	G. Impacts on forests and/or protected areas	[] Yes [] No	See Section G below
	H. Handling / management of medical waste	[] Yes [] No	See Section H below
	I. Traffic and Pedestrian Safety	[] Yes [] No	See Section I below

Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

43 Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

FORM 3: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
A. GeneralConditions	Notification andWorker Safety	 (a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (c) All legally required permits have been acquired for constructionand/or rehabilitation (d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnessesand safety boots) (f) Appropriate signposting of the sites will inform workers of keyrules and regulations to follow.
B. General Rehabilitationand /or Construction Activities	Air Quality	 (a) During interior demolition debris-chutes shall be used above thefirst floor (b) Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust (c) During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dustscreen enclosures at site (d) The surrounding environment (side walks, roads) shall be keptfree of debris to minimize dust (e) There will be no open burning of construction / waste material atthe site (f) There will be no excessive idling of construction vehicles at sites
	Noise	(a) Construction noise will be limited to restricted times agreed to inthe permit (b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areasas possible
	Water Quality	(a) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.
	Waste management	 (a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolitionand construction activities. (b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (c) Construction waste will be collected and disposed properly by licensed collectors (d) The records of waste disposal will be maintained as proof for proper management as designed. (e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		(except asbestos)
C. Individual wastewater treatment system	Water Quality	 (a) The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities (b) Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment (c) Monitoring of new wastewater systems (before/after) will becarried out
D . Historic building(s)	Cultural Heritage	 (a) If the building is a designated historic structure, very close to such a structure, or located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned andcarried out in line with local and national legislation. (b) It shall be ensured that provisions are put in place so that artifactsor other possible "chance finds" encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.
E. Social Risk Management	Public relationship management	 (a) Assign local liaison person who is in charge of communication with and receiving requests / complaints from local population. (b) Consult local communities to identify and proactively manage potential conflicts between an external workforce and local people. (c) Raise local community awareness about sexually transmitted disease risks associated with the presence of an external workforce and includelocal communities in awareness activities. (d) Scheduled works beyond irrigation season to the extent possible in order to avoid/minimize service disruption. Inform local population about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate. (e) Limit construction activities at night. When necessary, carefully schedule night work and inform affected community beforehand. (f) Properly mark and fence work site (g) No temporary storage of construction materials and waste occurs within cultivated land plots or any type of private property (h) Allocate areas for temporary storage of construction materials and waste so that free movement of traffic and pedestrians is not hindered.
E. Land Acquisition	Land Acquisition Plan/Framework	 (a) If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank's Task Team Leader shallbe immediately consulted. (b) The approved RF will provide guidance to be followed
F. Toxic Materials	Asbestos management	 (a) If asbestos is located on the project site, it shall be marked clearly as hazardous material (b) When possible the asbestos will be appropriately contained andsealed to minimize exposure (c) The asbestos prior to removal (if removal is necessary) will betreated with a wetting agent to

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		minimize asbestos dust
		 (d) Asbestos will be handled and disposed by skilled & experienced professionals (e) If asbestos material is be stored temporarily, the wastes shouldbe securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site. (f) The removed asbestos will not be reused
	Toxic /	(a) Temporarily storage on site of all hazardous or toxic substances
	hazardous wastemanagement	will be in safe containers labeled with details of composition, properties and handling information
		(b) The containers of hazardous substances shall be placed in anleak-proof container to prevent spillage and leaching
		(c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility.
		(d) Paints with toxic ingredients or solvents or lead-based paints willnot be used
G . Affected forests, wetlands and/orprotected areas	Protection	 (a) All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. (b) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be markedand cordoned off with fencing, their root system protected, andany damage to the trees avoided
		(c) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences
		(d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.
H. Disposal of medical waste	Infrastructure for medical waste management	 (a) In compliance with national regulations the contractor will insure that newly constructed and/or rehabilitated health care facilities include sufficient infrastructure for medical waste handling anddisposal; this includes and not limited to: Special facilities for segregated healthcare waste (including soiled instruments "sharps", and human tissue or fluids) fromother waste disposal; and Appropriate storage facilities for medical waste are in place;and (b) If the activity includes facility-based treatment, appropriate disposal options are in place and operational
I. Traffic and Pedestrian Safety	Direct or indirect hazardsto public trafficand pedestriansby constructionactivities	 (a) In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards Traffic management system and staff training, especially for site access and near-site

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes.
		 Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or timesof livestock movement
		 Active traffic management by trained and visible staff at thesite, if required for safe and convenient passage for the public.
		(b) Ensuring safe and continuous access to office facilities, shops and residences during
		renovation activities, if the buildings stay open for the public.

FORM 4: MONITORING PLAN

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
During activity preparation							
During activity implementation							
During activity supervision							

Annex 7. Environmental Screening Checklist Forms

Form 1

ENVIRONMENTAL SCREENING CHECKLIST

Part 1

(to be completed by Sub-project beneficiary)

1. Project Name:

- **2. Brief Description of sub-project** to include: nature of the project, project cost, physical size, site area, location, property ownership, existence of on-going operations, plans for expansion or new construction.
- 3. Will the project have impacts on the environmental parameters listed below during the construction or operational phases? Indicate, with a check, during which phase impacts will occurand whether mitigation measures are required.

Environmental Component	Construction Phase	Operational Phase	Mitigation Measures
Terrestrial environment			
Soil Erosion: which horticulture crops are envisaged? Is the land located on the slopes and/or on the plain areas? Will the project involve ploughing/plant cultivation on the slopes?			
Soil pollution: Will the project apply pesticides? Ifyes which types and their amount?			
Land, habitats & ecosystems degradation: Is the area which is to be used currently a natural habitat (forest, wetland, natural grassland, etc.)?			
Land degradation: Will the project involve land excavation?			
Generation of solid wastes— what type of wastes will be generated and their approximate amount			
Generation of toxic wastes— what types of toxic waste will be generated (obsolete and unusable pesticides and mineral fertilizers; chemicals used in agro-processing activities; asbestos) and their approximate amount			
Biodiversity and Habitats Loss: Will the project be located in vicinity of protected areas, wetlands or other sensitive areas supporting important habitats of natural fauna and flora?			
Construction: Will there be disturbance to the land and natural environment			
Air quality			

Environmental Component	Construction Phase	Operational Phase	Mitigation Measures
Will the project provide pollutant emissions? Which types of pollutants (SOx, NOx, solid particles, dioxins, furans, etc)			
Aquatic environment			
Water Quantity: will the project involve water use? From which water source (centralized water supply system and/or from water reservoir)?			
Water Quality/Pollution: Will the project contribute to surface water pollution— what will be the approximate volumes of waste water discharge? Does the project involve discharges of waste watersin water reservoirs and/or in centralized sanitation			
Loss of Biodiversity: Will the project involve introduction of alien species (in case of horticulture projects)?			
Degradation of natural aquatic ecosystems— will the project involve discharges in water courses and reservoirs of solid wastes; pesticides.			
Socio-economic environment			
Social impacts - does the project involve the following: (a) occupational safety issues; (b) health hazards; (c) involuntary land acquisition or displacement of third parties using land; (d) loss of access to sources of income; (e) loss of physical and/or economic assets; and (f) disturbance of			
Will the project assure non-deterioration of human health, occupational safety and non-disturbance of residents living near project area? If no, is it possible by applying proposed mitigation measures to reduce the project environmental and social impacts to admissible levels?			
Is the proposed project likely to negatively affect the income levels or employment opportunities of vulnerable groups?			
Is the project likely to significantly affect the cultural traditions of affected communities, including gender-based roles?			

For the environmental impacts that were indicated above with a check, describe the mitigation measures that will be

Simple Environmental Mitigation Plan

Environmental impact (What is to be mitigated)	Sub-project Phase(C, O or B)	How and where will itbe mitigated	Responsibility and cost

A typical sub-project monitoring plan would be prepared to monitor the implementation of the EMP for the sub-project.

Environmental Monitoring Plan

Project phase	What is to be monitored	How and where will it be monitored	Frequency of monitoring	Responsibility	Cost
Baseline					
Construction					
Operation					
De- commissioning					

Annex 8. Public consultation

Place/format: NEGU Office in Tashkent in video conference format.

Date: 7 April 2021

Electricity Sector Transformation and Resilient Transmission Project (ESTART)

Public hearing: Disclosure and public discussions on the Social Environmental Principles (SEPs)

Prepared by: "Ekostandart Ekspert Environmental and Social Specialists: Olga Vakhidova-

Mordovina and Zilola Kazakova

Presented bv: Zilola Kazakova

Target audience: Target audience: Representatives of regional and local authorities involved in environmental and social activities of the project were invited (specialists of the Department of Land Resources and State Cadastre, Committee for Ecology and Environmental Protection, Ministry of Energy of RUz, representatives of the Khokimiyat, etc.). The list of participants is attached. NEGU specialists and residents of the directly affected settlements (substations, OHTLs, access roads) were also invited.

The oral presentation was made in the local language (Uzbek).

The following topics were discussed:

Description of the project and its components; potential project planning activities, national environmental, social legislation and relevant WB requirements: identified social and environmental impacts and mitigation measures; developed social and environmental safeguards documents (ESMF, site specific ESMPs (Koltcevaya with OHTL, and Tashkent 500), RF, LMR and SEP) and the need to develop an ESMP for each sub-project, in the context of previously developed documents; Grievance Mechanism and project contact information for affected people and organizations; further stages of project implementation.

After the discussion, the Consultant shared with the participants a presentation and provided contact numbers of project representatives where participants of the public consultations can contact the Consultant or a representative of the PIU in case of any questions and necessary clarifications.

The participants were then given the opportunity to express their opinions and ask questions. The consultants took turns addressing the representatives of each project region. Representatives of the NEGU regional branches reported that the information presented on the project is clear and understandable and that they had already received information on the technical and project data during the initial consultations during the field visit.

Participants discussed the following topics and questions:

#	Topic / Question	Answers/ Discussions
1	Is it necessary to have a complaints and suggestions log at each project site?	Each regional NEGU branch should keep a register of complaints and appeals. The issue of complaint logging is very important in the implementation of project activities.
2	Placement of project socio- environmental documents, access to project information	All developed project documents have been posted on the NEGU and World Bank website, a detailed presentation and brochure was sent to each project region for further distribution to residents and other PAPs.

After the discussions, the project consultants asked female participants to also participate in consultations on gender equality and GBV as part of project activities and events.

Place/format: NEGU Office in Tashkent in video conference format.

Date: 7 April 2021

Electricity Sector Transformation and Resilient Transmission Project (ESTART)

Public consultation: On Gender Equality and Gender-Based Violence in the Context of Project Activities

Prepared by: Ekostandart Ekspert Environmental and Social Specialists: Olga Vakhidova-

Mordovina and Zilola Kazakova

Presented by: Zilola Kazakova

Target audience: NEGU Women specialists and women residents of the directly affected communities (substations, transmission lines, access roads) were invited to attend the consultations. The consultations were attended by 28 women, with the following composition - 10 female employees of the regional MEN and 18 female residents of the project area.

The oral presentation was made in the local language (Uzbek).

The following topics were discussed:

Issues of gender equality and gender-based violence in the context of this project and women's lives in today's society, the frequency of individual consultations with women employees of the NEGU and residents in the project areas, training on gender topics for NEGU staff and regional units, the need to establish a gender focal point at regional level, reviewing recruitment and promotion policies, ensuring comfortable and safe working conditions for women, with sufficient latrine facilities with a sufficient number of restrooms and showers, assistance in the opening of the women's association and its integration into the trade union organization of the NEGU.

The consultants also reported that the Project will contribute to reducing gender bias in the energy sector by including specialized knowledge and capacity building services that do not limit women to certain gender roles and social expectations. The project will include monitoring these actions. As part of the project, the NEGU will develop an action plan on GBV, the activities of which will also be integrated into the contractors' ESMP. Project training and capacity building activities will include specific GBV-focused modules so that all project staff and key stakeholders have a better understanding of GBV risks and required mitigation measures within the project.

After the discussion, the Consultant provided the contact numbers of the project representatives where participants in the public consultations can contact the consultant or the PIU representative in case of any questions and necessary clarifications.

The participants were then given the opportunity to express their opinions and ask questions. The consultants took turns addressing the representatives of each project region.

Participants discussed the following topics and questions:

#	Topic / Question	Answers/Discussions
1	On the side of the Syrdarya Regional Branch, staff raised the issue of the need to improve sanitary and hygienic conditions in the workplace for women.	The Consultant noted that the project was to consider providing a comfortable and safe working environment for women, with sufficient latrines and showers, and that the appeal would be passed on to the NEGU management.
2	Participants have some concerns about the confidentiality of the information discussed during these consultations.	The consultants advised that there is no need to be afraid to express their opinions to female employees of NEGU enterprises, local female residents, that the environment and conditions of these consultations provide for free expression of their complaints, concerns and possible risks related to the project implementation. Women will be treated with strict confidentiality and separate complaints mechanisms will be implemented.

#	Topic / Question	Answers/Discussions
3	What kind of training will be provided on these issues?	The NEGU will develop an action plan on GBV, the activities of which will include training among women employees of the NEGU, women of project areas, employees of contractors.

The participants reported that gender-based violence is a very topical issue in everyday life, but that mentality and traditions do not allow for an open discussion, but they are grateful for the opportunity to speak out.



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Сана: 2021 йил 7 апрел Худуа: "Бухоро МЭТ филиали Лойиха номи: «"Электр тармогини узгартириш ва баркарор узатиш (ESTART)

Nº	ФИО	Лавозими	Ташкилот номи	Контакт маълумотлари (e-mail)	Имзо
1.	Мирзаев Самад Садикович	бош мухандис	Бухоро МЭТ филиали	93-459-80-08	Male
2.	Азизов Эркин Абдуллаевич	Бош мухандис уринбосари	Бухоро МЭТ филиали	91-405-57-43	0. Amh
3.	Жураев Толиб Тошпулатович	Капитал курилиш булими бошлиги	Бухоро МЭТ филиали	97-304-19-00	at short
4.	Султонов Дилшод Хужамуродович	Бош хисобчи	Бухоро МЭТ филиали	93-967-55-00	Op
5.	Рузиева Гулойим Туймуродовна	Ходимлар булими мухандиси	Бухоро МЭТ филиали	91-402-58-09	088
6.	Хожиева Насиба Яхшиевна	Режа иктисод гурухи етакчи иктисодчиси	Бухоро МЭТ филиали	91-445-76-92	of zon
7.	Ибрагимов Эшмурот	Капитиал курилиш булими	Бухоро МЭТ филиали	91-449-42-32	Harlest







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8.	Ражабов Бекмурат Аминович	Капитиал курилиш булими етакчи мухандиси	Бухоро МЭТ филиали	93-626-07-48	Queceas"
9.	Хожиева Ирода Ориповна	Хавфсизлик ва махсус ишлар гурухи мухандиси	Бухоро МЭТ филиали	91-447-80-57	Yail
10.	Муминова Гули Шамсидиновна	Рели химояси ва Электросинов хизмати техниги	Бухоро МЭТ филиали	90-718-67-56	46
11.	Хайдаров Жамол Рахимович	Ишлаб чикариш техника Гурухи етакчи мухандиси	Бухоро МЭТ филиали	97-301-27-00	anderly
12.	Файзуллаев Нодиржон Собир угли	Моддий техника таъминоти гурухи мухандиси	Бухоро МЭТ филиали	91-407-00-43	des ,
13.	Рузиев Шарипжон Исломович	Моддий техника таъминоти гурухи омбор мудири	Бухоро МЭТ филиали	93-479-39-07	BAT
14.	Асроров Сардор Журакулиевич	Алока хизмати бошлиги	Бухоро МЭТ филиали	93-452-27-26	March

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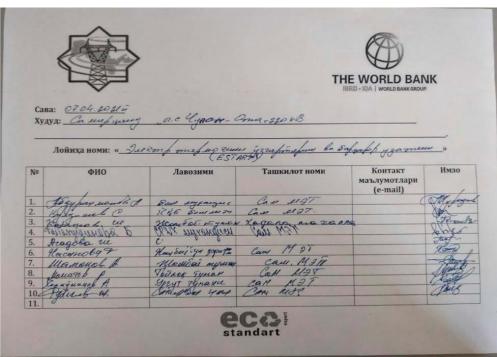




Худуд: 4 Узбельстан Милий Эметр Тариотвари" АК Навоний Могистрал эштр гористари дримом Навоний выгода вармона чумани Лойиха номи: «Энерия сектерини здартрии ва "ESTART чобиха сини ишта »

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1.	Хасанов Б М	директор	Habour HIT	95-610-57-57	(AHIG)
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Сана: <u>07. 04. 2021 4</u>.

Худуд: , Фареона магнетра эметр тариовлари филиали Фаргоно шакра

Лойнха номи: «Магистра тарморгара подстанний зарики модернизация ва ревоногруптия килися.

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Сана: <u>07.04.2021 йил</u> Худуд: <u>Хоразм вилояти</u>

Лойиха номи: «<u>Магистрал тармоклардаги подстанцияларни модернизация ва реконструкция килиш</u>» (фаза II), «Хазораст» <u>ПС</u>

Nº	ФИО	Лавозими	Ташкилот номи	Контакт	Имзо
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	Искандаров Санноар	вош муть жассис	Казарась тушан Кокимият	93-708-68-01	- Marcant
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	Маткаримова Зухария	жадимар бумеми		93-742-68-17	Acela
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Сана: 7.04.2021 й.

Худуд: Тошкент шақар Магистрал Электр Тармоқлари филиали

Лойиха номи: «Магистрал электр тармоқларини модернизация ва реконструкция қилиш » (ІІ фаза) ПС "Тракторсоз"

No	ФИО	Лавозими	Ташкилот номи	Контакт	Имзо
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List of women-participants of public consultation





Сана: 07.04.2021 йил Худуд: "Ўзбекистон МЭТ" АЖ Андижон МЭТ филиали

Лойиха номи: "Ўзбекистон МЭТ"АЖнинг №01-04-28/63 сонли Факсограммасига асосан

Жахон банки иштирокида "Магистрал электр тармоклари потстанцияларини замонавийлаштириш ва реконструкция қилиш" инвестиция лойихасини амалга ошириш чора тадбирлари тўгрисидаги қарорига асосан видео конфиренциясида катнашувчилар рўйхати

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2	Йулдашева Барнохон	Техник	Андижон МЭТ филиали	97-992-04-45	MAR
3	Юсупова Шахноза	Иктисодчи	Андижон МЭТ филиали	99-086-20-33	301
4	Мухтарова Наргиза	ХБ мухандиси	Андижон МЭТ филиали	98-780-05-23	Mula.
5	Мамадиева Нигорахон	Алока эл.монтёр	Андижон МЭТ филиали	93-445-20-93	Marko

КУК раиси



Д.Хаитова







Сана: 2021 йил 7 апрел

Худуд: Бухоро МЭТ филиали Лойиха номи: Электр тармогини узгартириш ва баркарор узатиш (ESTART)

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1	Рузиева Гулойим Туймуродовна	Ходимлар булими мухандиси	Бухоро МЭТ филиали	91-402-58-09	8845
2	Хожиева Насиба Яхшиевна	Режа иктисод гурухи етакчи иктисодчиси	Бухоро МЭТ филиали	91-445-76-92	H Rose
3	Хожиева Ирода Ориповна	Хавфсизлик ва махсус ишлар гурухи мухандиси	Бухоро МЭТ филиали	91-447-80-57	Yould-
4	Муминова Гули Шамсидиновна	Рели химояси ва Электросинов хизмати техниги	Бухоро МЭТ филиали	90-718-67-56	4/26

С.С.Арсланов Директор филиала Бух МЭС:





Сана: 07 04.201.

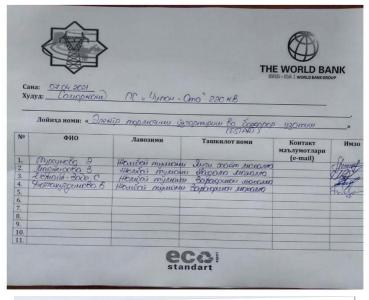
Худуя: "Убесиктом Миний Эшегр Тариодлари" АЖ звавой Наикграл.

21117 гориодлари финоли Навой вигог Гариана гумани

21117 гориодлари финоли навоги бойга обида интирогида лойиха номи: « Гендер пениих мавзуси бубига обмор шитирому а » этогиха номи: « Контакт Имзо

Nº	ФИО	Лавозими	Ташкилот номи	маълумотлари (e-mail)	имзо
	1 la Quinna	Годинар буши кух	Rabour 491 Habour HJT	97-320-14-34	Doles
1.			He Rouge Hat	91-334-16-31	(MX
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сана: от от дости. Худуд: «Даргона мешеграх отгогр териоспари" ориниски, Даргона шакли

Лойиха номи:«Могион раз тариоклади подоточний карин игодор низания во регонот вывших»

Νo	ФИО	Лавозими	Ташкилотноми	Контакт маълумотлари (e-mail)	Имзо
1.	Kyggisgamoba H.	To Belease	By Bacoti es, es al ci.	L. C. L.	Sent 1
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5.	Kamuela C.	y a sercace	amurapur F. Mapi.		VXX.
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Сканировано с CamScani





Сана: <u>07.04.2021 йил</u> Худуд: <u>Хоразм вилояти</u>

Лойиха номи: «<u>Магистрал тармоклардаги подстанцияларни модернизация ва реконструкция килиш</u>» (фаза II), «Хазорасп» ПС

Nº	ФИО	Лавозими	Ташкилот номи	Контакт маълумотлари (e-mail)	Имзо
1.	Манкаримова Зугория	ходимир буши	Ropezu MJC	93-742-68-17	atol
2.	Bonupola Mogua	етакчи иктисадчи	Короди игс	91-425-64-03	8.1
3.	Auenoba Note 110	TERNUK	Rope zu MOC	91-420-35-43	AutoBo
4.	Axuegobe Myza8807	EYRZQUTED	Ropezu MX	37-362-00-73	Ju Heneral
5.	P.43 wemore Pory 30	яя пухоприси	Rapezu MIC	90-648-07-96	Resear 6
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Photos of public consultation





















