Initial Environmental Examination

August 2015

AZE: Power Distribution Enhancement Investment Program- Tranche 1

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CURRENCY EQUIVALENTS

(as of 01 June 2015)

Currency unit	–	Azeri Manat (AZN)
AZN1.00	=	US $0.96
US$1.00	=	AZN $1.04

LIST OF ABBREVIATIONS

ACGIH	—	American Conference on Government and Industrial Hygienist
ADB	—	Asian Development Bank
CFC	—	Chlorofluorocarbons
CTS	—	Complete Transformer Substation
EA	—	Executing Agency
EARF	—	Environmental Assessment and Review Framework
ECR	—	Environmental Complaints Register
ED	—	Environmental Department
EIA	—	Environmental Impact Assessment
EMF	—	Electromagnetic Field
EMP	—	Environmental Management Plan
EPC	—	Engineering, procurement, and construction
EPD	—	Environmental Protection Division
GoA	—	Government of Azerbaijan
GFP	—	Grievance Focal Points
GHG	—	Green House Gases
GRC	—	Grievance Redress Committee
GRM	—	Grievance Redress Mechanism
ICNIRP	—	International Commission on Non-ionising Radiation Protection
IEE	—	Initial Environmental Examination
IEEE	—	Institute of Electrical and Electronics Engineers
IRPA	—	International Radiation Protection Association
MENR	—	Ministry of Ecology and Natural Resources
MFF	—	Multi-tranche Financial Facility
NBSAP	—	National Biodiversity Strategy and Action Plan
NP	—	National Park
OJSC	—	Open Joint Stock Company
O&M	—	Operation and Maintenance
PCBs	—	Polychlorinated biphenyl
PIU	—	Project Implementation Unit
PMC	—	Project Supervision and Management Consultant
POPs	—	Persistent Organic Pollutants
REA	—	Rapid Environmental Appraisal
RESSD	—	Regional Energy Supply and Sales Department
SEE	—	State Policy on Ecological Expertise
SIW	—	Self-supporting Insulated Wire
SNR	—	State National Reserve
SNS	—	State National Sanctuary
SPPRED	—	The State Program on Poverty Reduction
SPS	—	Safeguard Policy Statement
SSEMP	—	Site Specific Environmental Management Plan

TA	—	Technical Assistance
UNEP	—	United Nations Environment Program
WHO	—	World Health Organisation

NOTES

(i) The fiscal year (FY) of the Government of Azerbaijan ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2015 ends on 31 December 2015.

(ii) In this report, "$" refers to US dollars.

CONTENTS

I. EXECUTIVE SUMMARY

1. The Government of Azerbaijan (GoA) has requested the Asian Development Bank (ADB) to provide funding to support Azerishig Open Joint Stock Company's (OJSC) Power Distribution Enhancement Investment Program (the Investment Program). The Investment Program aims to improve energy efficiency of the power distribution sector in Azerbaijan through rehabilitation and expansion of the aged distribution network. The investment program will (i) improve power supply reliability in the region; (ii) reduce distribution losses; (iii) improve customer service efficiency and quality; (iv) improve operational and financial performance of the regional distribution companies, and (v) promote corporate reform and capacity development in the distribution subsector.

2. The investment program will have three major outputs: (i) rehabilitation of 110 kV, 35 kV, 10 kV, and 6 kV distribution networks including distribution lines and substations; (ii) rehabilitation of 0.4 kV customer service lines and installation of advanced electric meters; and (iii) strengthened institutional capacity of Azerishig OJSC. The components covered under the investment program are expected to consist of:

(i) **Rehabilitation of 110 kV, 35 kV, 10 kV, and 6 kV Power Distribution Networks.** Rehabilitation of 110 kV substations 15 units, 35 kV substations 52 units, 6-10 kV transformer stations 4,004 units; 110 kV distribution lines 150 km, 35 kV distribution lines 400 km, 6-10 kV distribution lines 2,600 km.

(ii) **Rehabilitation of 0.4 kV Customer Service Lines and Meters**. Replacement of 0.4 kV customer service lines 10,154 km including installation of electric meters. The existing 0.4 kV bare overhead bare conductors will be completely replaced with new self-supporting aerial bundled cables (insulated), and the existing poles will be completely replaced with new steel, concrete or wood poles. The new insulated cables will make illegal access to distribution lines and energy theft impossible.

(iii) **Support for Institutional Development, Capacity Building, and Project Management**: including consultancy services for (i) project supervision and management including procurement, engineering support, financial management, social and environmental safeguard monitoring, external audits, and training. (ii) preparing and monitoring of all subsequent tranches under the proposed MFF; (iii) support for policy development and capacity building of Azerishig staff.

3. The Program will be financed by ADB through a Multi-tranche Financing Facility (MFF). The executing agency (EA) is Azerishig OJSC.

4. There will be three tranches associated with the Program. Under the MFF loan procedures of the ADB, implementation of environmental safeguards is to be achieved by environmental assessment of every project to be undertaken following the ADB's Safeguard Policy Statement June 2009 (SPS 2009). The constituent projects in the Investment Program generally concern investments in existing facilities and are most unlikely to affect sensitive areas, forests or wetlands, and might typically be expected to have been classified as Category B or C under the ADB's SPS 2009 that will be followed for all projects.

5. This Initial Environmental Examination (IEE) covers subprojects to be included under Tranche 1 of the MFF

6. The scope of works proposed under the Tranche 1 project comprises 62 subprojects where a subproject is defined as one of the following:

- a 110kV substation – 4 subprojects
- a 35kV substation – 16 subprojects,
- a discrete segment of double circuit 110kV distribution line - 4 subprojects total length = 53.8km)
- a discrete segment of double circuit 35kV distribution line – 16 subprojects (total length 118.25 km)
- a total length of 10kV distribution line in each of the seven Regional Electricity Supply and Sales Department (RESSD) areas – 7 subprojects (total length over 7 RESSDs = 1,236.5km)
- a total length of 0.4kV self-supporting insulated wire (SIW) distribution line in each of seven RESSD areas – 7 subprojects (total length over 7 RESSDs = 3,893.45km)
- a set of complete transformer substations (CTS) for each of the seven RESSD areas – 7 subprojects (total number of units = 1157)
- supply and installation of electric meters in seven RESSD areas – one subproject (total number of units = 108,409)

7. The 62 subprojects are grouped into the eight subproject types described above. The subprojects are scattered across 13 districts of Azerbaijan. The 62 subprojects will be implemented under 47 contract packages.

8. Project implementation is expected to commence in January 2015 and be completed by December 2018.

9. In all subproject areas, the project components do not encroach upon ecologically sensitive areas. They are located either within the boundaries of existing substations, within rights of way of existing distribution corridors in the case of distribution lines and transformers, or located on existing government or Azerishig owned land in the case of proposed new substations. Preliminary site selection for substations to be rehabilitated or newly constructed, and distribution lines/transformers to be replaced/rehabilitated, has been done based on systems analysis of Azerishig's existing network to ensure overall system stability of the network and that all consumers in the districts will benefit from improved delivery of electricity.

10. The selection of new equipment, i.e. transformers, capacitors, etc., will comply with international standards including with respect to avoiding use of Polychlorinated biphenyl oils (PCBs). The principles have been adopted for selection of optimum sites for the various project components are: (i) Minimize disturbance of human settlements (no land acquisition or resettlement is required); (ii) Avoid monuments of cultural or historical importance; (iii) Do not create a threat to the survival of any community with special reference to ethnic minority communities; (iv) Do not affect any public utility services like playgrounds, schools etc.; (v) Do not pass through any sanctuaries, national parks, reserve forests etc.; (vi) Minimize damage to existing trees/forest resources, and (vii) Selection of new equipment, i.e. transformers, capacitors, etc., will comply with international standards particularly with respect to avoiding use of PCBs.

11. Site selection for individual lines and substations has been undertaken carefully. Only existing corridors for distribution lines will be used. Similarly, new substations will be mainly constructed within the boundaries of existing substations. Although some new 35kV substations will be constructed on new sites currently owned by Azerishig.

12. Potential environmental impacts were identified in relation to design, location, construction and operation of the improved infrastructure and mitigation measures have been developed to reduce all negative impacts to acceptable levels.

13. Overall the proposed project is unlikely to cause any adverse environmental impacts. This is due to the following findings:

- All of the proposed new 110kV substations are located within the boundaries of existing substation sites
- Most of the proposed new 35kV substations and their associated distribution lines are located within the boundaries of existing substation sites
- All the existing substation sites and the seven proposed greenfield 35kV substation sites are located in what can be described as industrial, peri-urban or rural areas with low environmental values .
- The proposed new 110kV and 35kV lines will involve replacement/upgrading of existing lines along existing corridors or in the case of some 35kV lines be emplaced underground.
- The lower voltage lines (10 kV and 0.4 kV) will involve replacement of existing lines and poles along road corridors
- Complete transformer substations (CTS) will be located on government owned property within existing distribution corridors and in most cases involve replacement of old transformers on the same footprint. Some additional CTS will be added to augment the distribution system
- None of the sites or proposed project assets are within or close to any protected areas or culturally sensitive areas
- There will be minimal civil works required for the project
- Construction and operation of the project is likely to give rise to nil, negligible or at worst, minor temporary environmental impacts that can be easily mitigated to acceptable levels.

14. The most significant potential environmental impact will be associated with the removal, storage and disposal of old transformers potentially containing polychlorinated byphenyl (PCB) oil. Detailed procedures for removal, storage and disposal of old transformers in accordance with international good practice and the Government of Azerbaijan's obligations as a signatory to the Stockholm Convention on Persistent Organic Pollutants (POPs) have been specified in this IEE and associated environmental management plans (EMP). These procedures and measures will ensure that there will be no unacceptable impact associated with disposal of old transformers.

15. An EMP has been prepared for each of the subproject types excluding the supply and installation of electric meters. The EMPs are included as part of this IEE and include (i) mitigation measures for potential environmental impacts during implementation, (ii) environmental monitoring program, and (iii) the responsible entities for mitigation, monitoring, and reporting.

16. Mitigation will be assured by a program of environmental monitoring to be conducted during the construction stages. The environmental monitoring program will ensure that all mitigation measures proposed in the EMPs are implemented, and will determine whether the environment is protected as intended. Any requirements for remedial action will be reported to the ADB.

17. Project stakeholders were consulted during preparation of the IEE and invited to express any environmental and social concerns they had regarding the project. No significant environmental and social concerns were raised and all stakeholders consulted strongly support the project and are looking forward to the benefits of improved electricity services. The IEE will be made available at public locations and will be disclosed to a wider audience via the ADB website. The consultation process will be continued during project implementation to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation

18. Environmental and social benefits of the investment components and long-term project objectives far outweigh the minor and temporary inconveniences that will arise during project implementation. Provided the EMPs are properly implemented there will be no unacceptable impacts arising from the project.

19. This IEE including EMP are considered sufficient to meet the environmental assessment requirements of ADB and Government of Azerbaijan. Therefore, a full environmental impact assessment study is not required.

II. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

20. Environmental assessment of the project is undertaken with regard to complying with ADB and GoA policies, legislation, and requirements. This also includes complying with relevant international agreements.

A. GOVERNMENT OF AZERBAIJAN ENVIRONMENTAL POLICIES, LAWS & REGULATIONS

Laws and Regulations

21. Azerbaijan has a number of laws that include provisions for environmental protection and monitoring, and for the management of environmental issues related to development projects, originating in the constitution (1995). The Constitution is the highest law in the Azerbaijan Republic and prevails over national legislation and international agreements. It stipulates the basic rights of people to live in a healthy environment, to have access to information on the state of the environment and to obtain compensation for damage suffered as the result of a violation of environmental legislation.

22. As in other regional countries, much of the Soviet-era environment-related legislation has been replaced or modified. The Law on Environmental Protection, 1999, is the centerpiece of the new legal structure. Other acts complement it in important ways. Together, the new laws invoke the polluter-pays principle, open the door for the use of economic instruments, partially bridge the gap between existing and international environmental standards, and enhance the role of public awareness, among other new elements.

23. Some of the important laws relevant to the proposed power sector project focusing on environmental impact assessment are described below.

(i) ***Law on the Protection of Environment, 1999:*** The Law of the Republic of Azerbaijan on the Protection of Environment (1999) establishes the legal, economic and social bases for environment protection. The objective of the Law is to project environmental balance, thus: (i) ensuring environmental safety; (ii) preventing hazardous impact of industry and other activities to natural ecological systems; (iii) preserving biological diversity; and (iv) utilizing natural resources properly. The relevant clauses of this Law are:

- Article 35. Ecological requirements set forth natural resources use.
- Article 36. Ecological requirements set forth work protection.
- Article 37. Ecological requirements set forth the placement (location) of enterprises, installations and industrial units.
- Article 38. Ecological requirements set forth the construction and reconstruction of enterprises, installations and other industrial units.
- Article 49. Protection of the earth's climate and ozone layer.
- Article 50. The objectives of the ecological expertise is to identify impacts on environment caused by industrial units, examine the results of such impacts and predict possible impacts, in accordance with environmental requirements and qualitative parameters of the environment.

- Article 54. The units controlled by the State Ecological Expertise (SEE). According to Sub-Article 54.2, EIA is subject to SEE review and MENR is responsible for the review and approval of EIA reports submitted by project proponents.
- Articles 81 and 82. Provide for the application of international agreements in case an international institute or body has provisions that are different from those in Azerbaijani legislation.

(ii) ***The State Ecological Expertise (SEE)***: Mandates an EIA for infrastructure development projects. The objective of the SEE is to identify impacts on the environment caused by construction projects, examine the results of such impacts and propose mitigation measures to prevent adverse effects on the natural environment and people's health. It is essentially a stand-alone check of compliance of the proposed activity with the relevant environmental standards (e.g. for pollution levels, discharges, and noise).

(iii) ***Handbook of Environmental Impact Assessment (1996)***: This handbook was prepared by UNDP and it defines the project types requiring Environmental Assessment (EA), contents of the document on EA roles and, responsibilities of applicant and responsible state organization, procedures, public participation and complaints. It is not a legally binding document but government use it for environmental assessment of the projects. A new draft law on Environmental Impact Assessment is under review by parliament and will be approved soon.

(iv) ***Azerbaijan Environmental and Safety Regulations:*** Other relevant national laws summarized below are:

- Law on Protection of Foreign Investment (1992): This includes a number of safeguards for foreign investors and allows the acquisition of exploration and development rights. Revisions on this Law are planned.
- Law on Use of Energy Resources (1996): This provides the legal, economic and social policy basis for the efficient use of energy resources. The State has the power to control the use of energy resources by State enterprises and organizations, to set policy for efficient energy resource use and, to use a range of mechanisms to promote energy saving technology and equipment. Registration of plans for energy resource use is also addressed.
- Law on Power Engineering (1998): This provides the legal basis for electrical and thermal power generation, transmission, distribution, purchase, sales and consumption. It governs the activities of State power engineering companies, power supply companies, independent power producers and consumers. The relevant State authorities are responsible for licensing, transmission and distribution contracts, pricing, de-monopolization, performance criteria, rules and standards.
- Law on Energy (1999): This covers energy policy objectives, the ownership of resources, control of exploration, development of fields and the construction and maintenance of transport systems. The Law includes a strong commitment to energy efficiency and contains significant licensing provisions.
- The State Program for the Development of the Fuel and Energy Sector of the Azerbaijan Republic (2005-2015): This program was approved by Presidential Decree on February 14, 2005. The Ministry of Industry and Energy has been designated as the coordinating agency for this program. The overall goal of this

program is to fully meet demand for power, gas and other energy resources through the continued development of the fuel and energy sectors. The program also focuses on sector restructuring, the installation of modern equipment and the introduction of a management system suitable for operating in a market economy.

- National Program on Environmentally Sustainable Socio-Economic Development: This program covers the period 2003 to 2010 and includes actions to mitigate the impact of the energy sector on the environment, including: (i) the introduction of highly efficient technologies at thermal power plants; (ii) the promotion of modern energy saving technologies in both the production and non-production sectors; and (iii) the development and implementation of national and regional programs aimed at demand management.
- Law on the Electrical and Heat stations 1999: This Law includes the following relevant sections: (i) Section3, which stipulates requirements for construction, reconstruction and exploitation of power stations; (ii) Article 9, which sets emission limits for power stations; (iii) Article 11, which sets limits for noise and vibration; (iv) Article 12, which deals with water wastes; (v) Article 13, which provides measures for decreasing water wastes; (vi) Article 14, which deals with accidents; and (vii) Article 15, which specifies penalties.
- A complete list of relevant laws are given at Table 1

Table 1: Table 1: Relevant Laws, Legislations, and Policies in Azerbaijan

Sl. No.	Law / Regulation / Policy	Date of Adoption
1.	Law of the Republic of Azerbaijan on “Industrial and municipal wastes”	30.07.1998
2.	Law project on “Making changes and supplements to Law of the Republic of Azerbaijan on industrial and municipal wastes”	
3.	President Decree on the application of Law of the Republic of Azerbaijan on “Industrial and municipal wastes”	26.10.1998
4.	Law of the Republic of Azerbaijan on “Energy”	24.11.1998
5.	Law of the Republic of Azerbaijan on “Principles of town-building”	11.07.1999
6.	Law of the Republic of Azerbaijan on “Investment activities”	13.01.1995
7.	Law of the Republic of Azerbaijan on “Foreign investment laws”	15.01.1992
8.	President’s Order on “Extra measures for the issues associated to the international conventions and agreements on environment protection in which the Republic of Azerbaijan has joined”	30.03.2006
9.	National Program of the Republic of Azerbaijan on “Environmentally sustainable social-economic development”	18.02.2003
10.	On “Measures for providing the implementation of the commitments The Republic of Azerbaijan has adopted in accordance with the UNFCCC ratified by the Republic of Azerbaijan in January 10, 1995”	30.04.1997
11.	Law of the Republic of Azerbaijan on “Public awareness raising on environmental issues”	10.12.2002
12.	Law of the Republic of Azerbaijan on “Protection of environment”	08.07.1999
13.	Law of the Republic of Azerbaijan on “Obligatory ecological ensurance”	12.03.2002
14.	Law of The Republic of Azerbaijan on specially protected natural territories and sites	24.03.2000
15.	Law of the Republic of Azerbaijan on export control	26.10.2004
16.	Law of the Republic of Azerbaijan on Protection of Atmospheric Air	21.03.2001
17.	President Decree on the application of Law of the Republic of Azerbaijan on “Protection of Atmospheric Air”	11.06.2001
18.	Law of the Republic of Azerbaijan on ‘Phyto-sanitary control”	21.05.2006

Sl. No.	Law / Regulation / Policy	Date of Adoption
19.	President Decree on “Application of Law of the Republic of Azerbaijan on phyto-sanitary control”	06.02.2007
20.	State Program on “Alternative energy development in Azerbaijan”	Nov. 2004
21.	State Program on “Social-economic development of regions”	
22.	National Program on “Reforestation and Forestation in Azerbaijan”	2003
23.	Law on “Thermal and power stations”	28.12.1999
24.	State Program on “Development of fuel and energy complex of the Republic of Azerbaijan in 2005-2015 years”	14.02.2005
25.	Law on “Electric power”	13.06.1998
26.	Law on “Energy production”	01.02.1999
27.	Civil Code of the Republic of Azerbaijan	01.09.2000
28.	Law on “Environmental safety”	
29.	President order on “Ratification of the Complex Measures Plan on the improvement of ecological condition in the Republic of Azerbaijan for 2006-2010 years”	
30	Law on Access to Public Information, Public Participation in Decision Making and Access to Justice in Environmental Matters	1999
31.	Law on “Natural gas supply”	30.06.1998
32.	Decision of Tariff Council	07.01.2007
33.	Law on Protection of Historical and Cultural Sites	1998 (amendment 2005)
34.	Law on Sanitary and Epidemiological Safety	1993
35.	Law on Amelioration and Irrigation	1996
36.	Law on Protection of Flora	1996
37.	Law on Chemicals and Pesticides	1996
38.	Land Code	1996
39.	Water Code	1997
40.	Forestry Code	1997
41.	Law on Public Health	1997
42.	Law on Radiation Safety of Population	1997
43.	Law on Fauna	1999
44.	Law on Mandatory Environmental Insurance	2002
45.	Law on Access to Environmental Information	2002
46.	Law on Environmental Education	2002
47.	Decree 176, on Payments for the Use of Natural Resources and Environmental Contamination	1992

Policies

24. The Government’s approach to environmental problems has a solid strategic anchor. The NEAP of 1997 includes elements of analysis and hints of needed policy reform and prioritizes environmental problems into 32 objectives. Although the NEAP’s objectives have not been reached, most of its directions remain valid, and an updating of the NEAP is being considered. The 2001 National Environmental Health Plan offers an approach to environmental management based on health considerations, rather than mainly ecological ones. The State Program on Poverty Reduction and Economic Development (SPPRED) 2003–2005, developed by the Ministry of Economic Development, acknowledges the many links between poverty and environmental conditions. It echoes the priorities of the NEAP and adds to them. The State Program on Environmentally Sustainable Socio-Economic Development 2003–2010, approved

in 2003, addresses the principal dimensions of sustainable development, contains a time-bound plan of action, and gives MENR the primary role in guiding its implementation, but envisages involvement of mainstream economic agencies in that process. The State Program for Restoration and Expansion of Forests 2003 proposes activities in 10 subsectors.

25. The National Biodiversity Strategy and Action Plan (2015-2020) prepared by the Ministry of Ecology and Natural Resources with involvement of number of other ministries and other governmental organizations clearly indicates the need for improvement of laws and legislations related to environmental safeguards.

B. ENVIRONMENTAL ASSESSMENT PROCESS IN AZERBAIJAN

26. Environmental assessment and review procedures in Azerbaijan, as stipulated in the SEE, do not include the categorization of projects. After initial review by the SEE, projects are categorized as high risk or low risk projects. For high risk projects full Environmental Impact Assessment (EIA) is required. However, for low risk projects the SEE does not require additional action. Since categorization is absent under Azerbaijan environmental regulations, the ADB guidelines will be adopted for subproject categorization under the Investment Project. A summary of EA process in Azerbaijan is given at Table 2 below:

Table 2: Table 2: Summary of Guidance on the EA Process in Azerbaijan.

Screening	The developer is required to submit an Application (containing basic information on the proposal) to MENR to determine whether an EA is required.
Scoping	Requirement for a Scoping Meeting to be attended by the developer, experts and concerned members of the public, and aimed at reaching a consensus on the scope of the EA
Project Description	Full description of technological process and analysis of what is being proposed in terms of planning, pre-feasibility, construction and operation.
Environmental Studies	Requirement to describe fully the baseline environment at the site and elsewhere, if likely to be affected by the proposal. The environment must be described in terms of its various components – physical, ecological and social.
Consideration of Alternatives	No requirement to discuss Project alternatives and their potential impacts (including the so-called “do-nothing” alternative), except for the description of alternative technologies.
Impact Assessment and Mitigation	Requirement to identify all impacts (direct and indirect, onsite and offsite, acute and chronic, one-off and cumulative, transient and irreversible). Each impact must be evaluated according to its significance and severity and mitigation measures provided to avoid, reduce, or compensate for these impacts.
Public participation	Requirement to inform the affected public about the planned activities twice: when the application is submitted to the MENR for the preliminary assessment and during the EA process. The developer is expected to involve the affected public in discussions on the proposal.
Monitoring	The developer is responsible for continuous compliance with the conditions of the EA approval through a monitoring program.. The MENR undertakes inspections of the implementation of activities in order to verify the accuracy and reliability of the developer’s monitoring data. The developer is responsible for notifying the MENR and taking necessary measures in case the monitoring reveals inconsistencies with the conditions of the EA approval.

27. It is understood that Azerishig OJSC has not yet presented its proposal for the Power Distribution Enhancement Investment Project – Tranche 1 to MENR for their assessment. However, given that the Project will have only minor potential impacts it is expected that MENR will not require a full EIA and therefore this IEE is likely to be sufficient to obtain MENR approval.

C. ADB ENVIRONMENTAL SAFEGUARD REQUIREMENTS AND POLICIES

28. Environmental assessment will be carried out to ensure that potential adverse environmental impacts are addressed according to the ADB Safeguard Policy Statement, 2009 (SPS 2009).

29. The SPS 2009 consists of three policy components: (i) Environment Safeguards, (ii) Involuntary Resettlement Safeguards, and (iii) Indigenous People Safeguards. The objectives of Environment Safeguards are to ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process. To help achieve the desired outcomes, ADB adopts a set of specific safeguard requirements that need to be achieved during the processing and implementation of projects financed by ADB. The environmental safeguard principles are stated in the Safeguard Policy Statement, which will guide environmental assessment process of projects.

30. The SPS establishes the format for the presentation of the environmental assessment.

31. ADB categorizes projects into categories A, B, C, and FI according to the significance of likely impacts. The categorization criteria are as follow:

(i) **Category A**. Projects with potential for significant adverse environmental impacts: An EIA is required to address significant impacts.

(ii) **Category B**. Project judged to have some adverse impacts, but of lesser degree and/or significance than category A. An initial environmental examination (IEE) is required to determine whether or not significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.

(iii) **Category C**. Projects unlikely to have adverse impacts. No EIA or IEE required, although environmental implications are still reviewed.

(iv) **Category FI**. Projects are classified as category FI if they involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all subprojects will result in insignificant impacts.

32. Based on ADB's Rapid Environmental Assessment Checklist (REA) presented in Attachment 3, the project is assigned as Category B. For a Category B project, an IEE including EMP is required.

D. INTERNATIONAL AGREEMENTS AND CONVENTIONS[1]

33. The international agreements and conventions of relevance to the Project to which The Republic of Azerbaijan is party (or to which active discussions are taking place) are listed below. The Government has signed these international conventions in the environmental field.

- International Convention on Civil Liability for Oil Pollution Damage, 1969;
- Protocol of 1976 to the International Convention on Civil Liability for Oil Pollution Damage, 1976;
- International Convention for the Prevention of Pollution from Ships/ Vessels (MARPOL), 1973 as amended by the protocol, 1978 - The legislation giving effect to MARPOL 73/78 in Azerbaijan is the Protection of the Sea (Prevention of Pollution from Ships) Act 1983. Preventing and minimizing pollution of the marine environment from ships - both accidental pollution and that from routine operations, Azerbaijan acceded in 2004;
- Convention on Long-range Transboundary Air Pollution, 1979;
- Montreal Protocol on Substances that Deplete the Ozone Layer,1987 - Specific requirements for reductions in emissions of gases that deplete the ozone layer. Amended four times: London 1990, Copenhagen 1992, Montreal 1997 and Beijing 1999.,Azerbaijan acceded in 1996;
- UN Convention on the Protection of the Ozone Layer (Vienna Convention) - Framework for directing international effort to protect the ozone layer, including legally binding requirements limiting the production and use of ozone depleting substances as defined in the Montreal Protocol to the Convention. Supported by the Montreal Protocol and amendments, 1996;
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989; Azerbaijan ratified in 2001.
- International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990; Azerbaijan acceded in 2004;
- Convention on Environmental Impact Assessments in a Transboundary Context, 1991;
- United Nations Framework Convention on Climate Change, 1992;
- Convention on Biological Diversity, 1992; Azerbaijan became party to the Convention in 2000;
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992;
- Convention on the Trans-boundary Effects of Industrial Accidents, 1992; Azerbaijan acceded in 2004;
- Protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage, 1992;
- United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, 1994;
- Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, 1997;
- Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997; Azerbaijan acceded in 2000.
- Protocol of 1997 to amend the International Convention for Prevention of Pollution from Ships, as modified by the Protocol of 1978 relating thereto, 1997;

[1] *Source: As per the Permanent Mission of the Republic of Azerbaijan to the United Nations, http://www.un.int/azerbaijan/mult_1.html*

- Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention), 1999; Azerbaijan acceded in 2002;
- Espoo Convention - To promote environmentally sound and sustainable development through the application of ESIA, especially as a preventive measure against transboundary environmental degradation, Azerbaijan acceded in 1999;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Entered into force in Azerbaijan in 1999;Convention for the Protection of the Archaeological Heritage of Europe, Azerbaijan ratified in 2000;
- Aarhus Convention - To guarantee the rights of access to information, public participation in decision-making and access to justice in environmental matters, Azerbaijan acceded in 2000;
- The Stockholm Convention on Persistent Organic Pollutants, Reduction in releases of dioxins, furans, hexachlorobenzene and PCBs with the aim of minimization or elimination. Stockholm, May 2001, Azerbaijan acceded in 2004.
- UNESCO Convention on Wetlands of International Importance especially as Waterfowl Habitat / RAMSAR Convention - Promote conservation of wetlands and waterfowl. In addition, certain wetlands are designated as Wetlands of International Importance and receive additional protection, 2001
- Bern Convention- Conservation of wild flora and fauna and their natural habitats,2002
- UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions, Azerbaijan acceded in 2010.

E. INSTITUTIONS

34. The principal national environmental agency charged with environmental protection is the Ministry of Ecology and Natural Resources (MENR). This Ministry was established in 2001 to replace the former State Committee for the Environment, with an expanded mandate that includes geology, fisheries, and forests. MENR upholds all natural resources protection laws. The State Ecology Expertise (SEE) acts within this Ministry at the Program level in reviewing Environmental Impact Assessments (EIAs) of any developmental activities within the jurisdiction of Republic of Azerbaijan. Recently State Committee for Land and Cartography has been abolished and its functions were distributed among different governmental institutions. MENR also got part of the roles and responsibilities but those are still waiting for the final approval by Cabinet of Ministries.

35. During the implementation stages of the projects Department of Environmental Protection under the MENR is responsible for the environmental safeguard related of the project.

36. The major, even if indirect, role played in environment management by Government bodies other than MENR are the Ministry of Economic Development, Ministry of Agriculture (with its Committee for Land Improvement and Irrigation), Ministry of Fuel and Energy, Ministry of Health, Ministry of Education, Ministry of Interior, Ministry of Transport, Ministry of Justice and Ministry of Emergency Situations. Each of these agencies has a unit (a department, division, center, or section) charged with the environmental dimension of their activities, attesting to a deliberate attempt by the Government to undertake environmental mainstreaming.

37. Azerishig OJSC will serve as the executing agency and be responsible for the project Tranche 1 and for the overall investment program. Azerishig has established a project

implementation unit (PIU) that will be responsible for implementation of current and future tranches under the MFF.

F. EXTENT OF IEE STUDY

38. As noted above the proposed project is classified under the ADB SPS 2009 as environment category B, requiring IEE study. The purpose of this IEE is to assess potential environmental, health, safety and social impacts of the proposed project. No significant adverse environmental impacts have been noted in this project assessment.

39. This IEE was prepared during the Project preparation in 2015 and is an update of the IEEs prepared during ADB's previous due diligence of the distribution investment program 2011-2013 and Power Distribution Investment Project January 2015. This IEE focuses specifically on the Tranche 1 proposed investments in Ganja, Shamkir, Goranboy, Mingechevir, Gakh, Oghuz, Shamakhi, Siyazan, Saatli, Imihsli, Zardab, Hajigabul, Neftchala, Masalli, Lankaran, and Khirdalan cities and districts.

40. The IEE study is based on secondary information, primary data from various sources, consultation with stakeholders and field observations. During the site visits the specialists had discussions and meetings with village representatives, town members, representatives of public service organizations, industries, commerce and agriculture and local executive powers. Public consultations were held with locals during the information dissemination meetings. Details of the meetings are given in Section V.

III. DESCRIPTION OF THE PROJECT

A. PROJECT BACKGROUND AND NEED

41. The Government of Azerbaijan (GoA) has requested the Asian Development Bank (ADB) to provide funding to support Azerishig Open Joint Stock Company's (OJSC) Power Distribution Enhancement Investment Program (the Investment Program). The Investment Program aims to improve energy efficiency of the power distribution sector in Azerbaijan through rehabilitation and expansion of the aged distribution network. The investment program will (i) improve power supply reliability in the region; (ii) reduce distribution losses; (iii) improve customer service efficiency and quality; (iv) improve operational and financial performance of the regional distribution companies, and (v) promote corporate reform and capacity development in the distribution subsector.

42. The investment program will have three major outputs: (i) rehabilitation of 110 kV, 35 kV, 10 kV, and 6 kV distribution networks including distribution lines and substations; (ii) rehabilitation of 0.4 kV customer service lines and installation of advanced electric meters; and (iii) strengthened institutional capacity of Azerishig OJSC. The components covered under the investment program are expected to consist of:

(iv) **Rehabilitation of 110 kV, 35 kV, 10 kV, and 6 kV Power Distribution Networks.** Rehabilitation of 110 kV substations 15 units, 35 kV substations 52 units, 6-10 kV transformer stations 4,004 units; 110 kV distribution lines 150 km, 35 kV distribution lines 400 km, 6-10 kV distribution lines 2,600 km.

(v) **Rehabilitation of 0.4 kV Customer Service Lines and Meters**. Replacement of 0.4 kV customer service lines 10,154 km including installation of electric meters. The existing 0.4 kV bare overhead bare conductors will be completely replaced with new self-supporting aerial bundled cables (insulated), and the existing poles will be completely replaced with new steel, concrete or wood poles. The new insulated cables will make illegal access to distribution lines and energy theft impossible.

(vi) **Support for Institutional Development, Capacity Building, and Project Management**: including consultancy services for (i) project supervision and management including procurement, engineering support, financial management, social and environmental safeguard monitoring, external audits, and training. (ii) preparing and monitoring of all subsequent tranches under the proposed MFF; (iii) support for policy development and capacity building of Azerishig staff.

43. The Program will be financed by ADB through a Multi-tranche Financing Facility (MFF). The executing agency (EA) is Azerishig OJSC. Azerishig is a newly created entity formed following Presidential Decree in February 2015 partially unbundling the power sector such that all power distribution assets and functions were entirely separated from Azerenerji Joint Stock Company (Azerenerji) and transferred to Azerishig JSC (former "Bakielektrikshebeke" JSC–Baku power Network). This unbundling enables Azerenerji to concentrate on power transmission and generation. This reflects the Government's commitment to accelerate the difficult but much-needed sector reform

44. There will be three tranches associated with the Program. Under the MFF loan procedures of the ADB, implementation of environmental safeguards is to be achieved by environmental assessment of every project to be undertaken following the ADB's Safeguard Policy Statement June 2009 (SPS 2009). The constituent projects in the Investment Program

generally concern investments in existing facilities and are most unlikely to affect sensitive areas, forests or wetlands, and might typically be expected to have been classified as Category B or C under the ADB's SPS 2009 that will be followed for all projects.

45. This Initial Environmental Examination (IEE) covers subprojects to be included under Tranche 1 of the MFF.

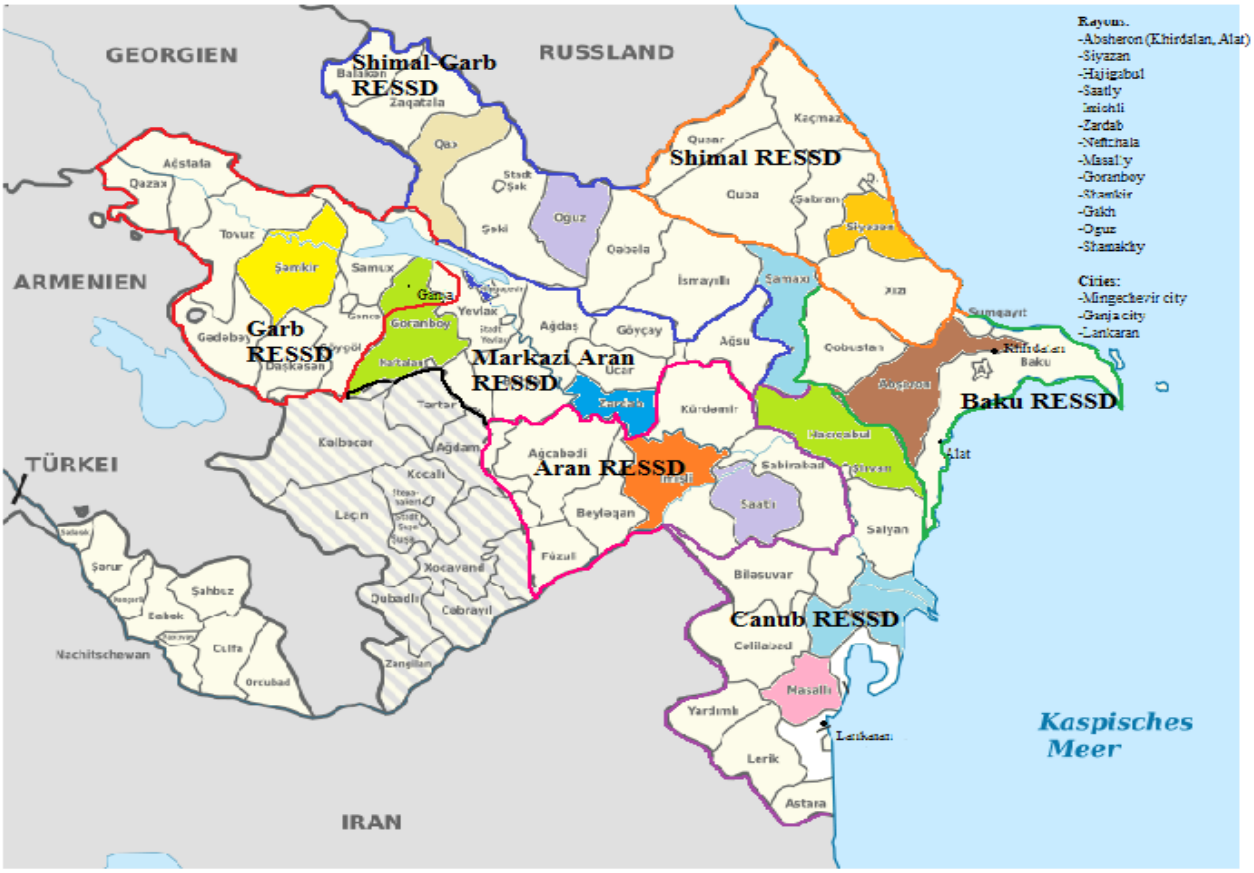
B. PROJECT DESCRIPTION

46. The scope of works proposed under the Tranche 1 project comprises 62 subprojects where a subproject is defined as one of the following:

- a 110kV substation – 4 subprojects
- a 35kV substation – 16 subprojects,
- a discrete segment of double circuit 110kV distribution line - 4 subprojects total length = 53.8km)
- a discrete segment of double circuit 35kV distribution line – 16 subprojects (total length 118.25 km)
- a total length of 10kV distribution line in each of the seven Regional Energy Supply and Service Department (RESSD) areas – 7 subprojects (total length over 7 RESSDs = 1,236.5km)
- a total length of 0.4kV self-supporting insulated wire (SIW) distribution line in each of seven RESSD areas – 7 subprojects (total length over 7 RESSDs = 3,893.45km)
- a set of complete transformer substations (CTS) for each of the seven RESSD areas – 7 subprojects (total number of units = 1157)
- supply and installation of electric meters in seven RESSD areas – one subproject (total number of units = 108,409)

47. The 62 subprojects are grouped into the eight subproject types described above. The subprojects are scattered across 13 districts of Azerbaijan as shown on Figure 1. The 62 subprojects will be implemented under various contract packages. The boundaries of the seven RESSD areas are also shown on Figure 1. The RESSDs are subsidiaries of Azerishig responsible for the distribution assets in the various districts.

Figure 1: Map of Azerbaijan Showing General Location of Tranche 1 Project Component Districts and RESSD Regions



48. A description of the scope of works proposed for the eight subproject types comprising 62 subprojects is described below.

49. **Group 1: 110 kV substations – 4 subprojects in 4 RESSDs** These subprojects include: Dalimammadli SS, Mashinqayirma SS, Gakh SS, and Nefchala SS. The subprojects are located in 4 separate RESSDs (Markazi-Aran, Garb, Shimal-Garb and Canub) in four cities (Goranboy, Ganja, Gakh and Neftchala) as shown in Figure 2. Generic design images of the proposed substation layouts are provided in Appendix 1. Detailed location of the four 110kV substations and alignment of the associated new 110kV distribution lines (Group 3) is shown on google earth images in Appendix 2.

50. In all cases the works will involve replacement of the existing substation within the boundary of the existing substation sites. All the existing substations were built originally with a view for future expansion such that the land covered in the existing substation site can easily accommodate a new substation. The substations are all located in what can be described as industrial, peri-urban or urban areas with low environmental values and there are no significant sensitive receptors nearby that are likely to be impacted from the construction and operation of the substations.

51. The construction works will involve minimal excavation and soil removal, levelling and foundations for transformers and installation of new transformers and switchgear. There will be limited use of powered mechanical equipment other than cranes and trucks for equipment

transportation. Much of the work will involve manual erection of equipment. The design of the new substations will be in accordance with internationally recognised standards in regards to technical and environmental health and safety performance standards.

52. Following construction of the new substation components the retired substation will be dismantled removed and disposed of. This will largely involve manual work supported by a mobile crane and trucks for transportation of old transformers switchgear, lines and other waste lines to disposal sites. Metal components will be delivered to recycling depots and non-recyclable waste disposed of at registered landfills. The handling, transport, storage and disposal of old transformers will be subject to special arrangements under the supervision of the Ministry of Environment and Natural Resources as described in Section V.

53. **Group 2: 35kV substations – 16 subprojects in 7 RESSDs** These subprojects include: Mingachevir (Markazi Aran RESSD), Vaghzalyani, Ganja, Shamkir-2 (Garb RESSD), Ilisu, Shamakhi, Oghuz (Shimal-Garb RESSD), Alvadi, Sapnakaran, Pirsaat (Canub RESSD), Khirdalan, Alyat Baghlar (Baki RESSD), Rasullu, Zardab, Saatli (Aran RESSD) and Siyazan (Shimal RESSD). The locations of the 35kV substations are shown in Figure 2. Generic design images of the proposed substation layouts are provided in Appendix 1. Detailed location of the sixteen 35kV substations and alignment of the associated new 35kV distribution lines (Group 4) are shown on google earth images in Appendix 2.

54. In most cases the works will involve replacement of the existing substations within the boundaries of existing substations. Similarly, the existing substations to be replaced are all located in what can be described as industrial, peri-urban, urban or rural areas with low environmental values and there are no significant sensitive receptors nearby that are likely to be impacted from the construction and operation of the substations. The design standards and construction works will be the same as for 110kV substations described above although at a smaller scale.

55. In the cases of Ilisu, Shamakhi, Khirdalan, Mingachevir, Ganja, Rasullu and Siyazan 35kV substations, the sites are green field sites on land owned by Azerishig in urban development areas (Khirdalan, Mingachevir, Siyazan), periurban areas (Ilisu, Ganja), or rural scrubland (Shamakhi, Rasullu), all with low environmental values. There is no existing substation site in these areas. The Khirdalan and Siyazan substations are located within 50m of existing residential areas. Construction works will be the same as described above without the need for dismantling and disposal of retired equipment.

56. **Group 3: 110 kV (double circuit) distribution lines – 4 subprojects in 4 RESSDs totalling 53.8 km** These subprojects include: Ganja (2km), Mashingayirma (2km), Gakh (12.8 km), and Nefchala (37 km). The indicative alignments of the 110 kV distribution line corridors are shown in Figure 2. Detailed alignment of the 110kV distribution lines is shown on google earth images in Appendix 2.

57. In all cases the works will involve replacement of existing lines and poles/towers with new lines and poles/towers. There will be no new line routes. Works will involve removal and disposal of existing lines and poles/towers along the existing rights of way, auguring of holes for new pole/tower foundations, erection of new poles/towers using a mobile crane and/or manual labour and stringing of conductors using pulleys with mobile winches. Insignificant excavation will be required for tower foundations and existing maintenance access routes will be used for transporting materials to and from the works area. Design standards for the new 110kV

distribution lines will be in accordance with all relevant international technical and environmental health and safety norms.

58. **Group 4: 35 kV (double circuit) distribution lines – 16 subprojects in 7 RESSDs totalling 118.25km** These subprojects include: Udjar (30km), Shahar (4.2 km), Ganja (1.5km), Mashingayirma (2km), Dallar-Darti (10.1km), Gakh/Ilisu (12.8km), Shamakhi (3km), Azarsu (3km), Alvadi (5.35km), Pirsaat (1.2km), Pirsaat (14.6km), Khirdalan/Vahid (6km), Alyat (10km), Imishli/Rasullu (6km), Saatli-Darti (11km) and Siyazan (3.5km). The indicative alignments of the 35kV distribution line corridors are shown in Figure 2. Detailed alignment of the 35kV distribution lines is shown on google earth images in Appendix 2.

59. In all cases, apart from the seven subprojects associated with the seven greenfield 35kV substation sites (ie., Ilisu, Shamakhi, Khirdalan, Mingachevir, Ganja, Rasullu and Siyazan) the works will involve replacement of existing lines and poles with new lines and poles along the existing rights of way, auguring of holes for new poles, erection of new poles using a mobile crane / manual labour and stringing of conductors using pulleys with mobile winches if necessary.

60. For three of the seven distribution subprojects (Khirdalan, Ganja, Mingachevir) connecting to the seven new substations, the new connection lines will be emplaced underground at approximately 1m depth along existing road corridors and connected to the nearest above ground existing 35kV line. Construction works for the underground lines will involve using a small mechanical excavator to dig a narrow trench 1m deep and <0.5m wide, laying of gravel base, laying of cable within a protective sheath, covering with gravel and emplacement of concrete above.

61. Design standards for all new 35kV distribution lines will be in accordance with all relevant international technical and environmental health and safety norms.

Figure 2: Location of Key Project Components (110kV & 35kV) in respective RESSD Regions

62. **Group 5: 10kV distribution lines - 7 subprojects in 7 RESSDs totalling 1,236.5km and Group 6: 0.4kV self-supporting insulated wires SIW – 7 subprojects in 7 RESSDs totalling 3,893.45km**

63. In all cases the project involves replacement of existing poles and conductors along existing road corridors.

64. Typical construction activities will include: i) decommissioning and removal of old poles, and conductors ii) transporting concrete poles to the road side; iii) erection of poles; and iv) stringing of conductors. These sequential activities are primarily manual activities involving a small team with minimal use of powered mechanical equipment other than mobile cranes. No excavation is required other than digging/auguring for the pole footing.

65. For 0.4kV lines, existing 3 phase lines will be replaced by a single insulated wire (SIW). This level of construction activity is little more than what would be considered as routine line maintenance.

66. Design standards for all new 10kV and 0.4kV distribution lines will be in accordance with all relevant international technical and environmental health and safety norms.

67. **Group 7: Complete Transformer Substations (CTS) – 7 subprojects in 7 RESSDs totalling 1,148 units**

68. The CTSs will replace existing 10kV transformers in the project areas. The CTSs comprise an enclosed 10kV transformer (2.5x2.5x1.5m) placed on a concrete slab approximately (4m x4m) and surrounded by an iron safety fence (Figure 3). CTSs will be located on government owned property within or adjacent to distribution corridors. Old transformers in the existing 10kV line corridors are currently uncovered and in many cases unfenced and highly unsafe. The handling, transport, storage and disposal of old transformers will be subject to special arrangements under the supervision of the Ministry of Environment and Natural Resources as described in Section V.

Figure 3: Complete Transformer Substations (CTS)

69. Design standards for CTSs will be in accordance with all relevant international technical and environmental health and safety norms.

70. **Group 8: Supply and Installation of Electric Meters – one subproject covering 7 RESSDs totalling 108,409 units**

71. These meters will be installed in households and businesses by qualified tradespeople.

C. IMPLEMENTATION SCHEDULE

72. The Tranche 1 subprojects will be implemented progressively over three years commencing in January 2016. Each subproject is scheduled to be completed within one year although it is expected that many of the subprojects will be completed in a shorter time frame. All Tranche 1 subprojects are expected to be completed by the end of 2018.

D. PROJECT BENEFITS

73. The successful implementation of the project will involve the rehabilitation, augmentation and the expansion of the Azerishig power distribution system, and will improve reliability of supply to residential, agricultural, commercial, and industrial customers in Azerbaijan. A reliable electricity supply will lead to social and economic benefits and improved conditions for schools, hospitals, and other social services. Improved efficiency of the power distribution network will help in meeting the peak demand and will contribute significantly to the reduction in power losses. Furthermore, the project will have a positive impact on the environment due to reduced demand for wood and other non-renewable fuels due to constant and stable supply of electricity.

IV. DESCRIPTION OF THE ENVIRONMENT

74. As the project includes sites that are distributed across the entire country, environmental features vary due to different landscapes, climate and other geographic features. Therefore the description of the environment provided below considers the whole country and wherever relevant, specific explanations and descriptions are given for a particular area.

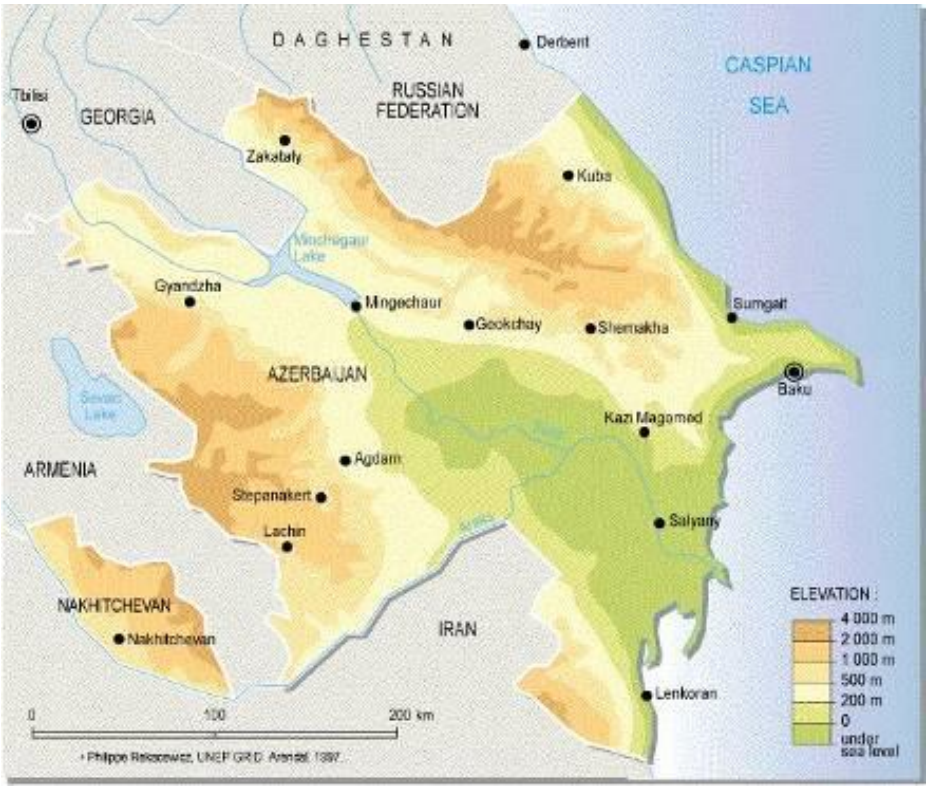
A. PHYSICAL RESOURCES

Physiography and Land Use

75. Azerbaijan (40°30' North, 47°30' East) is located in the region of the southern Caucasus Mountains; it borders the Caspian Sea to the east, Georgia and Russia to the north, Iran to the south, and Armenia to the southwest and west. A small part of the Nakhchivan autonomous region also borders Turkey to the northwest. The capital of Azerbaijan is the ancient city of Baku, which has the largest port on the Caspian Sea and has long been the centre of the Republic's oil industry.

76. Azerbaijan has a total land area of approximately 86,600 km^2. Azerbaijan is divided into 59 districts (rayon), 11 cities and one autonomous republic which itself contains seven districts and one city. Except for its eastern Caspian shoreline and some areas bordering Georgia and Iran, Azerbaijan is ringed by mountains (Figure 4). Approximately 60 % of the country is covered by mountains and hills (above 200 m).To the northeast, bordering Russia's Dagestan Autonomous Republic is the Greater Caucasus range; to the west, bordering Armenia, is the Lesser Caucasus range. To the extreme southeast, the Talysh Mountains form part of the border with Iran. The highest elevations occur in the Greater Caucasus, where Mount Bazar-Dyuzi rises 4,466 meters above sea level.

Figure 4: General Physiography of Azerbaijan



Source www.grida.no

77. Approximately 55 % of the country is used as agricultural land, out of which around 30 % is used as pasture and meadows and 25 % as arable land and permanent crops. About 10 % of the total land area is designated as protected areas and about 12 % is under forest cover. Surface waters cover 4 - 5 % of the land area and the rest is used by the human population as settlements and industrial areas. The following table summarizes the land use categories of the country.

Table 3: Land use categories in Azerbaijan.

Sl. No.	Land Use	Area in '000 ha	Percentage
1.	Total geographical area	86,600	-
2.	Total Land area	86,100	100
3.	Agricultural land area	4768,3	-55
4.	Forest land area	1040,8	-11.8
5.	Over ground water resources and pools	397.2	4.6
6.	Protected areas	892,6	10,3
7	Other land area	1574,7	- 18,2

Source: Azerbaijan V Communication Report to CBD, 2014, Ministry of Ecology and Natural Resources

78. All project areas are located in urban or peri-urban areas mainly owned by AzerIshig OJSC or municipal semi-rural lands with low environmental values.

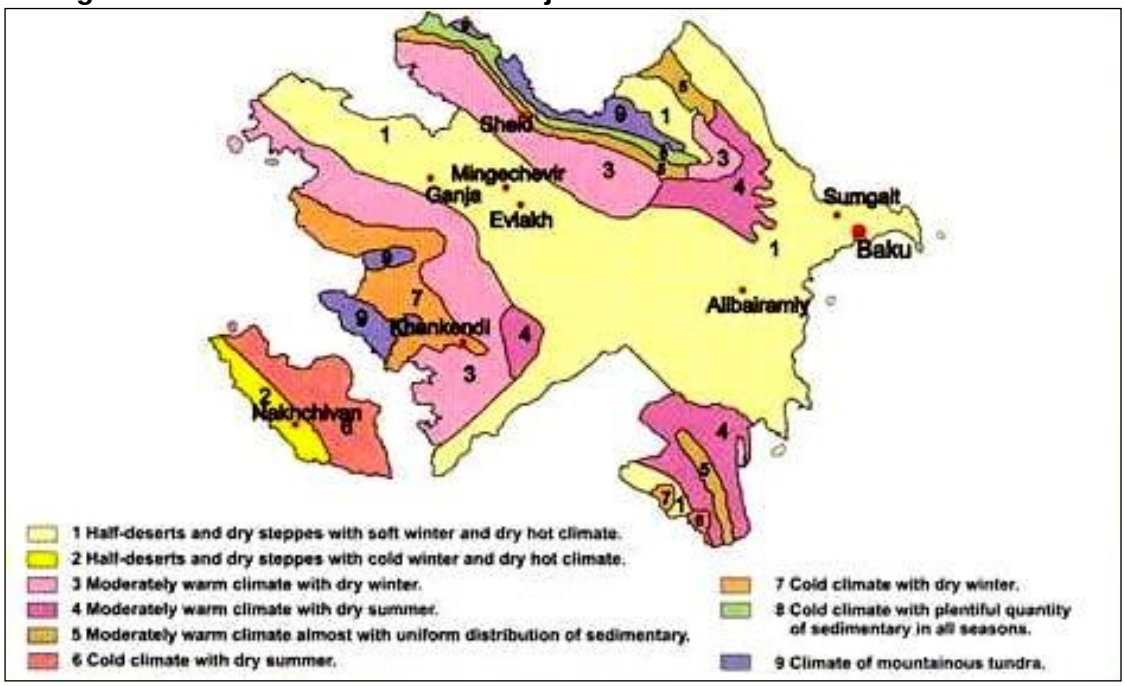
Climate, rainfall and air quality

79. Azerbaijan has a widely varying climate due to the differences in altitude and geomorphology throughout the country, and its situation on the northern extremity of the subtropics[2]. Further influence on the climate is provided by the Caspian Sea. Maximum temperatures can reach 44°C and minimum temperatures can descend as low as minus 42°C[3]. Rainfall also varies widely, from 200 to 1,800 mm[4]. Despite these extremes, the Greater Caucasus range serves as a natural barrier against cold air from the north, and the Lesser Caucasus holds back hot tropical air from the south. As a result of the moderating effect of the topography, most of the country can be classified as having a dry and warm subtropical climate.

80. Average annual rainfall ranges from less than 200 mm at the southern coast of the Absheron Peninsula, through 300-900 mm in the foothills and lower mountainous zones, 1000-1300 mm on the southern slope of the Greater Caucasus, and up to 200-1600 mm in Lankaran and Talysh[5]. Figure 5, shows different climate zones of Azerbaijan.

[2] http://www.azerbaijan.az/_Geography/_Climate/_climate_e.html
[3] Recorded in the Greater Caucasus
[4] http://www.azhydromet.com
[5] Social-Ecological Center "EcoSphere" (Azerbaijan) and the Association of Environmental Protection of Georgia "The Earth in XXI century": Azerbaijan-Georgia Regional Ecological Portal: http://ecocaucasus.org/en/glav.htm

Figure 5: Climate Zones of Azerbaijan[6]



81. As shown in Figure 5 the climate of most project areas is dry steppes with cold winter and dry hot climate (Ganja, Shamkir, Goranboy, Mingechevir, Imishli, Saatli, Zardab, Neftchala, Hajigabul, Baku, Alat). The climate of the remaining project areas is similar with moderately warm climate with dry winter and summer (Lankaran, Masalli, Shamakhi, Siyazan, Oghuz, Gakh).

82. Air quality across Azerbaijan is generally good, however, in Baku and on the Absheron peninsula, air quality is acknowledged as a serious problem[7]. The principal contributors to air pollution are industry and increasingly, motor vehicles with over 60% of emissions originating from mobile sources[8]. Table 4, provides available annual air quality data for some of the towns close to project areas, in addition to Baku.

Table 4: Air Pollutant Emissions from Stationary Sources for Baku and for some project areas in 2012 (in tonnes)

City	Particulates	Sulfuric anhydride	Carbon oxide	Nitrogen tetroxide
Baku	***14520,8***	***2034,3***	***6936,4***	***4389,4***
Mingechevir	0,2	0.015	3	0,03
Oghuz	-	0.034	-	0.04
Hajigabul	-	0,046	-	0,05
Goranboy	1,4	0,2	1,9	0,2
Shamkir	1,5	1,1	2,8	2
Ganja city	878,8	46,7	2801,5	864,8

Source: UNECE 2010 quoting State Statistical Committee, Statistical Yearbook 2002, 2008, Environment in Azerbaijan 2009 and Ministry of Ecology and Natural Resources

83. In general, due to high levels of agriculture and low levels of industry, air quality in most of the project areas (with exception of Ganja) is very good.

[6] Based on http://azembassy.pl/index.php?section=24
[7] ADB (2005)
[8] UNECE (2004)

Geology and Soils

84. Azerbaijan is located in an active seismic zone. The regional structure is dominated by compressional deformation of sedimentary rock, which led to the formation of nappes verging towards the south-east. There was some volcanic activity during this long period of compressional tectonism.

85. Almost all basic soil types (more than 22) are found in Azerbaijan, from mountain-meadow soils of the Alpine belt to grey soils of semi-desert and desert areas and yellow soil of Lankaran

86. The distribution of Azerbaijan's soils is congruent with its topographic and climate zoning. Grey-brown saline and chestnut-colored soils predominate in the semi-desert areas of the Absheron peninsula and Gobustan (Alat, Baku). Greyish-meadow, greyish saline, and saline soils prevail in the flat and poorly drained semi-desert belt of the Shollar and Kura lowlands (Imishli, Saatli, Zardab, Nefchala, Hajigabul). Mountain-woody greyish-brown and brown soils prevail in the semi-steppe (woody-steppe) belt in the northeastern foothills of the Greater Caucasus and Talysh Mountains (Gakh, Oghuz, Shamakhi, Lankoran, Masalli). The sub-alpine to alpine belt of the high elevations of the Caucasus Mountains typically contains mountain-meadow (turf and peat) and skeletal, stony soils.

87. Chestnut soils occur between altitudes of 300 to 500m above sea level (Mingechevir, Shamkir, Goranboy, Ganja) with average precipitations of 300-450 mm. This type of soil is plain dry steppe, which has loamy structure, low coefficient of erodibility and low bio-climate potential. Chestnut soils are mostly suitable for winter pastures and long-living plants such as vines. Meadow soils are generally typical for altitudes of about 100 m and average annual precipitation of 250 mm. This type of soil is thus lowland semi-dry arid steppe with a light loamy structure and a medium degree of salinity. It is not susceptible to erosion and has a low bio-climate potential. Meadow soils are mainly suitable for winter pastures and arable land (cotton). Sierozem soils (meadow grey soils) are typical for altitudes of up to 150 m and mainly dry climate with a maximum precipitation of 200 mm. Generally, this soil is semi-dry, dry steppe, light loamy type. Meadow grey soils have agricultural potential for winter pastures and arable land for cultivation of cereals and cotton. Table 5 summarises the soil types and associated climate conditions of the project regions.

Table 5: Soil Types and Associated Climate Conditions of the Project Regions

Economic Region	Rainfall (mm)	Climate	Type of Soil
Absheron peninsula	150-220mm	Dry and hot	Grey and brown soils
a. Soumgayit	200 – 400mm	Weak continental climate	Partially saline, light brown
b. Gobustan	400 – 600mm	Semi-dry & hot	Dark, mountain brown soil
c. Khirdalan	200 – 400mm	Dry steppe, mild winters	Saline grey & grey brown
d. Khizi	200 – 400mm	Hot & dry	Mountain soil (light brown)
e. Shamakhi	400 – 600	-	-
Mil-Garabakh	200-400mm	Sub-tropical	Meadow grey soils
Gazakh-Ganja region (includes Shamkir, Mingechevir, Goranboy)	250 – 300mm	Cold and humid	Light and dark chestnut soil
Guba-Khachmaz (includes Siyezen)	350 – 500mm	Temperate	Alluvial, grey and brown soil
Lankaran-Astara	1,300mm	Subtropical	Yellow soil

Economic Region	Rainfall (mm)	Climate	Type of Soil
(Includes Masalli, Lenkoran)			
Mugan-Salyan (includes Imishli, Saatli, Zardab, Neftchala)	180 – 220mm	Dry and hot	Grey saline soils
Nakhchivan	300- 600 mm	Continental	Grey brown soils
Shaki-Zagatala (includes Gakh, Oguz)	600 – 700mm	Sub-tropical	Forest and alluvial meadow soils
Shirvan (includes Hajigabul)	220 – 240mm	Sub-tropical	Grey desert soil
Mountain Garabakh	400-600mm	-	Light brown chestnut soils

Source**:** Country pastures/Forage Resource Profiles

Water Resources

88. Hydrographically, Azerbaijan belongs to the Caspian Sea basin. The water systems of Azerbaijan (rivers, lakes) were formed over a long geological timeframe and changed significantly throughout that period. This is particularly evidenced by remnants of ancient rivers found throughout the country. The country's water systems are continually changing under the influence of natural forces and human activities. Artificial rivers (canals) and ponds constructed over many generations are a part of Azerbaijan's water systems.

89. Rivers form the principal part of the water systems of Azerbaijan. There are 8,359 rivers of various lengths within Azerbaijan. Of them 8,188 rivers are less than 25 km in length. Only 24 rivers are over 100 km long. Kura, Araz, Qanix (in Alazan), Qabirri (Iori), Samur, Terter, Turyan, Agstafa, Hekeri, Vilesh and others are the largest rivers that flow through the country. In general, the country's rivers are divided into three groups[9]:

- The Kura basin rivers (Qanix, Qabirri, Turyan, Agstafa, Shekir, Terter, Khachin, etc.);
- The Araz basin rivers (Arpachay, Nakhchivan, Hekeri, Kondelenchay, etc.);
- Rivers, flowing directly into the Caspian Sea (Samur, Gudyal, Velvele, Vilesh, Lenkeran, etc.).

90. The Kura (1515 km), Araz (792 km) and Samur (200 km) rivers are the three longest transboundary rivers of Azerbaijan, while the Kura is the largest waterway of Transcaucasia. The Mingechevir Reservoir, with an area of 605 km^2, the largest water body of Azerbaijan, was formed by damming the Kura River in western Azerbaijan. There are 7 dams on the Kura, 4 dams on the Araz and 1 dam on the Samur river. Hydro-energy with capacity of almost 1000 MW is produced on cascade water reservoirs of the Kura river.

91. There are more than 250 lakes in Azerbaijan. Most of them are small but Hajigabul, Sarysu, Djandargol, Goygol and a few others are relatively larger lakes. There are more than 60 reservoirs in order to control the water flow of the rivers in Azerbaijan. Shamkir and Mingechevir reservoirs are the largest and most important reservoirs situated in the districts where the project will be implemented.

92. As the project areas are widely distributed across different districts of the country there are several large and small rivers passing through the regions where the project will be

[9] http://azerbaijan.az/portal/Nature/Water/waterBasin_e.html

implemented. However, in most cases the rivers and other water bodies are situated far from where the project components are located such that the project is unlikely to have any negative impact on water bodies.

Mineral Resources

93. Azerbaijan's major mineral wealth is its oil and gas reserves. Offshore hydrocarbon structures in the Caspian Sea account for most of the country's oil and gas production. In addition to the well-known oil and gas reserves, Azerbaijan has rich deposits of natural minerals that are useful in metallurgy, construction building and health therapy. These include ferrous and non-ferrous ores (aluminum, copper, molybdenum, cobalt, and mercury) rare and fine metals, semi-precious stones, as well as a wide variety of underground sources of thermal, mineral and natural spring water.

B. ECOLOGICAL RESOURCES

94. Due to its complicated geological history, varied climate, and its position at the crossroads of Asia and Europe, Azerbaijan is relatively rich in terms of its ecological resources. A large proportion of endemism is reported, and the country is also host to a large number of relict species. In general, however, these resources have been partially depleted due to pollution and poor management under Soviet and post-Soviet rule. Improvements are underway and biodiversity is receiving increasing attention both nationally and internationally but progress is slow. Azerbaijan is signatory to a number of relevant international treaties, notably the Convention on Biodiversity.

Flora

95. Azerbaijan has a very rich flora. The country is host to more than 4,500 species of higher plants. The flora of Azerbaijan is richer in the number of species than the flora of the other republics of the South Caucasus. The flora exhibits a high degree of endemism (7 % of species) including the iron tree (*Parrotia persica*), the Lankoran acacia (*Albizzia julibrissin*), the basket oak (*Quercus castaneifolia*), and the Caucasian persimmon (*Diospyrus lotus*). Oaks (*Quercus* sp.*)*, hornbeam (*Carpinus* sp.), beech (*Fagus* sp.), and maple (*Acer* sp.*)* forests cover the lower slopes of the mountain ranges, orange groves carpet the southern coastal lowlands and mulberry trees are extremely common in the lowlands.

96. In the ditches of the Kura-Araz plain couch grass (*Cynodon dactylon*), licorice (*Glycyrrhiza glabra*) and reeds (*Bolboschoenus maritimus)* are the most common plants. In the Karabakh plain the most common plants include *Limonium scoparium*, Hogweed (*Polygonum patulum)*, Marsh hedge nettle (*Stachys palustris)*, Purple loosestrife *Lythrum salicaria*, and Iris.

97. Marshy areas are widespread in the Talysh plain. Key species of the marshes include *Potamogeton pectinatus*, *Myriophyllum spicatum*, *Trapa hyrcana*, *Ceratophyllum demersum*, *Iris pseudocorus*, *Sparganium erectum*, *Heleocharis eupalustris*, and others. In drying marshes scattered all over the plain typical small plants include *Ranunculus ophioglossifolius, Buschia lateriflora, Lippa nodiflora, Mentha aquatica, Polygonum minus, and Alisma plantago*.

98. Forest areas cover 11.8% of the total surface of the country. Most of the project sites are located within or adjacent to urban areas with highly modified vegetation cover of little ecological importance.

Wildlife

99. Azerbaijan hosts 102 species of fishes, 10 species of amphibians, 54 species of reptiles, 394 species of birds, 107 species of mammals and more than 25,000 species of invertebrates[10].

100. As already described, the majority of the project sites are located in urban areas with high anthropogenic influence. Therefore mammalian wildlife inhabiting the areas around the sites are dominated by species tolerant of permanent agricultural conditions, for example the common Fox (*Vulpes vulpes*), Striped field mouse (*Apodemus agrarius*), and the Social Vole *(Microtus socialis).*

101. There 10 species of amphibians and 54 species of reptiles in Azerbaijan. Project sites are located mainly in semi-arid dry areas which provide habitat for various reptiles such as the European grass lizard (*Pseudopus apodus*), rapid racerunner (*Eremias velox*). In nearby water ponds and other water bodies common amphibians such as marsh frog (*Rana ridibunda*) or European tree frog (*Hyla arborea*) are typically observed.

102. Azerbaijan has a diverse avifauna with 394 species of birds recorded from 60 families. Around 40% of these species are native to Azerbaijan, with the remainder being migratory[11]. Whilst individual species were not noted[12], it appears that there are large numbers of birds in the project sites. Agricultural zones are in general more “bird-friendly” than they are to other genera.

Fisheries and Aquatic Ecology

103. There are 101 species of fish in Azerbaijan, of which eight are introduced[13]. High levels of aquatic pollution have severely affected fish stocks across the country in recent years. The various species of sturgeon, which spawn in the Kura River, have received most attention due to their high value, however stocks in general are in decline. In the project areas, the perennial rivers that cross the districts are understood to hold some fish including the Caspian roach (*Rutilus rutilus caspicus*) Barbel (*Barbus* sp.), Chub (*Leuciscus cephalus*) and Brown trout (*Salmo trutta fario*). However, no recent data on prevalence is available.

Rare and Endangered Species

104. The Red Book of Azerbaijan contains updated information on the status of rare, threatened and endangered wild plant and animal species for the entire territory of the country, including Azerbaijan's sector of the Caspian Sea. The current edition of the Red Book lists 338 species of higher plants, 12 species of fungi, 23 species of lower plants and 223 species of fauna (including 74 insect species, 6 amphibian species, 14 reptile species, 9 fish species, 72 bird species and 42 mammal species).

105. Azerbaijan also hosts quite number of IUCN Red List Species. Currently 28 bird species, 20 mammal species, 14 reptile species and 2 amphibians are included in the IUCN Red List under different categories. Despite the high endemism no plant species has been included in the global Red List.

106. Project sites do not host any nationally or internationally protected species.

[10] Ministry of Ecology and Natural Resources (2014)

[11] Azerbaijan is a major route for birds migrating from Asia to Europe, and millions of birds pass through the country from Eastern Europe and western Siberia to South and West Africa each year. Approximately 1.5 million birds use the wetlands of Azerbaijan to rest and feed

[12] Although numerous species were seen, including the Little egret (*Egretta garzetta*) and the Lesser Kestrel (*Falco naumanni*)

[13] ANAS (2004)

Protected Areas of Azerbaijan

107. The Caucasus is considered one of the world's 25 environmental hotspots and has been identified by the World Wildlife Fund (WWF) as one of the key global ecoregions, based on criteria such as species diversity, endemism and taxonomic uniqueness[14]. A number of protected areas of international importance are found in Azerbaijan, but there are no protected areas situated close to the project sites as the sites are mainly located within or adjacent to human settlements.

108. There are 9 National Parks, 11 State Natural Reserves and 24 State Natural Sanctuaries. In addition there are 1038 protected trees (Natural Monuments) and 37 protected geological and paleontological sites. Figure 6 shows the locations of protected areas in Azerbaijan.

109. The proposed project facilities are all located well outside of protected areas and confined to existing line and road corridors or within the footprint of existing transformers and substations. Also there are no endangered species reported in the project areas. The project activities will not have an impact (direct or indirect) on rare or endangered species of flora and fauna in the country.

Figure 6: Map of Protected Areas

C. SOCIO-ECONOMIC RESOURCES

Demography

110. The total population of Azerbaijan is 9,477,100 with a gender ratio of 1.01 females to males. The literacy rate is 99.8%. The demographic profile of the country and project districts is summarized in Table 6.

[14] ADB (2005)

111. Azerbaijanis make up about 92% of the total population; the remaining population is made up of 18 ethnic minority groups, the largest of which include the Lezgi (2%), Russians, Armenians and Taylish (each of whom make up 1.3% of the total population). The other 15 groups each comprise less than 1% of the population.

112. The estimated population in the project districts is about 2 million people, of which 53% live in towns and 47% live in rural areas.

113. As noted above, the project districts are essentially rural areas with a largely agriculture-based economy. Other than urban areas around Ganja and Absheron (Khirdalan), most communities are closely tied to the land and the agricultural way of life.

114. Vulnerable people, including refugees (approximately 500,000 people) and internally displaced people IDPs, who number in the order of 580,000, have social issues and problems in relation to their living conditions. The majority of these people live in the greater Baku area. Baku, Imishli and Saatli districts have relatively larger populations of IDPs and refugees than other project areas. However, there will be no negative impact on these vulnerable groups as a result of the project. In contrast, the improved electricity service as a result of the project will be a significant benefit to these communities

Table 6: Demographic Profile of Azerbaijan in general and of Project Districts (2012 - 2014)

Area	Total Population (2014)	Male Population (2013)	Female Population (2013)	Rural population (2014)	Urban population (2014)	Gender ratio % (2013)	Life expectancy % (2012)
Azerbaijan Republic	9477.1	4648.8	4707.7	4431.7	5045.4	1.01	73.9
Ganja	324.7	156.7	165.9	-	-	1.06	-
Goranboy	99.1	49,0	49,1	21.0	78.1	1.00	-
Shamkir	203.9	101.8	99,6	133.5	70.4	0.98	-
Mingechevir	100.6	48.1	51.6	-	100.6	1.07	-
Gakh	54.8	26.5	28.0	40.9	13.9	1.06	-
Oguz	42.1	21.0	20.7	7.1	35.0	0.96	-
Shahmakhi	98.3	47.9	49.0	52.1	46.2	1.02	-
Masalli	211.9	105.6	103.3	163.6	48.3	0.98	-
Lenkeran	218.2	107.9	107.9	132.4	85.8	1.00	-
Hajigabul	70.1	34.2	34.9	34.6	35.5	1.02	-
Siyezen	39.9	19.6	19.8	14.2	25.7	1.01	-
Neftchala	84.0	41.1	42.1	44.4	39.6	1.02	-
Alat	11.1	5.7	5.4	-	-	0.95	-
Imishli	121.9	59.9	60.2	83.4	38.5	1.01	-
Zardab	55.8	27.7	27.7	44.2	11.6	1.00	-
Saatli	100.2	49.7	49.0	81.4	18.8	0.98	-
Khirdalan	94.6	46.9	47.7	-	-	1.02	-

Source: Statistical Year Book, 2014

Health and Education

115. In general, people have access to the social services established during the Soviet period and in all towns and villages at project sites there are schools[15] and medical clinics. In the larger urban centres such as Ganja, Lankoran and Mingechevir these services are generally quite good.

116. The Azerbaijan constitution pledges to provide all citizens with 11 years of free education starting from the age of 6, and enrolment rates currently exceed 90%. There are 1,680[16] preschool institutions in the country of which 359 are located in the project areas. 837 standard schools exist in the project area, of a national total of 4,505[17] institutions. Azerbaijan has nearly achieved universal primary education, with gender equity in enrolment rates.

117. In 2014, there were 553 hospitals and clinics in Azerbaijan, of which 95 were located in the project area[18]. Nationally, there are roughly 47.2 hospital beds available for every 10,000 people, and the project districts it differs depending from the density of the population and number of available beds (in Masalli it is 14.9 beds, while in Mingechevir it is 112.4 beds).

118. The number of reported cases of HIV/AIDS in Azerbaijan is low, but it is suspected that the disease is underreported and spreading. In 2013, the number of officially registered cases of HIV was around 4149 (i.e. 0.04% of the population) and of this group 1301 people had developed AIDS[19]. It is however widely accepted that these official statistics are unrealistically low and the United Nations has estimated that the number of HIV cases in Azerbaijan in 2013 was around 9200[20] (or 0.09% of the population). Prevalence of HIV/AIDS in the project area is not known, but is expected to be far below the national average due to the prevalent conservative attitudes.

Cultural heritage

119. Azerbaijan has a long history of human habitation, and is steeped in culture that has been enriched throughout centuries of changing rule and influence. Paleontological sites are in abundance in Azerbaijan, with 243 types of fossil flora and fauna collected to date[21]. The country's strategic location led to it becoming an ancient centre of civilization and it has a formidable cultural heritage created over thousands of years. There is much evidence of prehistoric habitation in the region, and archaeologists have found sites of all stages of human development in Azerbaijan, including Mesolithic, Neolithic, and bronze and iron ages[22]. Many of these sites are remains of settlements and caves, some including rock paintings[23]. Tribes in the region formed in the third millennium BC and included most notably the Skiphs and Sakkses. In more recent history Azerbaijan has been host to numerous empires, from the Kura-Araks to the Arabs, who brought Islam to what is now Azerbaijan in the Eighth Century, and the country is also rich in the cultural remains of these more recent periods, including numerous settlements, burial grounds, and forts.

[15] Ganja and Lenkoran cities at the western and southern end of the project sites, have several universities.
[16] State Statistical Committee, 2014
[17] State Statistical Committee, 2014
[18] State Statistical Committee, 2014
[19] State Statistical Committee, 2014
[20] http://www.unaids.org/en/regionscountries/countries/azerbaijan
[21] http://www.cac-biodiversity.org/aze/aze_natreserves.htm
[22] RSK/ERM (2002)
[23] Such as the Taglar cave in the Hadrut region

120. Cultural monuments and historical sites in Azerbaijan are preserved via the *Law on Protection and Utilisation of Historic and Cultural Sites* and are subject to state registration. Monuments are divided into three categories according to their significance, as follows:

- Monuments of international importance, of which 64 are registered;
- Monuments of national importance, of which 3,692 are registered; and
- Monuments of regional importance, of which approximately 3,500 are registered

121. Article 18 of the Law requires project proponents to notify authorities and the Academy of Sciences of their activity at feasibility stage, and to conduct archaeological surveys if necessary. Where any archaeology is uncovered, satisfactory excavation, recording and preservation must be conducted prior to commencement of project construction activities.

122. There are no cultural heritage areas in the immediate vicinity of the project sites. A number of important historical sites exist in the districts where substations will be built but these are far from the actual sites where the construction activities will occur.

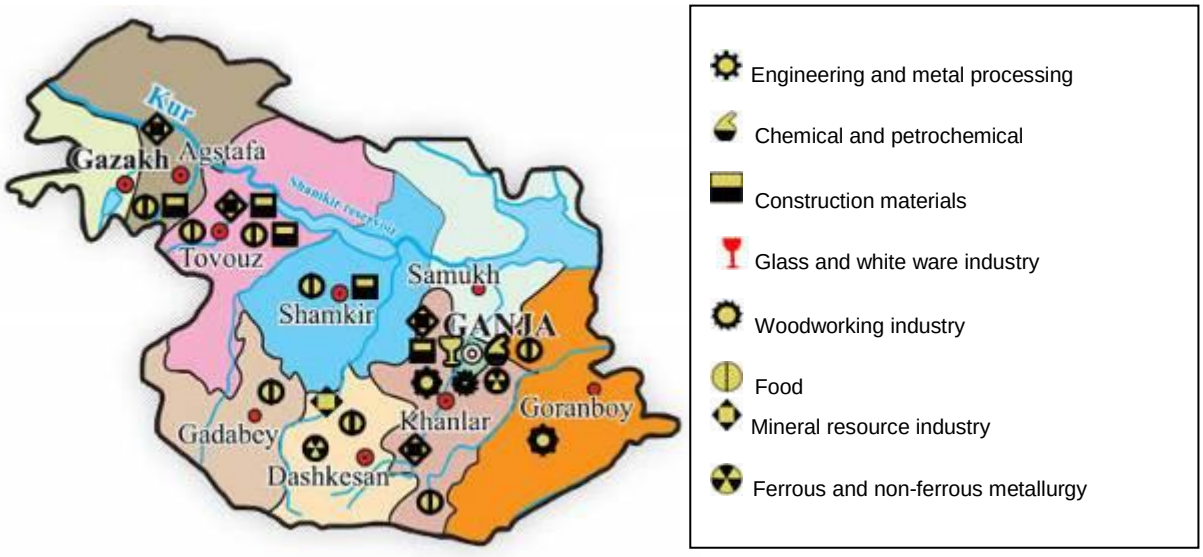
Economic Development

123. Azerbaijan is an economy that has completed its post-Soviet transition into a major oil based economy. It has substantial oil reserves and a significant agronomic potential based on a wide variety of climatic zones. Oil remains the most prominent product of Azerbaijan's economy with cotton, natural gas and agriculture products contributing to its economic growth over the last five years.

124. All the project sites have a strong agricultural economy based on grain production, animal husbandry/cattle breeding, vine growing and vegetables (peas, beans, potato, tomato, cucumber, cabbage, onion and garlic), fruit (grapes, apple, pear, walnut, hazelnut) and tobacco production. Tourism is well developed in Gakh, Ganja and in Lankaran.

125. The Ganja-Gazakh economic region is the second most important in the country after Baku, but it should be noted that Baku's prosperity is far ahead of the rest of the country, and even the second economic region lags far behind the capital city. The Ganja-Gazakh region contributes 12-13% of total industrial production due mainly to its extraction and processing industries. In addition to the extraction and processing of ores in Shamkir, Ganja and Dashkesen, the region has strong automobile and electronics manufacturing industries, some chemical production and a considerable economy in light industry and commerce[24]. Figure 7 shows the locations of some of the region's main industries.

Figure 7: Industry in the Ganja-Gazakh region[25].



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Infrastructure

126. Transport in the project areas is largely by road. The M1, M2, M3 and M4 highways provide the main artery through the areas. Most residential housing close to the project areas and project sites is found adjacent to secondary roads or in many cases close to village dirt roads. Local roads in small towns and villages generally have severely degraded asphalt surfaces or are not paved and are simple dirt tracks. These tracks are dusty in summer and muddy in winter, causing discomfort to residents.

127. The main railway line to Georgia runs parallel to the M2 around the Ganja region. The railway line is predominantly used for freight purposes, although a small number of passenger services connect the project area towns to Baku in the east and Georgia in the west. Most non-car owners needing to travel long distances prefer to take the bus service along the M2 rather than the slower train service. Another railway line connecting the south part of the country (Lankoran region) with the north-west (Gakh, Oguz region) through the capital city, also passes through project districts. But similar to above, passengers mainly prefer to travel by bus or private cars.

128. Ganja and Lankoran cities also have minor international airports providing alternative transportation to surrounding regions.

129. **Water Supply and Sanitation**: Access to safe water supply and sanitation impacts the health and hygiene conditions of communities. WHO statistics for 2014[26] show that in Azerbaijan, 80% of the population has access to sustainable and improved water source (household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection). In regard to access to hygienic sanitation the condition is slightly improved with 82% of the population able to access improved sanitation. These figures do not reflect the significant disparity between urban and rural areas (urban areas much higher than rural).[27] SPSDR 2014-2018 notes that new water and sewerage lines were laid over the last 10 years to the tune of 3,400 km of water supply lines and 1.2 km of sewerage lines.

130. Projects for improving water and sanitation infrastructure in Shamakhi, Masalli, Lankoran, Ganja, Gakh and Shamkir cities have been implemented by the government during last 5 years funded by different international financial institutions. Conditions of Imishli, Saatli, Zardab cities are relatively poor regarding water supply and especially sanitation systems.

131. **Energy** Azerbaijan has an installed power generating capacity of about 7,025 MW, to which thermal power stations contribute 6,299 MW and hydropower stations make up the rest. A combined cycle plant having a capacity of 400 MW is under construction at Shimal. Thus, total available system capacity will soon reach close to 7,500 MW. In addition to the above, various state owned and private enterprises contribute an additional 170 MW to the country's inventory of generating capacity.

132. Currently, 80 per cent of Azerbaijan's generating power is located in its western part. However, 70 per cent of the power consumption is massed in the east, north-east and south-east. Therefore, fuel is transported hundreds of kilometers from the Absheron Peninsula to the large thermal power stations in the west. The energy produced is then transmitted back to the Absheron Peninsula and from there is distributed to the northern and southern

[26] World Health Statistics 2014 World Health Organization
[27] ADB Country Partnership Strategy Azerbaijan 2014-2018.

regions. The west and east of Azerbaijan are connected by two 500kV transmission lines (one of which is energized at 330 kV) and relatively large transmission losses take place.

133. The country's distribution networks include 7 regional distribution networks (i.e., Baku, Shimal, Canub, Shimal Qarb, Markazi Aran, Aran, and Qarb) and Nakhchivan network[28]. The existing distribution networks in secondary cities and rural areas are aged and fragile and cannot provide constant, high-quality services to customers—affecting living conditions of households and discouraging new economic activities. The majority power distribution facilities in districts have been built in Soviet Union time and in operation for 30 years and more. The equipment have reached the end of their service life and many are technically obsolete. Many transformers are heavily loaded or overloaded. Wood poles on overhead distribution lines have weakened due to wood rot at the ground level to the point where they present a high risk of in-service failure posing risk to public safety. When distribution equipment becomes old, it also becomes less reliable with more frequent outages occurred and increased losses. Rehabilitation and expansion of the country's distribution network is considered as the priority of the sector future investments and hence this proposed project.

134. **Waste management** is generally poor in Azerbaijan. Government implements several projects mainly in the capital city but in general no modern sanitary landfill facility exists nationwide. It is therefore expected that most household waste in the project districts is dumped in small local dumpsites, and is partially burned and buried. Waste collection is provided by the relevant municipality, and frequency appears to be good.

[28] Nakhchivan network is solely operated by the Nakhchivan Energy Agency.

V. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. DUE DILIGENCE REVIEW OF POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH TRANCHE 1 COMPONENTS

135. As described in Section III the scope of works proposed under the Tranche 1 project comprises 62 sub projects involving 47 separate contract packages for plant and installation. The 62 subprojects are grouped into eight subproject types. The subprojects are located in 13 districts of Azerbaijan. At the commencement of the environmental study a due diligence review was undertaken on all project components and Rapid Environmental Appraisals (REAs) prepared for various subproject packages (see Appendix 6). An REA was not prepared for the contract packages involving installation of electric meters. The due diligence involved checking that the selection of the subprojects included in Tranche 1 conformed with the general criteria as specified in the Environmental Assessment and Review Framework (EARF) prepared for the MFF. The due diligence entailed:

- Site visits to all proposed 110kV substation and distribution line sites and all 35kV substations and distribution line sites.
- Discussions with RESSD personnel during site visits regarding scope of works locations and alignments of subproject components
- Discussions with Azerishig PIU
- Review of project information provided by the PIU
- Professional opinion and experience of International Environment Specialist
- Preparation of REAs
- Confirmation with ADB regarding the methodology and presentation of the IEE study given the large number and similarity of subproject components with low potential for environmental impacts.
- Discussions with ADB project officers including environment specialist

136. The due diligence review was presented in the consultant's Inception Report the overall findings of which are briefly summarized below:

- All of the proposed new 110kV substations are located within the boundaries of existing substation sites
- Most of the proposed new 35kV substations and their associated distribution lines are located within the boundaries of existing substation sites
- All the existing substation sites and the six proposed greenfield 35kV substation sites are located in what can be described as industrial, peri-urban or rural areas with low environmental values .
- The proposed new 110kV and 35kV lines will involve replacement/upgrading of existing lines along existing corridors.
- The lower voltage lines (10 kV and 0.4 kV) will involve replacement of existing lines and poles along road corridors
- Complete transformer substations (CTS) will be located on government owned property within existing distribution corridors and in most cases involve replacement of old transformers on the same footprint. Some additional CTS will be added to augment the distribution system
- None of the sites or proposed project assets are within or close to any protected areas or culturally sensitive areas
- There will be minimal civil works required for the project

- Based on site observation and discussions with Azerishig PIU the overall project is likely to give rise to nil, negligible or at worst, minor temporary environmental impacts that can be easily mitigated.
- The most significant potential environmental impact will be associated with the removal, storage and disposal of old transformers potentially containing PCB oil.

137. Following discussions with ADB including review of the due diligence findings it was agreed that the subprojects would be divided into component groups as described above and one IEE would be prepared that discusses the entire Tranche 1 components with impacts assessment and mitigations undertaken on a group-wise basis including separate EMPs for each group.

B. IMPACTS AND MITIGATION MEASURES DUE TO PROJECT LOCATION

1. Group 1: 110kV Substations

138. For all four of these subprojects the works involve replacement of the existing substation within the boundary of the existing substation site as described in Section III B. All four sites are located in industrial or peri-urban areas with low environmental values. No impact on land value is expected.

139. **No encroachment into precious ecological areas or areas of historical / cultural value**. There are no significant sensitive receptors including ecologically sensitive areas or historical / cultural monuments nearby the substation sites that will be impacted from the construction or operation of the substations.

140. **Interference with other utilities and traffic** As per regulations enacted by Government of Azerbaijan, it is mandatory for Azerishig to seek requisite clearance prior to construction from agencies like departments of railways, roads, telecommunication, and wherever necessary, from aviation authorities that could be affected by the construction of power distribution infrastructure. Given that all new substations will be constructed within the boundaries of existing substation sites, no significant interference with other utilities and traffic is expected.

141. **Interference with water drainage patterns.** Construction of new substation infrastructure within existing substation sites will include provision of effective drainage design such that there will be minimal changes to the natural flow of storm water entering and leaving the site. Drainage will be designed to route water runoff from the substation to designated places to avoid flooding of access roads and nearby areas. Storm water management shall conform to governmental agency requirements. No significant impacts on water drainage patterns is expected.

142. **Construction of access roads.** There will be no need for construction of access roads since all the new substations will be constructed within the boundary of the existing substation site.

2. Group 2: 35kV Substations

143. For nine of the sixteen subprojects the works involve replacement of the existing substation within the boundary of the substation site as described in Section III B. All of the nine sites are located in industrial, peri-urban or urban areas with low environmental values and there are no significant sensitive receptors including ecologically sensitive areas or historical / cultural monuments nearby likely to be impacted from the construction or operation of the substations. The potential impacts and mitigation measures due to project

location identified for the 110kV substations will be the same for the 35kV substations although at a smaller scale.

144. For the seven new 35kV substations to be constructed on green field sites, in every case the land is owned by Azerishig and located in either urban or peri-urban areas or in rural scrubland. All seven of these sites has low environmental values including no ecologically sensitive areas or historical and cultural monuments nearby.

145. In the case of Khirdalan and Siyazan substations, the sites are located within 50 m of existing residential areas. Such proximity to nearby residences is acceptable when internationally recognized design and environmental health and safety standards are applied[29] as they will be in this project. This includes ensuring that noise levels generated from the substations do not exceed statutory limits for residential areas.

146. The maximum allowable noise levels for residential areas in Azerbaijan is 50 dBA during daytime (0700 – 2300hrs) and 40 dBA during night time (2300- 0700hrs)[30] . Transformers with power levels of 10 MVA and 16 MVA, as will be installed respectively at Siyazan and Khirdalan substations, would typically generate sound pressure levels of between 45 and 55 dBA[31]. The Institute of Electronics and Electrical Engineers (IEEE) Standard 1127 notes that sound pressure levels from transformers will drop at least 3 dB for every doubling of distance. In other words, if the noise level of the transformer is measured at a distance of 10 m from the source, this gives attenuation in the noise level by at least 15 dB(A). Thus, the maximum estimated noise level generated from the transformers at 10 m from the source is expected to dissipate to a range between 30-40 dB(A). The transformers will be located at least 10m from the boundary of the substation site with the nearest residences at least a further 20m away. On this basis it can be said that the statutory levels will be complied with such that potential noise impacts on sensitive receptors will be insignificant.

147. **No encroachment into precious ecological areas or areas of historical / cultural value**. There are no significant sensitive receptors including ecologically sensitive areas or historical / cultural monuments nearby the proposed five new 35kV substation sites that will be impacted from the construction or operation of the substations.

148. **Interference with other utilities and traffic** As per regulations enacted by Government of Azerbaijan, it is mandatory for Azerishig to seek requisite clearance prior to construction from agencies like departments of railways, roads, telecommunication, and wherever necessary, from aviation authorities that could be affected by the construction of power distribution infrastructure. Provided that the applicable regulations and coordination with relevant authorities is undertaken there will be no significant interference with other utilities and traffic.

149. **Interference with water drainage patterns.** Construction of new substation infrastructure will include provision of effective drainage design such that there will be minimal changes to the natural flow of stormwater entering and leaving the site. Drainage will be designed to route water runoff from the substation to designated places to avoid flooding of access roads and nearby areas. Storm water management shall conform to governmental agency requirements. Provided that these mitigation measures are implemented there will be no significant impact on existing water drainage patterns.

[29] Institute of Electronics and Electrical Engineers. 2013. Standard 1127-2013 IEEE Guide for the Design of Electric Power Substations for Community Acceptance and Environmental Compatibility.

[30] Noise Standards DUST 17187 (State General Standards and Requirements), Presidential Decree No. 796 dated July 8, 2008)

[31] Petrovic et al. 2012. Noise Measurements of the Power Transformers 23rd National Conference and 4th International Conference Noise and Vibration. University of Nis, Serbia.

150. **Construction of access roads.** There will be little if any need for construction of access roads to the five new 35kV substation sites since they are all either immediately adjacent to or, at most, within 50 m from an existing public road. Short access ways into the substation sites from public roads are all on land owned by Azerishig and will be included as part of the design and layout of the substations.

3. Group 3: 110kV Distribution Lines

151. For all four of these subprojects the works involve replacement of the existing lines and poles/towers with new lines and poles/towers. There will be no new line routes with all work undertaken within the easement of the existing lines. The lines pass through uninhabited areas, agriculture fields and barren lands where land use is unlikely to change in the foreseeable future. No impact on land value is expected.

152. **No encroachment into precious ecological areas or areas of historical / cultural value.** There are no significant sensitive receptors including ecologically sensitive areas or historical / cultural monuments within or nearby the alignments of the 100 kV distribution lines. Thus there will be no impacts on these environmental values.

153. **Interference with other utilities and traffic** As per regulations enacted by Government of Azerbaijan, it is mandatory for Azerishig to seek requisite clearance prior to construction from agencies like departments of railways, roads, telecommunication, and wherever necessary, from aviation authorities that could be affected by the construction of power distribution lines. However, it is unlikely that the new lines will result in any interference with other utilities and traffic over and above the current situation.

154. Whenever the distribution line crosses a railway track, clearance will be sought from the railways department. The new lines will be planned and executed in such a way that adequate clearance is maintained between the distribution lines and railways, civil aviation and civil defense installations. Wherever the distribution lines pass by airports, the poles/towers beyond a specified height are painted in alternate orange and white stripes for easy visibility and warning lights are placed at the top of these towers.

155. **Interference with water drainage patterns.** As the lines are constructed aerially and the blockage of ground surface is limited to the area of tower footings, which is very small, impacts on drainage patterns will be negligible. In the infrequent instances where drainage is affected, flow will be diverted and guided to safe zones.

156. **Construction of access roads.** There will be no need for construction of any new access roads over and above current access ways used for maintenance of the existing lines.

4. Group 4: 35 kV Distribution Lines

157. For nine of the sixteen subprojects the works involve replacement of the existing lines and poles/towers with new lines and poles/towers. There will be no new line routes with all work undertaken within the easement of the existing lines. The lines pass through uninhabited areas, agriculture fields and barren lands where land use is unlikely to change in the foreseeable future. No impact on land value is expected.

158. There are no significant sensitive receptors including ecologically sensitive areas or historical / cultural monuments within or nearby the alignments of the 35kV distribution lines. The potential impacts and mitigation measures due to project location identified for the

110kV distribution lines (Group 3) will be the same for the eleven 35kV "replacement" lines although at a smaller scale.

159. For three of the seven distribution subprojects connecting to the seven new substations on greenfield sites, the new connection lines will be emplaced underground at approximately 1 m depth along existing road corridors and connected to the nearest above ground existing 35kV line. The other four new distribution lines will be either aligned along road corridors or will be aligned over barren land. No impact on land values is expected in respect of any of the "new" 35kV distribution lines.

160. **No encroachment into precious ecological areas or areas of historical / cultural value.** There are no significant sensitive receptors including ecologically sensitive areas or historical / cultural monuments within or nearby the alignments of the six proposed "new" 35kV distribution lines. Thus there will be no impacts on these environmental values.

161. **Interference with other utilities and traffic** As per regulations enacted by Government of Azerbaijan, it is mandatory for Azerishig to seek requisite clearance prior to construction from agencies like departments of railways, roads, telecommunication, and wherever necessary, from aviation authorities that could be affected by the construction of power distribution lines. It is possible that nearby telecommunication circuits could be affected by electrical interference of the new lines. Necessary protection measures will be adopted by the relevant government environmental authority together with the telecom regulatory body. Measures like rerouting the telecom circuits, conversion of overhead telecom circuits into cables etc. to minimize the interference will be adopted. Provided that the applicable regulations and coordination with relevant authorities is undertaken there will be no significant interference with other utilities and traffic.

162. **Interference with water drainage patterns.** Three of the seven "new" 35kV lines will be emplaced underground along existing road corridors and no interference of water drainage patterns is expected. For the aerially constructed lines the blockage of ground surface is limited to the area of tower footings, which is very small. Impacts on drainage patterns will be negligible. In the infrequent instances where drainage is affected, flow will be diverted and guided to safe zones.

163. **Construction of access roads.** There will be no need for construction of access roads for the two "new" underground 35 kV lines. A temporary access track may be required to transport lines and towers to some parts of the other new 35kV alignments. The environmental impacts associated with the establishment of a temporary access track will include compaction of soil, loss of structures and disruption of stream or other water bodies. To minimize the impacts the contractor will be required to limit the load of trucks in transporting construction equipment and materials through the access track. Once construction is complete, Azerishig will use the track for periodic line maintenance.

5. Groups 5 and 6: 10kV Distribution Lines and 0.4kV Self - Supporting Insulated Wires (SIW)

164. In all cases the sub-projects involve replacement of existing poles and conductors along existing road corridors such that all works will be carried out within the easement of existing lines. Moreover, the rehabilitation and replacement of aged infrastructure will greatly improve public safety. The dilapidated condition of many distribution lines and transformers currently poses a significant safety risk to the public. The new infrastructure will be in installed accordance with internationally recognized technical and safety specifications.

165. It would be expected that land values of areas benefiting from improved delivery of power would likely appreciate rather than depreciate.

166. There will be no encroachment into precious ecological areas or areas of historical / cultural value such that there will be no impacts on these values. All of the rehabilitated lines will be installed within or close to urban areas.

167. There will be no or insignificant impacts on other utilities and traffic. Rather, any existing impacts on other utilities and traffic due to the current dilapidated condition of these service lines will be mitigated by the rehabilitation works.

168. There will be no or insignificant impacts on water drainage patterns resulting from these subprojects.

169. No new access roads will be required since all lines are within existing road easements.

6. Group 7: Complete Transformer Substations (CTS)

170. The CTSs will both replace existing 10 kV transformers in the project areas and provide additional transformers to enhance current service delivery and coverage. All CTSs will be located on Government owned or Azerishig land within urban areas.

171. It would be expected that land values in the vicinity of new CTSs and therefore benefiting from improved delivery of power, would likely appreciate rather than depreciate.

172. There will be no encroachment into precious ecological areas or areas of historical / cultural value such that there will be no impacts on these values. All of the CTSs will be installed within urban areas.

173. There will be no or insignificant impacts on other utilities and traffic. Rather any existing impacts on other utilities and traffic due to the current dilapidated condition of the transformers to be replaced will be mitigated by the new CTSs.

174. There will be no or insignificant impacts on water drainage patterns resulting from the CTSs due to their small footprint within existing utility corridors.

175. No new access roads will be required since all CTSs are within existing road or other utility corridors currently accessible by road.

C. IMPACTS AND MITIGATION MEASURES DUE TO PROJECT DESIGN

1. Groups 1 and 2: 110kV and 35kV Substations

176. **Escape of Polluting Materials** The main potential source of polluting materials arising from the substation subprojects is oil spill/leakage from substation transformers entering the soil and groundwater either directly or indirectly through the substation drainage system. Whilst no PCB oils will be used as per international standards, alternative oils can still adversely affect soil and water quality if released to the environment.

177. Oil filling of transformers occurs when the equipment is initially installed. Periodic reprocessing or replacement of the oil may be necessary to ensure that proper insulation qualities are maintained. Under normal operating conditions some very minor loss of oil may occur over time through leaking seals and gaskets. Otherwise electrical failure or

accident/fire could result in a more catastrophic loss of oil to the surrounding environment. Adequate oil containment systems are required at the new substations to ensure that oil that leaks from transformers or other oil filled equipment is contained and does not migrate from the site. For all new substations under the project, the following IEEE Guidelines should be followed:

- IEEE Guideline Nº 1127-2013: IEEE Guide for the Design, Construction and Operation of Electric Power Substations for Community Acceptance and Environmental Compatibility
- IEEE Guideline Nº 980-12013: IEEE Guide for Containment and Control of Oil Spills in Substations.

178. Replacement transformer oil, as well as lubricating oil, solvents, and fuel that may be used by the substations, should be stored within concrete or brick buildings designed for such purposes. It is anticipated that no more than about 500 litres of transformer oil, and 100 litres of fuel and lubricating oil would be stored on site at any one time. The oil/fuel storage building should be a well-ventilated, roofed structure, with an impermeable concrete floor. A concrete berm should be integrated into the entranceway, so as to create a shallow holding tank in the event that oil or fuel products are accidentally spilled or released from a drum or tank. Fire extinguishers of the type suitable for fighting an oil or fuel fire should be positioned within and outside of any oil/fuel storage building.

179. Oil spill clean-up materials (sorbent pads, loose sorbent material, etc.) should be stationed in any oil/fuel storage building in clearly labelled containers. Substation operators will need to be trained in good housekeeping practices, including how to clean up oil/fuel spills and dispose of contaminated sorbent material.

180. Liquid waste management systems will be installed to ensure that there will be no unacceptable impacts on the surrounding land or water bodies. The substation drainage system should be carefully designed to prevent possible flooding of the substation area and should be directed through an oil and grease separator before discharge to the ground outside the site.

181. Provided the above measures are implemented the potential impacts due to the escape of polluting materials from substations will be insignificant.

182. **Explosion/fire hazards** Modern transformers are oil-cooled devices equipped with fire control systems, including firewalls that separate one transformer from another. These measures help to ensure that transformers do not overheat and catch fire and, on the rare occasion that they do catch fire, the fire does not spread to adjacent transformers.

183. The substation designs will include modern fire control systems such as those specified in IEEE standard 979: IEEE Guide for Substation Fire Protection (2012). Fire extinguishers of the type suitable for fighting an oil or fuel fire shall be positioned where oil-filled transformers or other oil-filled equipment is used. A fire emergency action plan shall be prepared for the substation and training given to staff on how to use firefighting equipment and how to implement the action plan.

184. **Noise/Vibration nuisances** The equipment installed at substations are mostly static and are designed so that the noise level always remains within permissible limits. Replacement of old transformers with modern low noise equipment will result in an overall reduction in noise currently generated by the transformers in all the existing 110kV and 35 kV substations to be rehabilitated. Furthermore, all of the substation sites to be rehabilitated are located at distances well away from residential areas and other noise sensitive receivers such that noise impacts will be insignificant.

185. Five of the seven proposed new greenfield 35 kV substations are located in rural or peri-urban areas well away from potential sensitive receptors. Potential noise impacts related to the proposed new Siyazan and Khirdalan substations located within 50m of residential areas, is discussed in Section V B.2.

2. Groups 3, 4, 5 and 6: 110 kV, 35kV, 10 kV and 0.4kV Distribution Lines

186. The design of the rehabilitated and new alignments of all the distribution lines proposed under the project will be in accordance with internationally recognised design and safety standards. This will result in improved community safety and operational efficiency with respect to all distribution infrastructure as well as improved electricity delivery service to consumers. The proposed use of self-supporting insulated wires (SIW) to replace the three phase 0.4kV lines for customer service lines will greatly increase public safety as well as reduce visual impact.

3. Group 7: 10kV Complete Transformer Substations

187. CTSs will be designed to international standards, be completely enclosed, supported on a concrete slab, surrounded by a security fence and with appropriate oil containment systems to prevent leakage to the surrounding ground surface. These transformers will replace existing open and highly unsafe 10kV distribution transformers.

Potential noise generated from these distribution transformers (< 1 MVA capacity) will be very low and shielded by their enclosures such that they will be barely audible at the CTS fence line. There will be no noise impacts arising from the CTSs.

D. IMPACTS AND MITIGATION MEASURES DUE TO CONSTRUCTION ACTIVITIES

1. Groups 1, 2 and 7: 110kV Substations, 35kV Substations and Complete Transformer Substations

188. **Disposal of hazardous waste (PCB oils) due to decommissioning and disposal of old transformers.** It is highly possible that the old transformers to be replaced in the refurbished substations contain polychlorinated byphenol (PCB) oils which are non-biodegradeable and carcinogenic and their use in electrical installations has been banned internationally.

189. Contractor's involved with decommissioning and disposal of transformers potentially containing PCB oils will be required to follow international best practice for transport, storage and disposal of potentially PCB oil containing transformers. As a signatory of the Stockholm Convention on Persistent Organic Pollutants (POPs), the Ministry of Environment and Natural Resources (MENR) shall supervise the removal and disposal of transformers. Works will not proceed on removal of transformers until the contractor has notified Azerishig by way of the Project Supervision and Management Consultant (PMC) who in turn must coordinate with MENR to oversee the process and ensure proper handling and disposal.

190. Testing of oil from transformers to be replaced will be undertaken by Azerishig using chromatography to determine the chlorine content. If the chlorine content of oil exceeds 50 ppm the oil from that transformer will be properly tested for PCBs by Azerishig. If PCB's are identified, MENR will arrange for the disposal of the PCB oils through its own PCB disposal program in accordance with the Stockholm Convention on POPs. Retired transformers awaiting testing and subsequent disposal will be stored in a designated storage area. The storage area shall have a concrete base with containment to prevent leakage onto the

ground surface and is fully covered from precipitation. Once oils have been extracted and disposed of (or recycled in the case of non PCB oils) the transformer shall be washed with a solvent followed by dismantling and further decontamination of the components to allow recycling of metal components.

191. The above procedures relating to decommissioning and disposal of old transformers will ensure that there will be no unacceptable impacts in relation to this activity.

192. **Erosion and sedimentation hazards** Very limited excavation will be required and confined to soil removal and platform preparation for transformers and substation structures/switchyards etc. within existing substation sites. A similar scale of activities will be undertaken for the seven green field 35kV substation sites and to a lesser extent for new CTS locations. Limited excavation combined with the prevailing dry climate means that potential impacts related to erosion and sedimentation due to construction activities will be minor.

193. Measures to minimize erosion and sedimentation will be incorporated into contract documents. These will include minimizing removal of existing vegetation and topsoil, re-surface any areas where excavation works are done. Topsoil disturbed during the development of sites will be used to restore the surface of the excavated area. Infertile and rocky material will be dumped at designated dumping areas or where applicable, used as fill material.

194. **Nuisance to nearby properties** Potential nuisance to nearby properties during construction includes:

- Noise and vibration from construction plant and heavy vehicles transporting materials to the sites
- Dust arising during excavation and transport of materials
- Air pollution due to exhaust gases from construction plant and heavy transport vehicles
- Gaseous emissions from welding

195. The construction activities will involve temporary and periodic use of powered mechanical equipment over a short time period with much of the work carried out using manual labour. The main noise and dust generating activities will be associated with minor excavation for platform preparation and periodic transport of materials and equipment to the sites. The potential impact of noise, dust nuisance and air pollution on nearby communities from these activities will be insignificant to minor, and periodic in nature. However, good construction practice to minimize these impacts shall be specified in contract documents.

196. According to Azerbaijan noise standards[32] the maximum allowable noise levels in residential areas is 50 dB (A) during daytime hours (0700-2300hrs) and 40 dB(A) during night-time hours (2300-0700 hrs). Periodic noise monitoring (at least 4 times during the construction period) during noisy construction activities such as excavation for platform preparation and delivery of equipment to sites, will be undertaken during the construction of these subprojects. Monitoring points will be located at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Should noise levels greater than the allowable standard be recorded during noise monitoring, and unequivocally associated with project construction activities, the contractor will be required to implement additional noise mitigation measures such as adjusting his working methods or placing of temporary noise barriers to ensure the noise standard is met.

[32] DUST 17187 (State General Standards and Requirements), Presidential Decree No. 796 dated July 8, 2008)

197. Mitigation measures for noise shall include:

- Scheduling activities during day time working hours
- Maintenance of machinery and vehicles to be enhanced to keep noise at a minimum

198. Mitigation measures for dust/air pollution shall include:

- Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes
- Vehicles delivering construction materials shall be covered.
- Vehicles and construction equipment shall be regularly serviced and well maintained
- Vehicles and construction equipment shall comply with statutory emission standards

199. **Water quality impacts** During construction wastewater will arise from domestic sewage from site workers, contamination due to spillage of oil and other lubricants, contamination due to disposal of construction wastes and wastewater from washing of construction equipment and vehicles. Such waste water if not properly controlled has the potential to pollute nearby water bodies namely drainage channels and irrigation canals.

200. The contractors will be required to implement measures to prevent wastewater produced during construction from entering directly into the adjacent drainage channels and irrigation canals. Such measures shall include:

- Provision of adequate on-site sanitation facilities including septic tanks and soak-away pits or alternative sanitary facilities that do not allow untreated disposal of sewage to adjacent water bodies
- Provision of an appropriate domestic solid waste and construction waste collection and disposal system
- Provision of hard standing areas for equipment servicing, refueling and wash down where drainage is directed through oil and grease interceptors before being discharged into a settling pond prior to discharge into offsite drainage channels.
- Implementation of good operation and maintenance practices for construction equipment
- Preparation of an oil spill response plan

201. Proper implementation of the above measures will ensure that the potential water quality impacts during construction will be insignificant.

202. **Interference with utilities, blockage of access ways** All existing and proposed new greenfield substation sites and CTSs are accessible by public roads and construction traffic to and from the sites will be minimal and periodic in nature. The contractors will be required to post signs and manage traffic to protect the travelling public and its workers as necessary. Contractors will be required to ensure that existing access ways to public and private amenities are maintained throughout the construction period.

203. **Health and Safety** The construction work force and the public face a number of safety risks due to accidents during construction. These include interalia: explosions, falls from towers and buildings, unsafe power supply and equipment failure. Potential health risks include: inadequate sanitation and sexually transmitted diseases introduced from migrant workers. To minimize such risks Azerishig will ensure that contractors comply with statutory requirements for worker and public safety related to electric power infrastructure and other internationally recognized safety guidelines.

204. The contractor shall provide all necessary safety appliances such as safety goggles, helmets, masks, boots, gloves etc. to workers and staff. Adequate precautions will be taken

to prevent danger from electrocution. Measures such as signboards, danger/red lights, fencing and lights will be provided to protect the public and workers. The contractors will be required to submit a Worker Health and Safety Plan for approval prior to commencement of construction activities. In addition the contractors will be required to provide adequate health and safety training for workers.

2. Groups 3, 4, 5 and 6: 110 kV, 35kV, 10 kV and 0.4kV Distribution Lines

205. **Erosion and sedimentation hazards** The project will involve only minimal excavation that could contribute to soil erosion and the potential for sedimentation of watercourses. Excavation will be mainly limited to the following:

- auguring of four holes for each lattice tower concrete support bases (110 kV and 35kV only) in the impact corridor
- auguring a single hole in the impact corridor for some 110kV and 35kV lines, and all 10kV and 0.4kV lines
- minor excavation (if required) for a 2km temporary access track associated with the Rasullu/Imishli 35kV new alignment

206. Excavations for tower bases will be limited to the immediate area of the tower legs. At most the foot print of a 110 kV tower would be (about 36 m^2), therefore, the area that would be exposed to the forces of erosion is limited.

207. As much as possible existing line maintenance tracks will be used to access the tower/pole sites (110 kV and 35 kV). The 10kV and 0.4kV lines are all within existing road or other utility corridors.

208. Given the small scale nature of the excavations required for tower/pole foundations in a generally dry climate, the impacts associated with uncontrolled erosion and silt runoff will be minor to insignificant.

209. Measures to minimize erosion and sedimentation will be incorporated into contract documents. These will include minimizing removal of existing vegetation and topsoil, re-surface any areas where excavation works are done. Topsoil disturbed during the development of sites will be used to restore the surface of the excavated area. Infertile and rocky material will be dumped at designated dumping areas or where applicable, used as fill material.

210. **Nuisance to nearby properties** Potential nuisance to nearby properties during construction includes:

- Noise and vibration from construction plant and heavy vehicles transporting materials to site
- Dust arising during excavation and transport of materials
- Air pollution due to exhaust gases from construction plant and heavy transport vehicles
- Gaseous emissions from welding
- Dismantling of 0.4kV service lines located on private property

211. The construction activities for distribution lines will involve temporary and periodic use of powered mechanical equipment such as an augur and mobile crane. The main noise and dust generating activities will be associated with periodic transport of materials and equipment to the sites. The potential impact of noise, dust nuisance and air pollution on nearby communities from these activities will be insignificant to minor, and periodic in nature.

However, good construction practice to minimize these impacts shall be specified in contract documents.

212. According to Azerbaijan noise standards[33] the maximum allowable noise levels in residential areas is 50 dB (A) during daytime hours (0700-2300hrs) and 40 dB(A) during night-time hours (2300-0700 hrs). Periodic noise monitoring (at least 4 times during the construction period) during noisy construction activities such as auguring of holes and use of a mobile crane, will be undertaken during the construction of these subprojects. Monitoring points will be located at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Should noise levels greater than the allowable standard be recorded during noise monitoring, and unequivocally associated with project construction activities, the contractor will be required to implement additional noise mitigation measures such as adjusting his working methods or placing of temporary noise barriers to ensure the noise standard is met.

213. Mitigation measures for noise shall include:

- Scheduling activities during day time working hours
- Maintenance of machinery and vehicles to be enhanced to keep noise at a minimum

214. Mitigation measures for dust/air pollution shall include:

- Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes
- Vehicles delivering construction materials shall be covered.
- Vehicles and construction equipment shall be regularly serviced and well maintained
- Vehicles and construction equipment shall comply with statutory emission standards

215. There could be occasional cases where dilapidated distribution poles that need to be replaced are currently located on private property. These poles and lines will be removed from private property and replaced with new poles and SIW lines on government owned land immediately adjacent to the property such that none of the new infrastructure provided under the project will be on private land. Pole removal could result in minor nuisance / disturbance to the property owner.

216. Pole dismantling will involve the use of a crane located on government land outside the property with one or two laborers assisting with manually loosening the poles. The contractor shall be responsible for ensuring that the old pole hole is filled with soil and any disturbance to the property resulting from pole removal shall be fully restored.

217. The process to be followed in removing poles from private property shall be as follows:

(i) Azereshig will advise the owner concerning the need for pole removal prior to arranging a mutually agreeable time for the works to be undertaken by the contractor and for access to be provided by the owner.

(ii) Pole removal will be undertaken by the contractor at the agreed time as described above, including restoration / filling of the pole hole and ensuring the property is left in the same condition as it was prior to pole removal.

(iii) Azerishig staff shall follow up with the private owners following pole removal by the contractor to ensure the owners are satisfied that any disturbance from pole removal has been properly resolved by the contractor.

[33] DUST 17187 (State General Standards and Requirements), Presidential Decree No. 796 dated July 8, 2008)

(iv) In a case where the owner is not satisfied with the contractor's restoration activity the grievance redress mechanism will be followed. (See Section VII).

Provided the above procedure is followed there will be no unacceptable nuisance to nearby properties resulting from construction activities.

218. **Water quality impacts** During construction wastewater will arise from domestic sewage from site workers, contamination due to spillage of oil and other lubricants, contamination due to disposal of construction wastes and wastewater from washing of construction equipment and vehicles. Such waste water if not properly controlled has the potential to pollute nearby water bodies namely drainage channels and irrigation canals.

219. The contractor will be required to implement measures to prevent wastewater produced during construction from entering directly into the adjacent drainage channels and irrigation canals. Such measures shall include:

- Provision of adequate on-site sanitation facilities including portable toilets or alternative sanitary facilities that do not allow untreated disposal of sewage to adjacent water bodies
- Provision of an appropriate domestic solid waste and construction waste collection and disposal system
- Provision of hard standing areas for equipment servicing, refueling and wash down where drainage is directed through oil and grease interceptors before being discharged into a settling pond prior to discharge into offsite drainage channels.
- Implementation of good operation and maintenance practices for construction equipment
- Preparation of an oil spill response plan

220. Proper implementation of the above measures will ensure that the potential water quality impacts during construction will be insignificant.

221. **Interference with utilities, blockage of access ways** Dismantling of existing towers/poles and lines and erection of new towers/poles and lines occurs in a progressive manner from location to location such that traffic disruption along the roads where construction crews are unloading materials from trucks will be minor. Erection of the lower voltage distribution systems (10kV and 0.4kV) erected along road corridors will cause only minor inconvenience to traffic when one lane of the two lane road is temporarily closed to facilitate erection of concrete poles and stringing of conductor wire. The contractors will be required to post warning signs and manage traffic to protect the travelling public and its workers as necessary.

222. In the event that stringing conductors presents a possible risk to traffic on roads or rivers, scaffolds will be constructed to protect pedestrians and vehicles (and the conductor itself) from potential injury /damage during conductor stringing. Contractors will be required to ensure that existing access ways to public and private amenities are maintained throughout the construction period.

223. **Health and Safety** The construction work force and the public face a number of safety risks due to accidents during construction. These include interalia: explosions, falls from towers and buildings, unsafe power supply and equipment failure. Potential health risks to include: inadequate sanitation and sexually transmitted diseases introduced from migrant workers. To minimize such risks Azerishig will ensure that contractors comply with statutory requirements for worker and public safety related to electric power infrastructure and other internationally recognized safety guidelines.

224. The contractor shall provide all necessary safety appliances such as safety goggles, helmets, masks boots etc. to workers and staff. Adequate precautions will be taken to prevent danger from electrocution. Measures such as signboards, danger/red lights, fencing and lights will be provided to protect the public and workers. The contractors will be required to submit a Worker Health and Safety Plan for approval prior to commencement of construction activities. In addition the contractors will be required to provide adequate health and safety training for workers.

E. IMPACTS AND MITIGATION MEASURES FROM OPERATION

1. Operation & Maintenance (O&M) staff/skills less than acceptable resulting in a variety of adverse effects:

225. Potential impacts related to O&M will be avoided by Azerishig through implementation of the following measures:

(i) Operation & Maintenance of all distribution lines is performed by trained and experienced staff of Azerishig's various Regional Electricity Service and Supply Departments (RESSD)

(ii) Operation & Maintenance of 110/35 kV substations and CTSs is performed by trained and experienced staff of Azerishig's various Regional Electricity Service and Supply Departments (RESSD)

(iii) The maintenance of all the substations is being performed by staff trained by the RESSDs only.

2. Exposure to Electro Magnetic Fields (EMF):

226. There have been some concerns about possible increased risk of cancer from exposure to electromagnetic radiation from overhead transmission lines. Research has been undertaken into this matter throughout the world. A World Health Organization (WHO) review in 1996 concluded that: "From the current scientific literature, there is no *convincing evidence that exposure to radiation field shortens the life span of humans or induces or promotes cancer".*

227. Law on Radiological Safety of Population (1997) of Azerbaijan establishes the main principles of Government policy on meeting radiation safety requirements as well as environmental norms providing safety of employees and population in areas affected by use of radioactive sources. The law provides for compensation which can be claimed by people for damage to their health, property and life during accidents.

228. No EMF exposure guidelines have been drawn in Azerbaijan though exposure guidelines have been drawn up outside Azerbaijan including:

- State Transmission Lines Standards and Guidelines in the USA;
- International Commission on Non-Ionizing Radiation Protection (ICNIRP);
- US National Council on Radiation; and
- American Conference on Government and Industrial Hygienist (ACGIH).

229. The ICNIRP guidelines recommends limiting exposure to EMFs, although it adds that the levels quoted should not be interpreted as distinguishing 'safe' from 'unsafe' EMF levels. The ICNIRP guideline for the general public (up to 24 hours a day) is maximum exposure

levels of 1,000 mG or 100 µT. The impact of EMF is also dependent on the duration of exposure and therefore no significant adverse impact is envisaged. Azerishig complies with international norms for field strength limits. Azerishig is also following approved international design standards and complies with the World Bank Group's Environment, Health and Safety (EHS) Guidelines.

230. Within inhabited communities the existing environment includes EMF from a number of sources including the use of electrical appliances and equipment, ground current in residential water pipes and the electric distribution circuits that serves the residences. The EMF from distribution circuits can vary widely in the communities depending upon the number of phases and whether the circuit is overhead or underground. A typical 12.5kV overhead distribution line with 300amps current can result in magnetic field of 22mG below the line dropping to 15mG at 7.5m from the line and 8mG at 14m distance[34].

231. Azerishig complies with international norms for field strength limits. Azerishig is following the approved international standards and design, which are absolutely safe. Detailed discussion on health impacts associated with EMF is presented in Appendix 9.

3. Poly Chlorinated Biphenyls (PCBs)

232. Due to its high heat capacity, low flammability and low electrical conductivity, PCBs were extensively used as insulating material in capacitors and transformers. But after the finding that these PCBs are non-biodegradable and have carcinogenic tendencies, their use in electrical equipment as an insulating medium has been banned internationally.

233. In compliance with the above, Azerishig has also banned purchase of equipment (transformers and capacitors as per international standards) using PCBs. Azerishig also obtains confirmation from the supplier at the time of bid offer that the offered transformers are free from PCBs.

234. Emission of greenhouse gases from insulators, which use SF_6 in high voltage equipment, is a major concern. SF_6 has a global warming potential 23,900 times greater than CO_2, which needs to be controlled. Emission of SF_6 will be controlled by adopting good practices such as leak detection and repair, use of recycled equipment, and orientation and training of employees. Given that the project involves low to medium voltage components it is most unlikely that SF_6 will be present in the project components.

4. Community Impacts

235. A public consultation process has been undertaken in the seven project regions as part of the IEE. All participants of the consultations supported the project. The people living in all the project areas expect the different project elements to facilitate improved power supply, boost economic development and thereby availing direct and indirect benefits.

236. The impact of the proposed power distribution project on the socio-economic environment will be significantly beneficial. Improved access to uninterrupted electricity supply will be a major stimulus to economic growth, particularly in rural areas of the districts. During construction, benefits to local people can be maximized if the contractor recruits construction workers locally. Wherever possible, he/she should also not discriminate in the employment of women. The long-term effects of the proposed project in poverty reduction are expected to be significantly positive.

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[34] *Washington State Electric Transmission Research Needs Task Force.*

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. PUBLIC CONSULTATION

237. Public consultation is an integral part of the project implementation. The public will be informed about the project at every stage of project execution. During site visit and surveys, Azerishig site officials will meet people and inform them about the routing of distribution lines. During construction, every individual on whose land from which the occasional old poles (if any) will be removed, will be consulted.

238. During the preparation of IEE public consultations/meetings were held in June, July and August 2015 for the Tranche 1 project. Meetings were conducted in villages where the substations are situated and project components planned. Formal and informal discussions were held and participants were informed about details of the project. The purpose of the meetings was to:

- provide information to the public on the key features of the project including benefits, potential impacts and how such impacts will be avoided or managed.
- obtain views and concerns of communities with respect to environmental and social issues relating the project.
- gather site specific information from the stakeholders perspective on the physical and social aspects of the environment.

239. As mentioned above appropriate public consultation (given the nature and scope of the project) has, and will continue to be undertaken throughout the project cycle.

240. Participants at the meetings included:

- Azerishig's officer from Investment and Development Department
- Chief engineers from Regional Energy Supply and Sale Department
- ADB's environmental and social consultant (with interpreter)
- Head and Deputy Head as well as other staff of municipality
- representatives from regions
- representatives of various public service institutions, industries and agricultural communities in each district including interalia, hospitals, education facilities, forest department, pollution control, agricultural/horticultural units and processing facilities, weaving factories, tourism units etc.

241. There were 8-12 participants at each of the consultation meetings which were held in regions. Lists of participants and photographs are provided in Appendix 4 and 5.

242. Following introduction and brief speech by Azerishig's officer the national environmental consultant:

- described the project and reasons why it is being undertaken including the benefits of the project to the community and local economy,
- described the potential temporary disturbances (mainly environmental and social impacts the project could involve. Also it was pointed out that all facilities would be constructed and located on government owned land so that no private assets would be affected by the works.
- advised the participants that: i) an environmental and social impact assessment was being undertaken for the project by ADB's environmental and social consultant in accordance with ADB's safeguard policies and this would result in the preparation of environmental and social management plans to be implemented during project implementation. Implementation of these plans would ensure that potential impacts would be avoided or minimized to acceptable levels.

- invited the participants to raise any queries, concerns or comments regarding the project.

243. Key issues and topics raised and discussed at each meeting are summarized below.

244. **Gakh:** Meeting was held at municipality office on 01 July 2015. Eleven participants attended to the meeting. There were no issues or concerns raised by participants. They mentioned that the project will be beneficial for the city and for the region and it will improve the quality of electricity supply to the local people. It was also mentioned that people are willing and happy to support the project by any means. If needed they are ready to allow contractors temporary access to store old or new poles on their lands during the changing of poles. One person mentioned that people are aware of the possible disturbance during the construction stages but they understand that it is a temporary issue which they accept will end following completion of construction. The environmental consultant informed them that EMPs will be prepared for all stages of the project and contractors will be required to follow the procedures specified in the EMPs. EMPs will include measures to avoid impacts wherever possible and at worst minimize impacts to an acceptable level through implementation of mitigation measures commonly associated with good construction practice.

245. The participants were advised that the proposed improvements would benefit everyone including future developments and those living in the more isolated villages as the whole purpose of the project was to improve the delivery, safety and efficiency of the power distribution network. The environmental consultant also informed participants that during the project implementation special procedures will be established for receiving and solving their complaints. It was mentioned that people will be made fully aware of all steps and details of this procedure prior to the commencement of the project.

246. **Goranboy:** Meeting was held at village café on 30 June 2015. Twelve participants attended the meeting. There were no issues or concerns raised by participants. In general people expressed their positive feelings regarding the project benefits. A teacher of the local school noted that he hopes that the improvement of the electricity supply also means that the service of the local electricity supply office will also be improved. He mentioned that currently when there is a service breakdown it takes a long time for the problem to be resolved and service restored due to not enough staff available to fix the problem. He hoped that the project would improve this situation.

247. Goranboy participants also mentioned that they are happy to support the project implementation as much as they can and they are ready to provide any support if needed. The environmental consultant informed them about mechanism that will be established for receiving and solving complaints of people and she mentioned that details will be shared with prior to implementation of the project.

248. **Ganja:** Meeting was held at the Ganja substation on 30 June 2015. Nine participants attended the meeting in Ganja. Participants mentioned that improvement of electricity supply is very important not only for households but also for different sectors such as schools, health sector and small entrepreneurs. One participant asked if there will be any job opportunity during the construction stage. The social consultant mentioned that hiring of local people will be a priority for contractors and in this way will contribute to the improvement of local livelihoods along with the improvement of electricity supply.

249. Participants mentioned that they will support project implementation and they understand the possible disturbances due to the construction will be temporary. The environmental consultant informed them about the EMP and establishment of the grievance redress mechanism for resolving any complaints.

250. **Lankoran:** Meeting was held on 16 July 2015 at Sapakaran village near the substation. Fourteen participants attended the meeting. Participants mentioned their problems regarding the electricity supply in winter months. They are expecting that this problem will be solved with replacement of distribution lines and with installation of the new substation. There were no other issues raised by village people. The environmental consultant informed them about the grievance redress mechanism that will be established for receiving and solving complaints and that details will be shared with them prior to implementation of the project.

251. **Masalli:** Meeting was held at Alvadi village at a cafe nearby the substation on 16 July 2015. Eight participants attended the meeting. Overall expressions of the participants were positive regarding the project. No issues or concerns were raised regarding environmental or social issues.

252. The environmental consultant informed them about the grievance redress mechanism that will be established for receiving and solving complaints and that details will be shared with them prior to implementation of the project.

253. The process of public consultation will be continued during project implementation and as necessary during the O&M stage.

B. INFORMATION DISCLOSURE

254. Azerishig and ADB agree that in disclosing environmental information for the project to the public that:

(i) Azerishig is responsible for ensuring that all environmental assessment documentation, including the environmental due diligence and monitoring reports, are properly and systematically kept as part of a Azerishig project specific record;

(ii) all environmental documents are subject to public disclosure, and therefore be made available to public;

(iii) the IEE has to be disclosed on ADB's website upon receipt; and

(iv) Azerishig will ensure that meaningful public consultations, particularly with project affected persons, are undertaken throughout preparation and implementation of the project.

VII. GRIEVANCE REDRESS MECHANISM

255. In order to receive and facilitate the resolution of affected peoples' concerns, complaints, and grievances about the project's environmental performance an Environmental Grievance Redress Mechanism is proposed for the project. When and where the need arises, this mechanism will be used for addressing any complaints that may arise during the implementation of project. The grievance mechanism is scaled to the risks and adverse impacts of the project. It addresses affected people's concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The mechanism is not impeding access to the Azerbaijan's judicial or administrative remedies. Azerishig will appropriately inform the affected people about the mechanism before start of commencement of any civil works.

A. GRIEVANCE FOCAL POINTS, COMPLAINTS REPORTING, RECORDING AND MONITORING

256. The process for solving environmental complaints that may arise in the project is the Grievance Redress Mechanism, which will be established at each district (rayon) in which the various project components will be implemented. The process is described below:

257. Environment complaints will be received through the Grievance Focal Point (GFP). These will be designated personnel from within the community who will be responsible for receiving the environmental complaints. The Contractor will record the complaint in the onsite Environmental Complaints Register (ECR) in the presence of the GFP.

258. The GFP will discuss the complaint with the Contractor and have it resolved.

259. If the Contractor does not resolve the complaint within one week, then the GFP will bring the complaint to the attention of the project supervision and management consultant (PMC). The PMC's Environment Specialist or the Azerishig PIU environment specialist will then be responsible for coordinating with the Contractor in solving the issue.

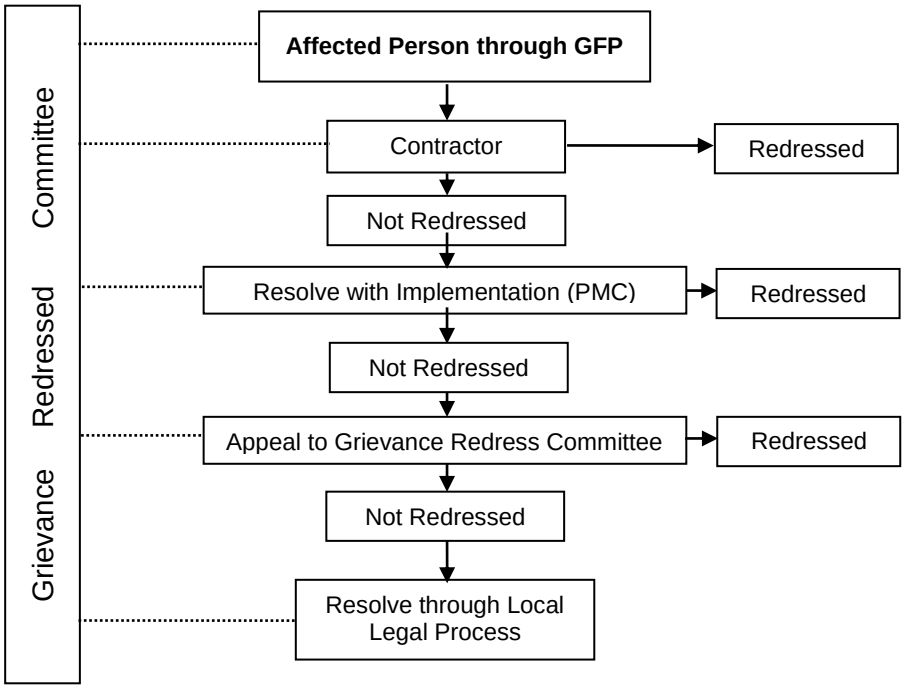
260. If the Complaint is not resolved within 2 weeks the GFP will present the complaint to the Grievance Redress Committee (GRC). The GRC will be comprised of designated officials from the following organizations: Contractor's Environment Specialist, PMC' Environment Specialist, GFP, District Level representative, and a representative from Azerishig's PIU.

261. The GRC will have to resolve the complaint within a period of 2 weeks and the resolved complaint will have to be communicated back to the community. The Contractor will then record the complaint as resolved and closed in the Environmental Complaints Register.

262. In parallel to the ECR placed with the Contractor, each GFP will maintain a record of the complaints received and will follow up on their rapid resolution.

263. Azerishig will also keep track of the status of all complaints through the Monthly Environmental Monitoring Report submitted by the Contractor to the PMC, and will ensure that they are resolved in a timely manner. Figure 8 shows that Grievance Redress Mechanism.

Figure 8: Grievance Redress Mechanism



VIII. ENVIRONMENTAL MANAGEMENT PLAN

A. ENVIRONMENTAL IMPACT MITIGATION AND MONITORING

264. An environmental management and monitoring plan is developed for each of the seven groups of subprojects to be implemented under Tranche 1 and presented in matrix form in Appendix 7.[35] These plans include proposed mitigation measures and monitoring requirements for the implementation of each management plan. Common elements of the seven EMPs are described below.

265. During the construction phase, the contractor shall ensure that activities like handling of earthwork, clearing work and putting the necessary traffic signs in place is properly undertaken to have minimum impact. This will be monitored by the Engineer-In-Charge (Azerishig) of the project implementation unit. Table 7 shows the minimum provisions for environmental monitoring during the implementation of the project.

Table 7: Minimum provisions for Environmental Monitoring

Environmental Monitoring Tasks	Implementation Responsibility	Implementation Schedule
PRE-CONSTRUCTION PHASE		
Audit project bidding documents to ensure that the relevant EMP is included in each.	EA through PIU and implementation units	Prior to issue of bidding documents.
Monitor contractor's detailed alignment survey for any new alignments outside existing alignment corridors to ensure relevant environmental mitigation measures in EMP have been included.	EA through PIU and implementation units	Prior to EA approval of contractor's detailed alignment survey.
Audit detailed designs of substations, CTS and distribution lines to ensure environmental safeguards and mitigation measures have been included.	EA through PIU and implementation units	Prior to EA approval of detailed designs.
CONSTRUCTION PHASE		
Regular monitoring and reporting of contractor's compliance with contractual environmental mitigation measures.	EA through PIU and implementation units	Continuous throughout construction period.
OPERATION AND MAINTENANCE PHASE		
Observations during routine maintenance, inspections of substations and distribution lines RoWs. Inspections will include monitoring implementation status of mitigation measures specified in EMP.	EA	As per EA inspection schedules

1. Critical Environmental Review Criteria

(i) *Loss of irreplaceable resources*

266. The distribution projects involve minimal excavation and associated civil works. All project related activities of this component are limited to land owned by Azerishig and no further land acquisition is involved.

(ii) *Accelerated use of resources for short-term gains*

[35] An EMP is not required for installation of installation of electric meters.

267. The project will not use any natural resources occurring in the area both during construction as well as maintenance phases. Construction material such as tower members, cement, etc., shall come from factories, while the excavated soil shall be used for backfilling to restore the surface. Thus, the project shall not cause any accelerated use of resources for short-term gains.

(iii) *Endangering of species*

268. No endangered species of flora and fauna are known to exist in the project area. All project areas are highly modified and disturbed natural environments with most project footprints located within existing substation areas or distribution rights of way. No reserve forest will be affected; thus there is no possibility of endangering / causing extinction of any rare species of flora and fauna.

(iv) *Promoting undesirable rural-to urban migration*

269. The project will not cause any submergence or loss of land holdings that normally trigger migration. It also does not involve acquisition of any private land holdings. Hence, there is no possibility of migration. Instead, the project will promote employment potential to the local skilled and unskilled labour being employed by the contractors for civil works construction such as foundations for substations and towers and erection of towers/poles.

(v) *PCB Management by Azerishig*

270. Azerishig has a plan for the management of PCBs found in transformers. The plan is described below.

271. Contractor's involved with decommissioning and disposal of transformers potentially containing PCB oils will be required to follow international best practice for transport storage and disposal of potentially PCB oil containing transformers. As a signatory of the Stockholm Convention on POPs MENR shall supervise the removal and disposal of transformers. Works will not proceed on removal of transformers until the contractor has notified the PMC who in turn must coordinate with MENR to oversee the process and ensure proper handling and disposal.

272. Testing of oil from transformers to be replaced will be undertaken by Azerishig using chromatography to determine the chlorine content. If the chlorine content of oil exceeds 50 ppm the oil from that transformer will be properly tested for PCBs by Azerishig. If PCB's are identified, the Ministry of Environment and Natural Resources (MENR) will arrange for the disposal of the PCB oils through its own PCB disposal program in accordance with the Stockholm Convention on Persistent Organic Pollutants (POPs). Retired transformers awaiting testing and subsequent disposal will be stored in a designated storage area. The storage area shall have a concrete base with containment to prevent leakage onto the ground surface and is fully covered from precipitation. Once oils have been extracted and disposed of (or recycled in the case of non PCB oils) the transformer shall be washed with a solvent followed by dismantling and further decontamination of the components to allow recycling of metal components.

273. Table 8 summarizes the anticipated impacts during construction and operations. Overall, the Project will have minimal negative impacts all of which can be easily mitigated to an acceptable level through standard good construction practices.

Table 8: Project Impacts and Mitigation

Types of Impacts	Impact Sources	Treatment Measures
Noise: Construction Period	Construction equipment	Equipment to meet local noise standards; construction scheduling to avoid evening and nighttime disruption in populated areas
Noise: Operational Period	Substations and transformers	Where facilities less than 70 m away from nearest receptor; provide an enclosure or wall to provide a sound barrier
Wastewater: Construction Period	Domestic wastewater	Provide portable sanitary facilities for workers at work sites and camps
	Industrial wastewater from construction equipment maintenance	Sedimentation and biological treatment if necessary
	Waste oil from phased out transformers and other equipment	Transformer oil disposal to follow Azerishig's PCB oil management plan specified above.
Wastewater: Operational Period	Domestic wastewater	Primary treatment if needed
	Industrial wastewater and oils from transformer replacement	Off-site disposal at licensed treatment facility, or alternate on-site treatment as approved by pollution control board (No PCB oils shall be used)
Air Quality: Construction Period	Dust during construction and exhaust gases from construction machinery and vehicles	Continuous management measures to be imposed at the construction sites
Solid Wastes: Construction Period	Spoil from excavation works and construction debris	Spoils to be used as base material for substations where applicable. Construction debris to be reused and recycled wherever possible with the remainder disposed of at a facility approved by government pollution control agencies.
	Replaced equipment	Dispose of in a manner consistent with the requirements of the Government
Solid Wastes: Operational Period	Garbage from substations and storage yards	Disposed at facilities approved by local government pollution control agencies

2. Monitoring and Reporting

274. Throughout implementation of the Tranche 1 project, the Government and ADB will monitor the implementation of the EMP as applicable to each subproject. Overall, the EMP will be implemented by the PIU within Azerishig. In consultation with Azerishig and ADB, the PIU will establish a system for preparing biannual reports on environmental performance monitoring, issues resolution, and corrective action plans.

275. An applicable EMP for each subproject will be part of the overall project monitoring and supervision, and will be implemented by the respective contractor under the supervision of the Project Management and Supervision Consultant (PMC) with oversight from the PIU. Progress on the preparation and implementation of an EMP will be included in the periodic project progress reports. Specific monitoring activities defined in the IEE and EMP will be carried out by the contractor and supervised by the PMC's Environment Specialist and monitored by Azerishig PIU's environment specialist. Azerishig will submit bi-annual Environmental Monitoring Reports on EMPs implementation for ADB's review.

276. The extent of monitoring activities, including their scope and periodicity, will be commensurate with the project's risks and impacts. Azerishig is required to implement

safeguard measures and relevant safeguard plans, as provided in the loan agreement. At a minimum, ADB will require Azerishig to:

(i) Ensure that relevant sections of the EMP are included in the various contract packages' bidding document;

(ii) establish and maintain procedures to monitor the progress of implementation of the EMP for all contract packages;

(iii) verify the compliance with environmental measures and their progress toward intended outcomes;

(iv) document monitoring results and identify necessary corrective and preventive actions in the periodic monitoring reports;

(v) follow up on these actions to ensure progress toward the desired outcomes;

(vi) submit bi-annual Environmental Monitoring reports on compliance with the EMP.

277. ADB will carry out the following monitoring actions to supervise project implementation:

(i) conduct periodic site visits during the project implementation to confirm compliance with the EMP;

(ii) conduct supervision missions with detailed review by ADB's safeguard specialists/officers or consultants as necessary;

(iii) review the bi-annual monitoring reports submitted by Azerishig to ensure that adverse impacts and risks are mitigated as planned and agreed with ADB;

(iv) work with Azerishig to rectify to the extent possible any failures to comply with their safeguard commitments, as covenanted in the MFF agreement, and exercise remedies to re-establish compliance as appropriate; and

(v) prepare a project completion report that assesses whether the objective and desired outcomes of the EMP has been achieved.

278. The PIU, with assistance of the PMC, will review the IEE and EMPs to ensure that mitigation measures and the monitoring plan proposed in that document are in compliance with ADB's and national requirements. According to the reports and reviews during its missions, ADB, in consultation with the Government, will confirm compliance. For this purpose, the PIU will provide ADB with access to information on the project. The information on implementation of the EMP, as well as that on environmental and social safeguard compliance, will be systematically documented and reported to ADB as part of the regular progress reports.

279. A monitoring plan will be prepared for the project and will be part of the IEE.

(i) It is proposed that an Environmental Specialist be appointed to the Azerishig PIU and will be responsible for reviewing and updating the monitoring program to ensure that it meets the intention of the EMPs and for carrying it out.

(ii) The PIU Environmental Specialist will prepare a bi-annual Environmental Monitoring Report on the implementation of EMPs and submit it to ADB. The report will outline where work has not complied with the EMP and what steps have been taken to rectify it. The Format of the Monitoring Report is attached as Appendix 8.

(iii) After one year the Environmental Specialist will arrange to review the monitoring program and make any adjustments to it as required. The Environmental Specialist will inform the ADB and Azerishig of any changes that are recommended to be made prior to implementing the changes.

B. IMPLEMENTATION ARRANGEMENT

280. The main institutions that will be involved in environmental management activities are Azerishig the project executing agency, Project Supervision and Management Consultant (PMC), Contractors for each contract package, and line agencies including Ministry of Ecology and Natural Resources.

281. Azerishig has overall responsibility for all aspects of the Project. A Project Implementation Unit (PIU) established within Azerishig will be responsible for the day to day management of the technical aspects of the Project. Responsibility of environmental management and compliance with SPS 2009 requirements lies with the Azerishig.

282. Azerishig's PIU will ensure that the environmental management and monitoring budgets are available and utilized as necessary for timely EMP implementation.

283. Each contractor will be required to have one appropriately qualified and experienced staff member designated with responsibility for day to day implementation of the relevant EMP.

284. The detailed responsibilities of each agency are listed below:

3. Contractors' Responsibilities

(i) Prepare and implement a Site Specific Environmental Management Plan (SSEMP) based on the requirements of the EMP in the construction contract. The SSEMP will include any corrective measures relating to the existing environmental risks associated with wastes exiting at the facilities prior to the new project.

(ii) Implement the SSEMP including periodic noise monitoring as specified in the EMP

(iii) Prepare an environmental management report to Azerishig as part of routine project progress reporting. The environmental management report will identify the work undertaken over the reporting period and document the environmental protection measures including noise monitoring activities that have been carried out, problems encountered, and follow-up actions that were taken (or will be taken) to correct the problems.

4. Azerishig (PIU) Responsibilities

(i) Obtain necessary permits and/or clearance, as required, from MENR and other relevant government agencies, ensuring that all necessary regulatory clearances are obtained before commencing any civil work on the relevant sections.

(ii) Submit to ADB the IEE and EMP report and other documents, as necessary.

(iii) Ensure that any EMP including relevant mitigation measures needing to be incorporated during the construction stage by the contractor are included in the bidding documents.

(iv) Ensure that the contractors have access to the IEE and EMP reports of the projects.

(v) Ensure that contractors understand their responsibilities to mitigate environmental problems associated with their construction activities and train their staff in implementation of the EMP.

(vi) Ensure and monitor that the EMP including an environmental monitoring plan will be properly implemented including spot check noise monitoring during construction to verify contractual compliance.

(vii) Ensure that the contractors submit monthly environmental management reports to the PMC (these reports will be included as part of the contractors' monthly progress reports).

(viii) Ensure that the PMC reviews and submits biannual environmental monitoring reports to the PIU.

(ix) Submit bi-annual environmental monitoring report to ADB.

(x) In case unpredicted environmental impacts occur during the project implementation stage, prepare and implement as necessary a corrective action plan in consultation with MENR, any other relevant government agencies, and ADB.

5. Project Management and Supervision Consultant (PMC) Responsibilities

(i) Confirm necessary permits / clearances have been obtained before commencing any civil work on the relevant sections.

(ii) Provide training to PIU Environment Specialist on monitoring contractors' implementation of EMP including review of SSEMP and preparation of checklists for use by PIU Environment Specialist in environmental supervision

(iii) Review contractors' monthly environmental management reports and support PIU environment specialist in following up environmental issues.

(iv) Through periodic site inspections, ensure contractors' are properly implementing EMPs and advise ADB and contractors' of any non-compliances and associated corrective action plans

(v) Assist PIU environment specialist prepare bi-annual environmental monitoring reports to ADB

6. ADB Responsibilities

(i) Review IEE and Environmental Monitoring reports and the rapid environmental assessment checklist as a basis to issue approval for the project.

(ii) Undertake periodic monitoring of the EMP implementation and due diligence as part of an overall project review mission.

(iii) If required, provide advice to Azerishig in carrying out its responsibilities to implement the EMP for the project.

C. REVIEW OF AZERISHIG'S ENVIRONMENTAL MANAGEMENT CAPABILITY

285. Azerishig's organization structure currently does not include any group or person responsible for management of the environmental aspects associated with its operations. Azerishig OJSC is a newly created entity arising from a Presidential Decree unbundling the power sector. However, responsibility for coordinating environmental and social aspects of the overall Power Distribution Enhancement Investment Program is currently delegated to two staff members of the Azerishig PIU. Currently, the PIU's Financial and Economic Specialist is responsible for coordination of environmental issues and one of the Procurement Specialists is responsible for coordination social development and resettlement issues. Thus, there is a need for significant technical support for Azerishig throughout implementation of the MFF program to ensure that ADB's environmental safeguards requirements and those of the GOA are fully complied with.

286. To meet this need it is proposed that Azerishig's Project Implementation Unit (PIU) be augmented with an additional staff member who is an environment specialist with experience in preparing environmental assessments and management plans, integrating environmental management plans into tender documents and monitoring and reporting on the implementation of environmental management plans. The proposed environment specialist could also cover social safeguard issues associated with the project. It is envisaged that the PIU environment specialist would be supported in their role by the project supervision and management consultant (PMC) who will have an environment specialist on the consultant team. A key activity of the PMC's environment specialist will involve capacity building of the PIU's environment specialist with a view to institutionalizing environmental safeguards within Azerishig's operations.

D. ENVIRONMENTAL MANAGEMENT BUDGET AND RESOURCES

287. The cost of all compensation and rehabilitation works including mitigation measures will be an integrated part of the overall project cost, which will be borne by the project. Table 11 below shows the costs of the EMP including implementation and monitoring.

Table 9: Summary of Estimated Costs for EMP Implementation of the Project Subprojects

Item	Sub Item	Total Cost (US$)
PIU Environment Specialist	Monitoring and Supervision of EMP (3 years)	60,000
PMC Environment Specialist	3 months input over three years	150,000
Monitoring equipment and kit	PCB test kits for up to 50 transformers[36], Noise monitoring kits (2 units @ 500/unit)	3,500 1,000
Contingency	@ 10% contingency	21,450
	Total	**235,950**

Note: Costs estimated are indicative only

[36] See http://www.epa.gov/esd/cmb/site/pdf/papers/sb129.pdf

IX. CONCLUSION AND RECOMMENDATION

288. The environmental impacts of the infrastructure elements proposed in the Tranche 1 project have been assessed and described in the previous sections of this document. Potential negative impacts were identified in relation to design, location, construction and operation of the improved infrastructure. Mitigation measures have been developed to reduce all negative impacts to acceptable levels.

289. According to this assessment, the proposed project is unlikely to cause any adverse environmental impacts. This is due to the following findings:

- All of the proposed new 110kV substations are located within the boundaries of existing substation sites
- Most of the proposed new 35kV substations and their associated distribution lines are located within the boundaries of existing substation sites
- All the existing substation sites and the seven proposed greenfield 35kV substation sites are located in what can be described as industrial, peri-urban or rural areas with low environmental values .
- The proposed new 110kV and 35kV lines will involve replacement/upgrading of existing lines along existing corridors or in the case of some 35kV lines be emplaced underground.
- The lower voltage lines (10 kV and 0.4 kV) will involve replacement of existing lines and poles along road corridors
- Complete transformer substations (CTS) will be located on government owned property within existing distribution corridors and in most cases involve replacement of old transformers on the same footprint. Some additional CTS will be added to augment the distribution system
- None of the sites or proposed project assets are within or close to any protected areas or culturally sensitive areas
- There will be minimal civil works required for the project
- Construction and operation of the project is likely to give rise to nil, negligible or at worst, minor temporary environmental impacts that can be easily mitigated to acceptable levels.
- An environmental management plan has been prepared for each group of subprojects which describes the responsibilities, procedures and specific environmental mitigation measures that will be implemented at each stage of subproject implementation to ensure that there will be no unacceptable environmental impacts arising from the project

290. The most significant potential environmental impact will be associated with the removal, storage and disposal of old transformers potentially containing PCB oil. Detailed procedures for removal, storage and disposal of old transformers in accordance with international best practice and the Government of Azerbaijan's obligations as a signatory to the Stockholm Convention on Persistent Organic Pollutants (POPs) have been specified in this IEE and associated EMPs. These procedures and measures will ensure that there will be no unacceptable impact associated with disposal of old transformers.

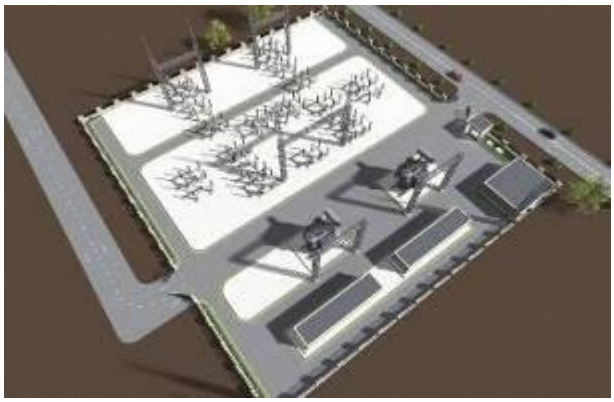
291. All construction and operation activities will be monitored and reported by the PIU in accordance with the Environmental Monitoring Plans. Environmental and social benefits of the investment components and long-term project objectives far outweigh the minor and temporary inconveniences that will arise during project implementation. Provided the EMPs are properly implemented there will be no unacceptable impacts arising from the project.

292. This IEE including EMP are considered sufficient to meet the environmental assessment requirements of ADB and Government of Azerbaijan. Therefore, a full environmental impact assessment study is not required.

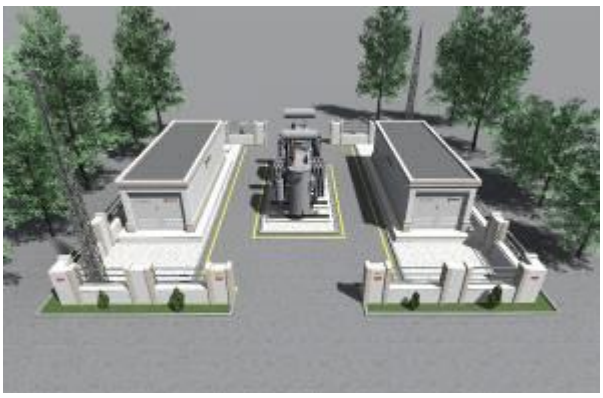
APPENDIX 1: GENERIC DESIGN IMAGES OF PROPOSED 110 KV AND 35 KV SUBSTATION LAYOUTS

Images of 110 kV Substations






Images of 35 kV Substations

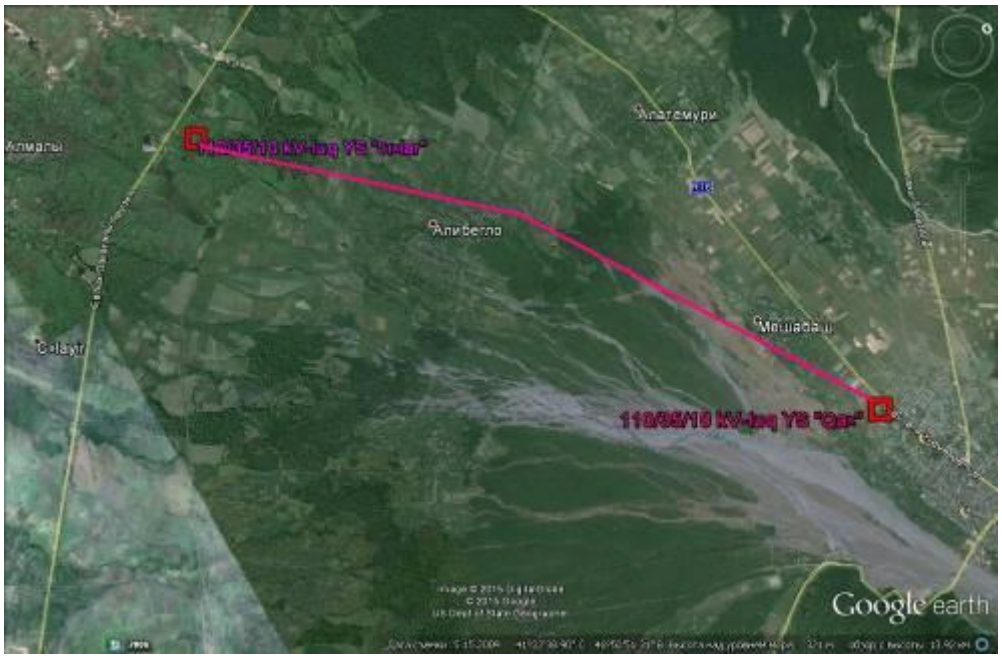
APPENDIX 2: GOOGLE IMAGES OF SUBSTATIONS AND DISTRIBUTION LINES AT 7 RESSD

110 KV SUBSTATIONS AND DISTRIBUTION LINES

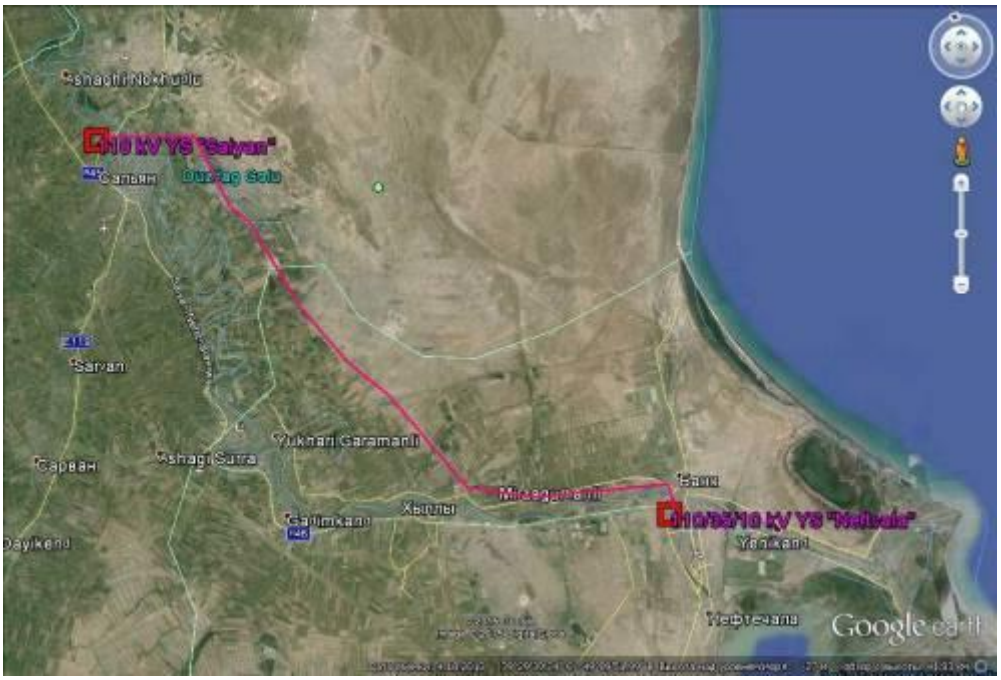
Dalimammadli Substation Goranboy City and 1st and 2nd Ganja Lines, Markazi-Aran RESSD

Mashinqayirma Substation Ganja City and 1st and 2nd Mashinqayirma Lines, Garb RESSD

Gakh Substation Gakh City and New Double Circuit Lines, Shimal-Garb RESSD



Nefchala Substation Nefchala City and 1st and 2nd Nefchala Lines, Canub RESSD

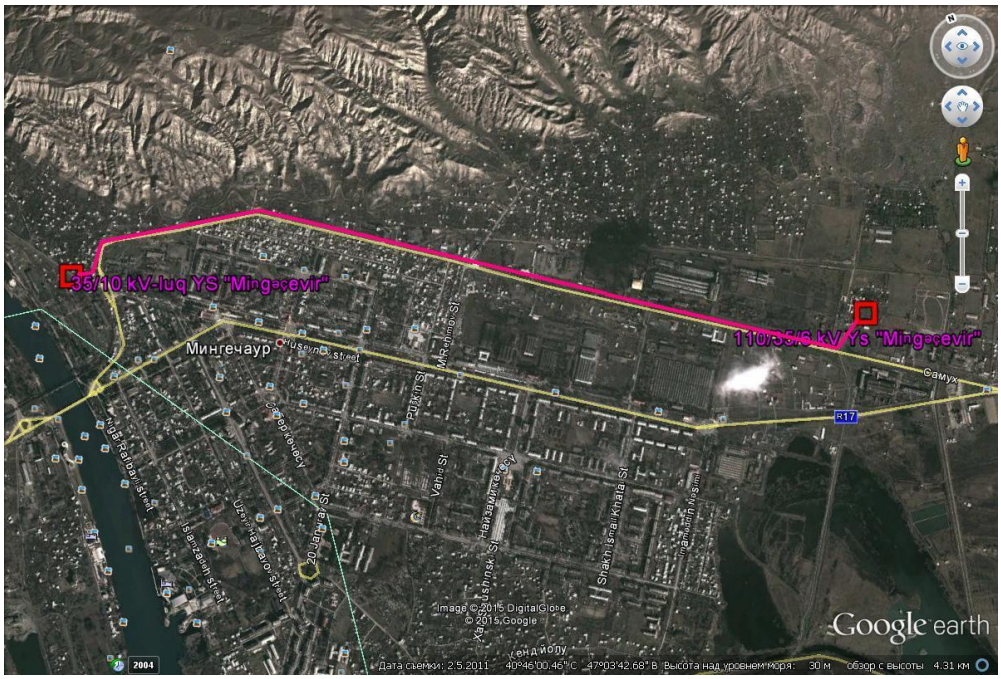


35 KV SUBSTATIONS AND DISTRIBUTION LINES

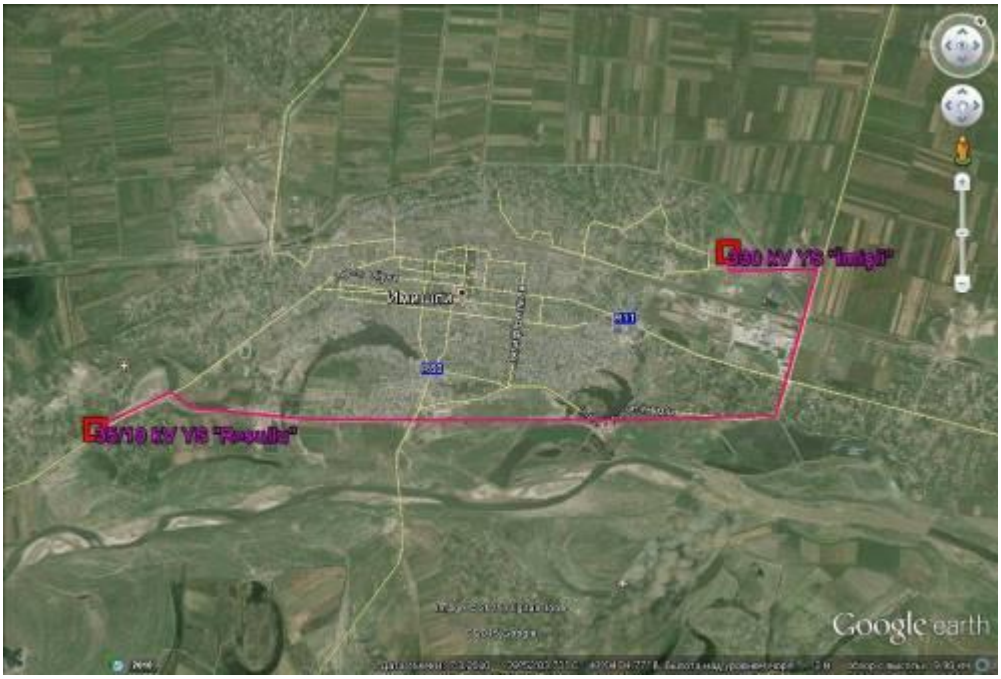
Khirdalan Substation Khirdalan City and Underground Lines, Baki RESSD

Alyat Baghlar Substation Alyat Settlement and Distribution Lines, Baki RESSD

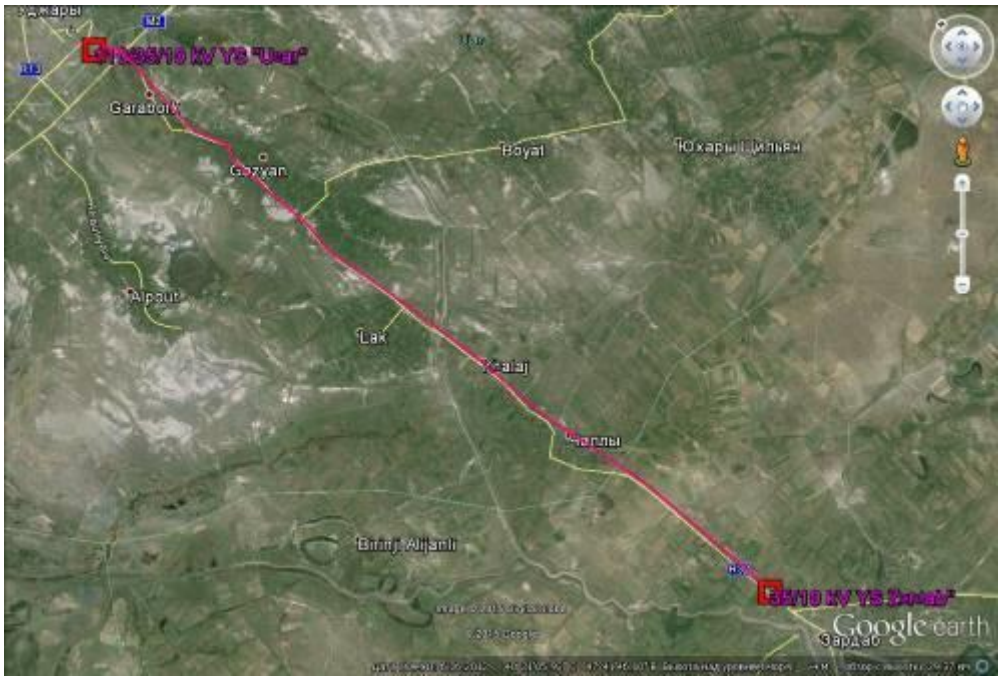
Mingachevir Substation Mingachevir City and Distribution Lines, Markazi-Aran RESSD



Rasullu Substation Imishli Region and Distribution Lines, Aran RESSD



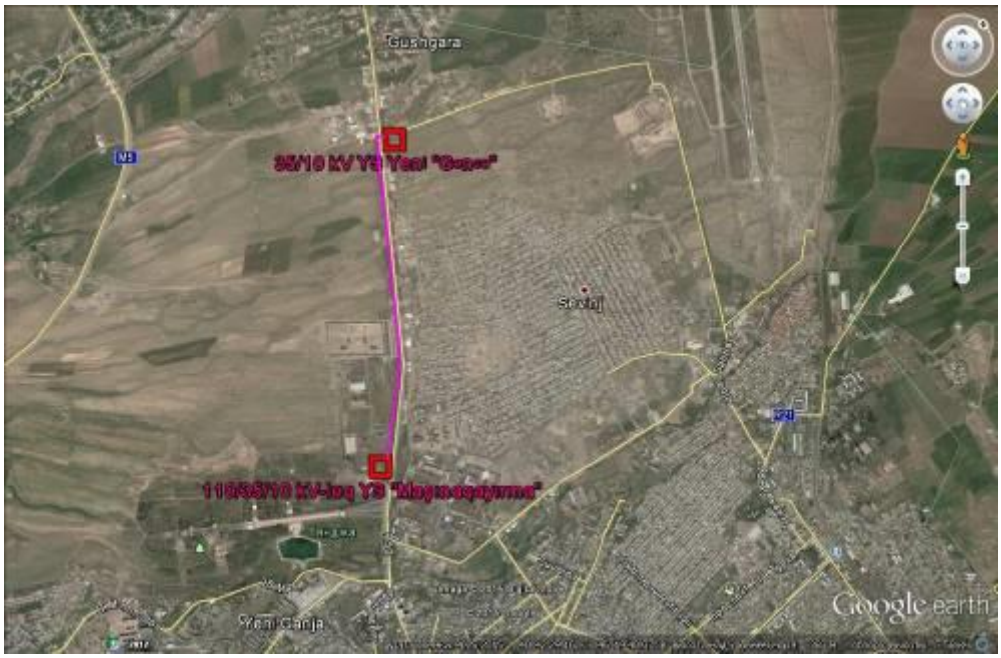
Zardab Substation Zardab City and Distribution Lines, Aran RESSD



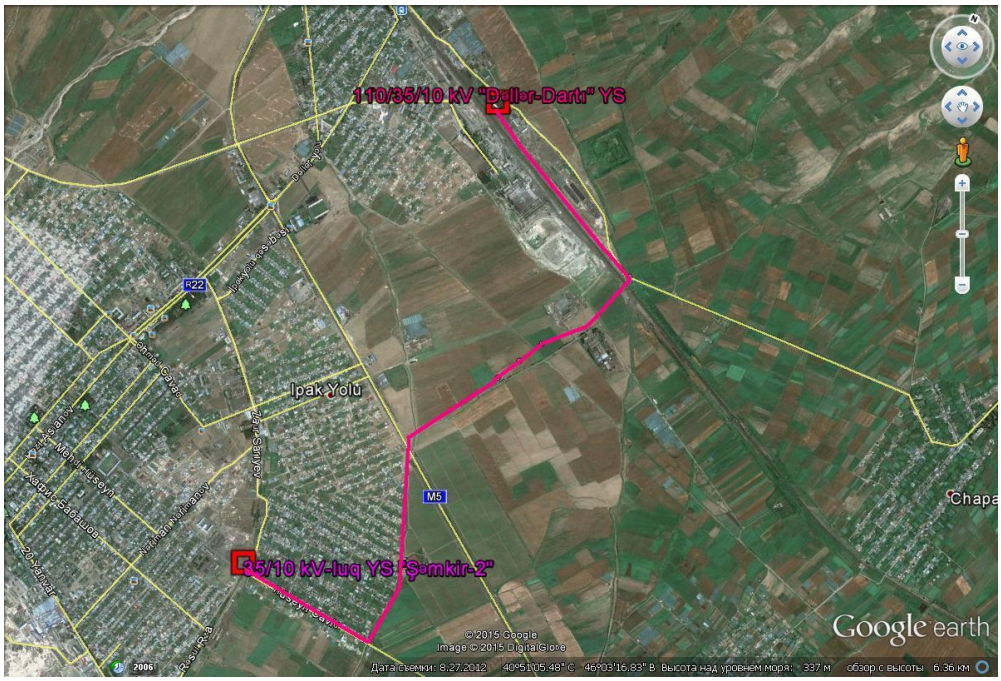
Saatli Substation Saatli City and Distribution Lines, Aran RESSD

Vaghzalyani-1 Substation Ganja City and Distribution Lines, Garb RESSD

Ganja Substation Ganja City and Distribution Lines, Garb RESSD



Shamkir-2 Substation Shamkir Region and Distribution Lines, Garb RESSD

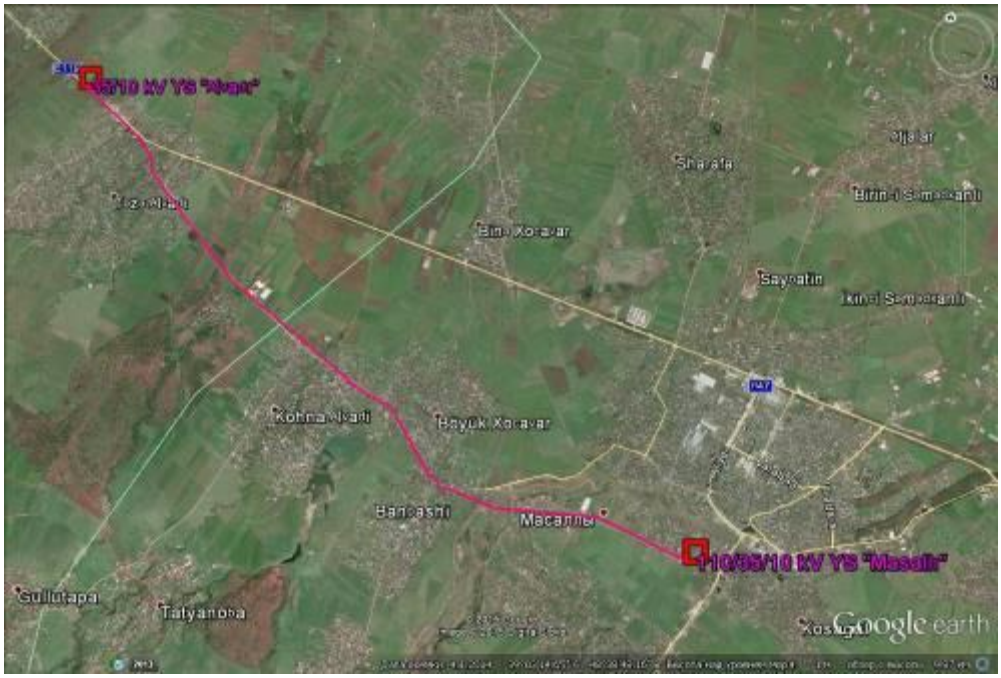


Ilisu Substation Gakh Region and Distribution Lines, Shimal-Garb RESSD

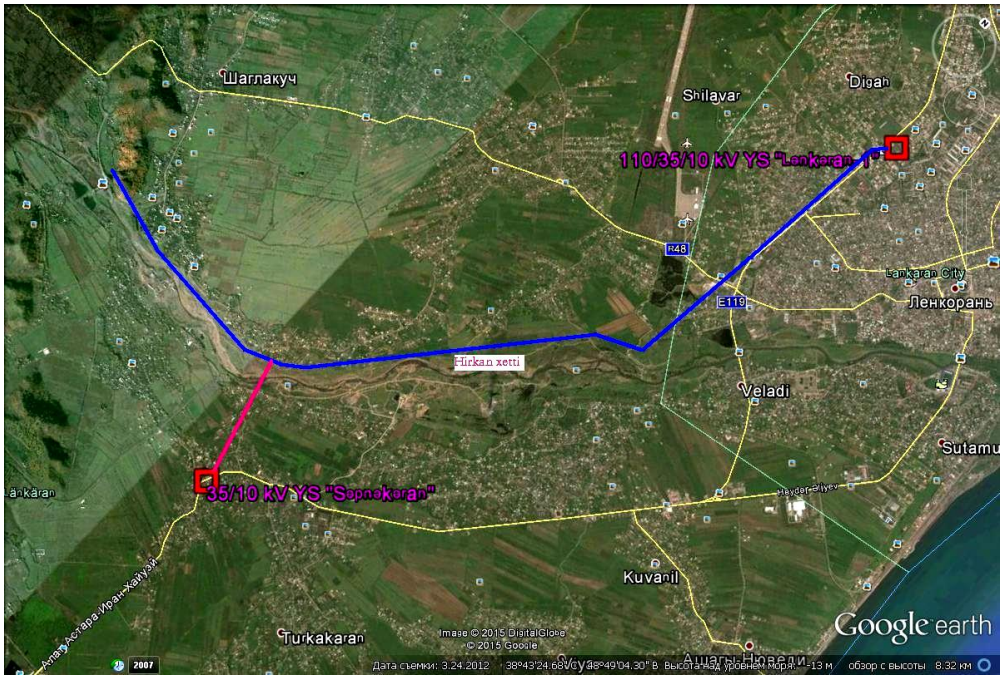
Shamakhi Substation Shamakhi City and Distribution Lines, Shimal-Garb RESSD

Oghuz Substation Oghuz City and Distribution Lines, Shimal-Garb RESSD

Alvadi Substation Masalli Region and Distribution Lines, Canub RESSD



Sapnakaran Substation Lankaran City and Distribution Lines, Canub RESSD



Pirsaat Substation Haciqabul Region and Distribution Lines, Canub RESSD

Siyazan Substation Siyazan City and Distribution Lines, Shimal RESSD

APPENDIX 3: LIST OF PROTECTED AREAS IN AZERBAIJAN

List of National Parks

№	Name of the SPNA	Administrative territory	Area	Date of establishment
1	Zangazur NP named after Academician H.Aliyev	Nakhichevan AR	42797,4	2003
2	Shirvan NP	Garadagh district of Baku city, Salyan and Neftchala regions	54373,5	2003
3	Aghgol NP	Aghjabadi and Beylagan regions	17924	2003
4	Hirkan NP	Lankaran and Astara regions	40358	2004
5	Altiaghaj NP	Khizi and Siyazan regions	11035	2004
6	Absheron NP	Azizbayov district of Baku city	783	2005
7	Shahdagh NP	Guba, Gusar, Ismayilly, Gabala, Oghuz and Shamakhy regions	130508,1	2006
8	Goygol NP	Goygol, Dashkasan and Goranboy regions	12755	2008
9	Samur-Yalama NP	Khacmaz, Khudat and Yalama	11772,5	2012

State Nature Reserves

№	Name of the SPNA	Administrative territory	Area	Date of establishment
1	Gizilaghaj SNR	Lankaran region	88 360	1929
2	Zagatala SNR	Zagatala and Balakan regions	47 349	1929
3	Turyanchay SNR	Aghdash, Oghuz,Yevlakh and Gabala regions	22 488	1958
4	Shirvan SNR	Salyan and Neftchala regions	6232	1969
5	Basitchay SNR	Zangilan region	107	1974
6	Garayazi SNR	Gazakh region	9658	1978
7	Ilisu SNR	Gakh region	17381,6	1987
8	Garagol SNR	Lachin region	240	1987
9	Eldar shami SNR	Samukh region	1686	2004
10	Mud volcanoes SNR	Baku and Absheron peninsula	20 000	2007
11	Korchay SNR	Goranboy region	4833,6	2008

State Nature Sanctuaries

№	Name of the SPNA	Administrative territory	Area	Date of establishment
1	Lachin SNS	Lachin region	20 000	1961
2	Korchay SNS	Goygol and Goranboy regions	15 000	1961
3	Bandovan SNS	Salyan and Garadagh district	4930	1961
4	Shaki SNS	Shaki region	10 350	1964
5	Gusar SNS	Gusar region	15 000	1964
6	Shamkir SNS	Shamkir region	10 000	1964
7	Gil island SNS	Gil island	400	1964
8	Garayazy-Aghstafa SNS	Aghstafa region	10 000	1964

9	Barda SNS	Barda and Aghdam regions	7500	1966
10	Zuvand SNS	Lerik,Yardimly regions	15 000	1969
11	Ordubad SNS	Ordubad region	27 869	1969
12	Ismayilli SNS	Ismayilly and Gabala region	23 438	1969
13	Qubadlı SNS	Qubadlı, Lachin region	20 000	1969
14	Lesser Gizilaghaj SNS	Lankaran region	10 700	1978
15	Dashaltı SNS	Shusha region	450	1981
16	Qızılja SNS	Gedebey region	5135	1984
17	Arazboyu SNS	Zangilan region	2200	1993
18	Gabala SNS	Gabala region	39 700	1993
19	Gakh SNS	Gakh region	36 836	2003
20	Hirkan SNS	Lankaran and Astara regions	1553	2005
21	Arazboyu SNS	Nakhichevan AR	9118	2005
22	Zagatala SNS	Zagatala and Balakan regions	6557	2008
23	Arpachay SNS	Nakhichevan AR , Sharur region	68 911	2009
24	Rvarud SNS	Lerik region	510	2009

Source: Ministry of Ecology and Natural Resources of Azerbaijan Republic
(http://www.eco.gov.az/en/b-xm-tb.php)

APPENDIX 4: LIST OF PARTICIPANTS AT PUBLIC CONSULTATIONS

Gakh – 01.07.2015

LIST OF PARTICIPANTS

Place: Gakh.

Date: 01.07.2015

Time: 10.26.

Attended by: Male: ✓ Female: ✓

S.N.	Name	Age	Sex	Occupation	Signature
1	Muradova Minaxanım	55	F	Tədiyyəçi	[signature]
2	Poladaşvili İyuri	51		Mühasib	[signature]
3	Tuloşvili Varaksiy	61		Müəzzin	[signature]
4	Ramazanova Luba	27	F	Tibb bacısı	[signature]
5	Cabrayılova Sevinc	27	F	Tibb bacısı	[signature]
6	Davudova Güllü	58	F	Kitabxana	[signature]
7	Hümova Günay	24	F	Kitabxana	[signature]
8	Rostiaşvili Laura	43	F	Tədiyyəçi	[signature]
9	Hacıyeva Gülxan	26	F	[illegible]	[signature]
10	Nəzirov Xalid Əhmədiyə	60	M	Sədr müavini	[signature]
11	Məmmədov Rəşad Rəmz	27	M	Bələdiyyə sədri	[signature]
12					
13					
14					
15					
16					
17					

Ganja – 30.06.2015

Ganja

LIST OF PARTICIPANTS

30.06.2015

S.No.	Name	Age	Sex	Occupation	Signature
1	Mehraliyeva Aliya	43	F	housewife.	[signature]
2	Ramazanova Sona	65	F	teacher.	[signature]
3	Aslanova Maya	57	F	nursery	[signature]
4	Ramazanov Eldar	64	M	business	[signature]
5	Piriyev Xiramin	33	M	engineer	[signature]
6	Nabiyev Vali	45	M	engineer	[signature]
7	Sahverdiyev Nuraddin	59	M	engin. monty.	[signature]
8	Sadigov Inayat	45	M	master	[signature]
9	Darayev Elsim	48	M.	field worker	[signature]
10					
11					
12					
13					
14					
15					
16					
17					
18					

Goranboy – 30.06.2015

Goranboy

LIST OF PARTICIPANTS

30.06.2015

S.No.	Name	Age	Sex	Occupation	Signature
1	Tağıyeva Kifayət	66	Q/F	house wife	
2	Qasımov Elmir	24	K/M	driver	
3	Əliyev Fərid	25	K/M	seller	
4	Rzayeva [illegible]	70	Q/F	economist	
5	Rüstəmov Emil	47	K/M	house wife	
6	Hüseynov Ağası	55	K/M	pensioner	
7	Qasımov Fərhad	70	M	[illegible]	
8	Quliyev Anar	29	M	teacher	
9	Cəfərov Ceyhun	49	M.	driver	
10	Yusifov Üzeyir	57	M	pensioner	
11	Xosrovov [illegible]	54	M.	seller	
12	Mustafayev [illegible]	55	M	mont technic	
13					
14					
15					
16					
17					
18					

Lankaran, Sapnakaran village – 16.07.2015

LIST OF PARTICIPANTS

Place: Sapnakaran SS 35/10KV.

Date: 16.07.2015

Time: 15:00

Attended by: 14 Male: 13 Female: 1

S.N.	Name	Age	Sex	Occupation	Signature
1	Xalilov Feyzulla	53	M	guard	[signature]
2	Aliyev Ali Alisa	29	M	SELLER	[signature]
3	Ziyadov [illegible]	38	M	MANAGER	[signature]
4	[illegible]	60	M	PENSIONER	[signature]
5	[illegible]	35	M	dRiVER	[signature]
6	Kazımov Azad	50	M	REPRESENTATIVE OF EP	[signature]
7	Mammadzada [illegible]	52	F	HEAD OF municipality	[signature]
8	[illegible]	44	M	unEMPloyEd	[signature]
9	Azaf Azag	25	M	agricultural worker	[signature]
10	[illegible]	37	N	NURSER	[signature]
11	[illegible]	33	M	SELLER	[signature]
12	Huseynov Asim	28	M	MASTER	[signature]
13	Akbarov Rasim	42	M	unEmployed	[signature]
14	Xalilov Elmar	18	M	unEMPloyed	[signature]
15					
16					
17					

Masalli, Alvadi village – 16.07.2015

LIST OF PARTICIPANTS

Place: Moradi SS. 35/10 KV.

Date: 16.07.2015

Time: 13:00

Attended by: 8 Male: 8 Female: 0

S.N.	Name	Age	Sex	Occupation	Signature
1	Ehadov Seyfulla	50	M	HEAD OF Municipality	
2	Novruzov Rzagat	33	M	BUSINESMAN	
3	Abbasov Röyal	19	M	WORKER	
4	Abbasov Elçi	30	M	accountant	
5	Hüseynov Rəşad	54	M	MASTER	
6	Hacıyev Dalğın	47	M	UNEMPLOYED	
7	Abdullayev Eldar	34	M	teacher	
8	Mammadov Tüzeyir	21	M	student	
9					
10					
11					
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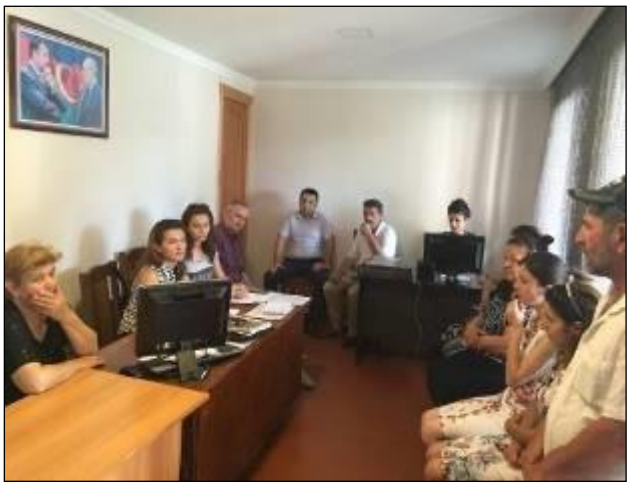
APPENDIX 5: PHOTOGRAPHS (FIELD AND PUBLIC CONSULTATIONS)

Proposed site for the new Rasullu 35kV substation, Imishli. This site is typical of other sites where new greenfield substations are propose.

Existing 35 kV substation (Zardab) This is typical of substations that will be upgraded within the substation boundary

Proposed area for new 110 kV substation within the boundary of the existing Masinqayirma substation

Existing 35 kV Alat Baglar substation that will be replaced within the same site



Photos from public consultations and from meetings with local people during the IEE preparations

APPENDIX 6: REA CHECK LISTS

Rapid Environmental Appraisal (REA) Checklists for 110 kV Substations

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 110/35/10 kV 2x25 MVA capacity "Dalimammadli" substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, indigenous peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[37]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[37] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1:" 110/35/10 kV 2x40 MVA capacity "Mashinqayirma" substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[38]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[38] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 110/35/10 kV 2x16 MVA capacity "Gakh" substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[39]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[39] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 110/35/10 kV 2x40 MVA capacity "Nefchala" substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[40]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[40] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Rapid Environmental Appraisal (REA) Checklists for 35 kV Substations

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x16 MVA capacity "Khirdalan" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?	X		Close proximity of construction to residential areas will require contractor to work in day time only and meet statutory limits for daytime noise emissions
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[41]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1

[41] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Alyat Baghlar" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[42]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[42] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Mingachevir" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[43]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[43] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Rasullu" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[44]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[44] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Zardab" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[45]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[45] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Saatli" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[46]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[46] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Vaghzalyani-1" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[47]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[47] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Ganja" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[48]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[48] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____
_____
__

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Shamkir-2" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[49]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[49] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 2x10 MVA capacity "İlisu" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[50]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[50] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/6 kV-luq 2x10 MVA capacity "Shamakhi" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ **Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?**		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ **Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?**		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[51]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[51] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV2x10 MVA capacity "Oghuz" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[52]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[52] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV-luq 2x10 MVA capacity "Alvadi" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[53]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[53] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Sapnakaran" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[54]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[54] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Pirsaat" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[55]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[55] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 35/10 kV 2x10 MVA capacity "Siyazan" Substation

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[56]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[56] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Rapid Environmental Appraisal (REA) Checklists of 110 kV Distribution Lines

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Ganja 110kV 2km double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[57]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[57] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

E.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: Mashingayirma 2km 110kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[58]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1

[58] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: Naqil Gakh, 12.8 km 110kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[59]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[59] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: Nefchala 37 km 110kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[60]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a

[60] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Rapid Environmental Appraisal (REA) Checklists of 35 kV Distribution Lines

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: Khirdalan 6 km (underground) 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[61]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[61] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Alyat Baghlar" 10 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[62]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[62] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

F.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Zardab" 30 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[63]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[63] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

G.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: Mingachevir 4,2 km (underground) 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[64]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[64] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Rasullu" 6 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[65]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[65] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Saatli" 11 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[66]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[66] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Ganja" 1,5km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[67]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[67] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____
_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Mashinqayirma" 2 km (underground) 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[68]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[68] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Shamkir-2" 8,1 km and 2km (underground) 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		**X**	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[69]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[69] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

H.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: Ilisu 12,8 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[70]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[70] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

I.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Shamakhi 3 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[71]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[71] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

J.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Oghuz" 3 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[72]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[72] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____
_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Alvadi" 5,35 km 35kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[73]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[73] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Sapnakaran" 1,2 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	

Screening Questions	Yes	No	Remarks
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	

Screening Questions	Yes	No	Remarks
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[74]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[74] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

K.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Pirsaat" 14,6 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[75]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[75] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

L.

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: "Siyazan" 3,5 km 35 kV double circuit

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[76]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[76] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Rapid Environmental Appraisal (REA) Checklist for all 10 kV Distribution Lines in 7 RESSDs

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: 10 kV electricity distribution lines x 1236,5 m in 7 RESSD

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		**X**	
▪ Protected area		**X**	
▪ Wetland		**X**	
▪ Mangrove		**X**	
▪ Estuarine		**X**	
▪ Buffer zone of protected area		**X**	
▪ Special area for protecting biodiversity		**X**	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		**X**	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		**X**	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		**X**	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		**X**	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[77]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[77] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Rapid Environmental Appraisal (REA) Checklist for all 0.4 kV Self-Supporting Insulated Wires (SIW) in 7 RESSDs

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1 0,4 kV Self-supporting Insulated Wire (SIW) x 3706,79 m in 7 RESSD

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[78]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[78] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

Rapid Environmental Appraisal (REA) Checklists for all Complete Transformer Substations (CTS) in 7 RESSDs

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: AZE/Power Distribution Enhancement Investment Program T1: Complete Transformer Substation (CTS) 1157 unit in 7 RESSD

Sector Division: CWRD/CWEN

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected area		X	
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	
▪ Special area for protecting biodiversity		X	
B. Potential environmental impacts Will the project cause…			
▪ Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		X	
▪ Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		X	
▪ Alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?		X	
▪ Damage to sensitive coastal/marine habitats by construction of submarine cables?		X	

Screening Questions	Yes	No	Remarks
▪ Deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ Increased local air pollution due to rock crushing, cutting and filling?		X	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	X		Internationally recognized occupational health and safety standards for workers on power distribution and transmission projects to be applied (eg IFC EHS Guidelines for Electric Power Transmission & Distribution).
▪ Chemical pollution resulting from chemical clearing of vegetation for construction site?		X	
▪ Noise and vibration due to blasting and other civil works?		X	
▪ Dislocation or involuntary resettlement of people?		X	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	
▪ Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		X	
▪ Hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ Creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?		X	
▪ Dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?		X	
▪ Environmental disturbances associated with the maintenance of lines (e.g. Routine control of vegetative height under the lines)?		X	
▪ Facilitation of access to protected areas in case corridors traverse protected areas?		X	
▪ Disturbances (e.g. Noise and chemical pollutants) if herbicides are used to control vegetative height?		X	
▪ Large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	
▪ Social conflicts if workers from other regions or countries are hired?		X	
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ Risks to community safety associated with maintenance of lines and related facilities?		X	

Screening Questions	Yes	No	Remarks
▪ Community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?		X	
▪ Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	X		For decommissioning, transport, storage and disposal of old transformers, internationally recognized hazardous waste management practices will be followed.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[79]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0

[79] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____

_____

Prepared by: _____

APPENDIX 7: ENVIRONMENTAL MANAGEMENT AND MONITORING PLANS FOR SUBPROJECT GROUPS

7A: Environmental Management Plan for Group 1 and Group 2 Subprojects - 110kV and 35 kV Substations

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
PRE-CONSTRUCTION							
1	Equipment specifications and design parameters	Release of toxic pollutants chemicals and gases in receptors (air, water, land)	▪ PCBs will not be used in substation transformers and other project facilities or equipment. ▪ Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in exiting processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of Government of Azerbaijan.	Tender preparation	Check contract document to ensure compliance	Detailed design to comply with specifications	Part of tender specifications for the equipment
2	Design and Layout of equipment	Exposure to noise	▪ Design of equipment to comply with noise regulations and World Bank EHS guidelines.	Tender preparation	Check contract document to ensure compliance	Detailed design to comply with specifications	Part of equipment design
		Interference with other utilities and traffic	▪ Obtain necessary clearances from other utilities that could be affected by the project	Confirm with relevant agencies	Check compliance	Comply with requirements	Prior to commencement of construction
3	Interference with drainage patterns/Irrigation channels	Flooding hazards	▪ Appropriate siting of facilities and drainage design to avoid channel interference and avoid off-site flooding.	Audit detailed design	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed design layout
4	Escape of polluting materials	Environmental pollution	▪ Equipment designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill cleanup equipment. ▪ Facilities to include drainage and sewage disposal systems to avoid	Audit detailed design	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed equipment design /drawings

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
			offsite land and water pollution.				
5	Explosions/Fire	Hazards to life	▪ Design of facilities to include modern fire control systems/firewalls. ▪ Provision of fire fighting equipment to be located close to transformers	Audit detailed design	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed layout and design /drawings
CONSTRUCTION							
6	Planning for construction environmental management	EMP not effectively properly implemented	▪ Prior to mobilization the Contractor required to prepare and submit a site specific environmental management plan (SSEMP) to Azerishig for approval. The SSEMP will include any corrective measures relating to the existing environmental risks associated with wastes exiting at the facilities prior to the new project. ▪ SSEMP to provide details on how contractor plans to implement the construction mitigation measures specified in this EMP	Approve SSEMP	Train /support PIU &contractor prepare SSEMP including requirements for approval	Prepare SSEMP	Prior to mobilization of Contractor to site
7	Disposal of hazardous waste (PCB oils) due to decommissioning and disposal of old transformers	Water and soil pollution, hazard to human health	▪ Oil from all transformers to be replaced will be tested to determine the chlorine content. If the chlorine content of oil exceeds 50 ppm the oil from that transformer will be properly tested for PCBs by Azerishig. If PCB's identified, MENR to be advised. MENR will arrange for the disposal of the PCB oils. ▪ Retired transformers awaiting testing and disposal will be stored in a designated storage area in compliance with international requirements for storage of hazardous chemicals	Test for PCBs and coordinate with MENR on disposal requirements.	Support PIU coordinate with MENR	Comply with MENR requirements	Construction period
8	Uncontrolled	Soil loss,	▪ Minimize removal of vegetation and	Check	Review PIU	Implement	Construction

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
	erosion/silt runoff	downstream siltation;	topsoil. ▪ Limit site clearing to work areas ▪ Top soil disturbed during site development to be used to restore the surface of excavated areas (where applicable) ▪ Regeneration of vegetation to stabilise works areas on completion (where applicable) ▪ Water courses protected from siltation through use of bunds and sediment ponds	implementation using checklist	inspection records	mitigation measures	period
9	Mechanized construction including vehicles transporting materials to site	Noise and vibration	▪ Schedule activities during daytime working hours ▪ Construction equipment to be well maintained. ▪ Noise levels due to construction activities at sensitive receptors shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs)	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
		Dust/air pollution	▪ Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes ▪ Vehicles delivering construction materials shall be covered. ▪ Vehicles and construction equipment shall be regularly serviced and well maintained ▪ Vehicles and construction equipment shall comply with statutory emission standards	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
10	Interference with	Disruption of	▪ Ensure existing access to public and	Check	Review PIU	Implement	Construction

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
	utilities and blockage of access ways	community access to amenities and services	private amenities are maintained throughout construction period	implementation using checklist	inspection records	mitigation measures	period
11	Equipment servicing	Contamination of receptors (land, water, air)	▪ Provision of hard standing areas for equipment servicing, refueling and wash down with drainage directed through oil and grease interceptors.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
12	Storage of chemicals and materials	Contamination of receptors (land, water, air)	▪ Fuel and other hazardous materials securely stored above high flood level in hard standing area undercover surrounded by containment bunds.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
13	Provision of facilities for construction workers	Contamination of receptors (land, water, air)	▪ Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
14	Health and safety	Injury and sickness of workers and members of the public	▪ Contractor to comply with WB EHS requirements or equivalent for worker and public safety related to electric power infrastructure ▪ Contractor to prepare and implement a worker health and safety plan prior to commencement of construction. ▪ Contractor to arrange for health and safety training sessions for workers	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
15	Inadequate construction stage monitoring	Likely to maximize damages	▪ Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements ▪ Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Comply with monitoring requirements	Review PIU monitoring reports and undertake periodic site visits	Reporting of environmental compliance in monthly progress reports	Routinely throughout construction period
OPERATION AND MAINTENANCE							
16	Oil spillage	Contamination of land/nearby	▪ Oil storage facilities and substation transformers located within secure	Azerishig to comply with	N/A	N/A	During operations

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
		water bodies	and impervious bunded areas with a storage capacity of at least 120% of the capacity of tank and oil capacity of transformers. ▪ Safe handling and disposal of phased out equipment	requirements			
17	Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	▪ Careful design using appropriate technologies to minimize hazards ▪ Safety awareness raising for staff. ▪ Preparation of fire emergency action plan and training given to staff on implementing action plan ▪ Provide adequate sanitation and water supply facilities	Azerishig to comply with requirements	N/A	N/A	Design and operation
18	Electric Shock Hazards	Injury/mortality to staff and public	▪ Careful design using appropriate technologies to minimize hazards ▪ Security fences around facilities ▪ Appropriate warning signs on facilities ▪ Electricity safety awareness raising in project areas	Azerishig to comply with requirements	N/A	N/A	Design and Operation
19	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	▪ Adequate training in O&M to all relevant staff of facility maintenance crews. ▪ Preparation and training in the use of O&M manuals and standard operating practices.	Azerishig to comply with requirements	N/A	N/A	Operation
20	Inadequate periodic environmental monitoring.	Diminished ecological and social values.	▪ Azerishig O&M staff to receive training in environmental monitoring of project operations and maintenance activities.	Azerishig to comply with requirements	N/A	N/A	Operation

7A: Environmental Monitoring Plan for Group 1 and Group 2 Subprojects - 110kV d 35kV Substations

No	Environmental Features	Aspect to be Monitored	Time and Frequency of Monitoring	Location	Responsible party		
					Azerishig PIU	PMC	Contractor
PRE-CONSTRUCTION STAGE							
1	All design related mitigation measures	Inclusion in the project design. Tender Design Review	▪ As needed before tendering	-	Initial review of tender design	Audit tender design	N/A
CONSTRUCTION STAGE							
2	All construction related mitigation measures	Implementation on site. Observations on/off site; construction records; review of site layout & safety plan; vehicle log records of construction material and waste transport; interviews with people and workers	▪ Monthly during construction	All construction sites	Monthly site inspections	Review of PIU monthly site inspection reports and periodic site visits.	Checklist of implementation status of SSEMP mitigation measures completed on weekly basis
3	Noise	Noise levels due to construction activities at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Noise levels recorded at the nearest residence shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs	Monthly during the construction period during noisy activities such as platform excavation and delivery of materials to site	All construction sites	Spot checks to be undertaken by PIU environment specialist	Review of noise monitoring data and actions taken	Monthly noise monitoring
OPERATION STAGE							
4	Noise Level	Noise levels on dB (A) scale	▪ 2 times in a year	Where substations are within 50m of sensitive receptors	Azerishig	N/A	N/A

7B: Environmental Management Plan for Group 3 and Group 4 Subprojects – 110kV and 35kV Distribution Lines

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
PRE-CONSTRUCTION							
1	Equipment specifications and design parameters	Release of toxic pollutants chemicals and gases in receptors (air, water, land)	▪ PCBs will not be used in substation transformers and other project facilities or equipment. ▪ Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in exiting processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of Government of Azerbaijan.	Tender preparation	Check contract document to ensure compliance	Detailed design to comply with specifications	Part of tender specifications for the equipment
2	Design and Layout of equipment	Exposure to noise	▪ Design of equipment to comply with noise regulations and World Bank EHS guidelines.	Tender preparation	Check contract document to ensure compliance	Detailed design to comply with specifications	Part of equipment design
		Interference with other utilities and traffic	▪ Obtain necessary clearances from other utilities that could be affected by the project	Confirm with relevant agencies	Check compliance	Comply with requirements	Prior to commencement of construction
		Encroachment into farmland	▪ For any proposed new 35kV lines to and from green field 35kV substations, lines will be sited to as much as possible avoid productive land. In the event that encroachment is necessary farmers will be compensated accordingly	Audit detailed alignment	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed design layout
3	Interference with drainage patterns/Irrigation channels	Flooding hazards	▪ Appropriate siting of facilities and drainage design to avoid channel interference and avoid off-site flooding.	Audit detailed design	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed design layout
CONSTRUCTION							
4	Planning for construction	EMP not effectively	▪ Prior to mobilization the Contractor required to prepare and submit a site	Approve SSEMP	Train /support	Prepare SSEMP	Prior to mobilization of

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
	environmental management	properly implemented	specific environmental management plan (SSEMP) to Azerishig for approval. The SSEMP will include any corrective measures relating to the existing environmental risks associated with wastes exiting at the facilities prior to the new project. ▪ SSEMP to provide details on how contractor plans to implement the construction mitigation measures specified in this EMP		PIU &contractor prepare SSEMP including requirements for approval		Contractor to site
5	Encroachment into farmland and interference with private property	Damage to assets and loss of production	▪ Use existing maintenance access roads wherever possible. Provide compensation for temporary loss of production if necessary. ▪ Reinstate existing facilities fully after construction completion.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
6	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation;	▪ Minimize removal of vegetation and topsoil. ▪ Limit site clearing to work areas ▪ Top soil disturbed during site development to be used to restore the surface of excavated areas (where applicable) ▪ Regeneration of vegetation to stabilise works areas on completion (where applicable) ▪ Water courses protected from siltation through use of bunds and sediment pondsMinimize removal of vegetation and to ▪ Water courses protected from siltation through use of bunds and sediment ponds	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
7	Mechanized	Noise and	▪ Schedule activities during daytime	Check	Review PIU	Implement	Construction

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
	construction including vehicles transporting materials to site	vibration	working hours ▪ Construction equipment to be well maintained. ▪ Noise levels due to construction activities at sensitive receptors shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs)	implementation using checklist	inspection records	mitigation measures	period
		Dust/air pollution	▪ Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes ▪ Vehicles delivering construction materials shall be covered. ▪ Vehicles and construction equipment shall be regularly serviced and well maintained ▪ Vehicles and construction equipment shall comply with statutory emission standards	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
8	Interference with utilities and blockage of access ways	Disruption of community access to amenities and services	▪ Ensure existing access to public and private amenities are maintained throughout construction period	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
9	Equipment servicing	Contamination of receptors (land, water, air)	▪ Provision of hard standing areas for equipment servicing, refueling and wash down with drainage directed through oil and grease interceptors.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
10	Storage of chemicals and materials	Contamination of receptors (land, water, air)	▪ Fuel and other hazardous materials securely stored above high flood level in hard standing area undercover surrounded by containment bunds.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
11	Provision of facilities	Contamination of	▪ Construction workforce facilities to	Check	Review PIU	Implement	Construction

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
	for construction workers	receptors (land, water, air)	include proper sanitation, water supply and waste disposal facilities.	implementation using checklist	inspection records	mitigation measures	period
12	Health and safety	Injury and sickness of workers and members of the public	▪ Contractor to comply with WB EHS requirements or equivalent for worker and public safety related to electric power infrastructure ▪ Contractor to prepare and implement a worker health and safety plan prior to commencement of construction. ▪ Contractor to arrange for health and safety training sessions for workers	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
13	Inadequate construction stage monitoring	Likely to maximize damages	▪ Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements ▪ Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Comply with monitoring requirements	Review PIU monitoring reports and undertake periodic site visits	Reporting of environmental compliance in monthly progress reports	Routinely throughout construction period
OPERATION AND MAINTENANCE							
14	Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	▪ Careful design using appropriate technologies to minimize hazards ▪ Safety awareness raising for staff. ▪ Preparation of fire emergency action plan and training given to staff on implementing action plan ▪ Provide adequate sanitation and water supply facilities	Azerishig to comply with requirements	N/A	N/A	Design and operation
15	Electric Shock Hazards	Injury/mortality to staff and public	▪ Careful design using appropriate technologies to minimize hazards ▪ Security fences around facilities ▪ Appropriate warning signs on facilities ▪ Electricity safety awareness raising in project areas	Azerishig to comply with requirements	N/A	N/A	Design and Operation

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
16	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	▪ Adequate training in O&M to all relevant staff of facility maintenance crews. ▪ Preparation and training in the use of O&M manuals and standard operating practices.	Azerishig to comply with requirements	N/A	N/A	Operation
17	Inadequate periodic environmental monitoring.	Diminished ecological and social values.	▪ Azerishig O&M staff to receive training in environmental monitoring of project operations and maintenance activities.	Azerishig to comply with requirements	N/A	N/A	Operation

7B: Environmental Monitoring Plan for Group 3 and Group 4 Subprojects – 110kV and 35kV Distribution Lines

No	Environmental Features	Aspect to be Monitored	Time and Frequency of Monitoring	Location	Responsible party		
					Azerishig PIU	PMC	Contractor
PRE-CONSTRUCTION STAGE							
1	All design related mitigation measures	Inclusion in the project design. Tender Design Review	▪ As needed before tendering	-	Initial review of tender design	Audit tender design	N/A
CONSTRUCTION STAGE							
2	All construction related mitigation measures	Implementation on site. Observations on/off site; construction records; review of site layout & safety plan; vehicle log records of construction material and waste transport; interviews with people and workers	▪ Monthly during construction	All construction sites	Monthly site inspections	Review of PIU monthly site inspection reports and periodic site visits.	Checklist of implementation status of SSEMP mitigation measures completed on weekly basis
3	Noise	Noise levels due to construction activities at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Noise levels recorded at the nearest residence shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs	Monthly during the construction period during noisy activities such as platform such as auguring of holes or use of a mobile crane	All construction sites	Spot checks to be undertaken by PIU environment specialist	Review of noise monitoring data and actions taken	Monthly noise monitoring
OPERATION STAGE							
4	Noise Level	Noise levels on dB (A) scale	▪ 2 times in a year	Where substations are within 50m of sensitive receptors	Azerishig	N/A	N/A

7C: Environmental Management Plan for Group 5 and Group 6 Subprojects – 10kV and 0.4kV SIW Distribution Lines

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
PRE-CONSTRUCTION							
1	Equipment specifications and design parameters	Release of toxic pollutants chemicals and gases in receptors (air, water, land)	▪ PCBs will not be used in substation transformers and other project facilities or equipment. ▪ Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in exiting processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of Government of Azerbaijan.	Tender preparation	Check contract document to ensure compliance	Detailed design to comply with specifications	Part of tender specifications for the equipment
2	Design and Layout of equipment	Interference with other utilities and traffic	▪ Obtain necessary clearances from other utilities that could be affected by the project	Confirm with relevant agencies	Check compliance	Comply with requirements	Prior to commencement of construction
CONSTRUCTION							
3	Planning for construction environmental management	EMP not effectively properly implemented	▪ Prior to mobilization the Contractor required to prepare and submit a site specific environmental management plan (SSEMP) to Azerishig for approval. The SSEMP will include any corrective measures relating to the existing environmental risks associated with wastes exiting at the facilities prior to the new project. ▪ SSEMP to provide details on how contractor plans to implement the construction mitigation measures specified in this EMP	Approve SSEMP	Train /support PIU &contractor prepare SSEMP including requirements for approval	Prepare SSEMP	Prior to mobilization of Contractor to site
4	Interference with private property (removal of old poles on private land)	Damage to private assets	▪ The following process will be followed: 1. Azerishig will advise the owner concerning the need for pole removal prior to arranging a mutually agreeable time for the works to be	Check with Contractor regarding need for ole replacement on	Audit implementation of procedure	Advise PIU and PMC of need for pole replacement on private land	Construction period

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
			undertaken by the contractor and for access to be provided by the owner. 2. Pole removal will be undertaken by the contractor at the agreed time as described above, including restoration / filling of the pole hole and ensuring the property is left in the same condition as it was prior to pole removal. 3. Azerishig staff shall follow up with the private owners following pole removal by the contractor to ensure the owners are satisfied that any disturbance from pole removal has been properly resolved by the contractor. ▪ 4. In a case where the owner is not satisfied with the contractor's restoration activity the project grievance redress mechanism will be followed.	private land and initiate engagement with land owner			
5	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation;	▪ Minimize removal of vegetation and topsoil. ▪ Limit site clearing to work areas ▪ Top soil disturbed during site development to be used to restore the surface of excavated areas (where applicable) ▪ Regeneration of vegetation to stabilise works areas on completion (where applicable) ▪ Water courses protected from siltation through use of bunds and sediment pondsMinimize removal of vegetation and to ▪ Water courses protected from siltation through use of bunds and sediment	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
			ponds				
6	Mechanized construction including vehicles transporting materials to site	Noise and vibration	▪ Schedule activities during daytime working hours ▪ Construction equipment to be well maintained. ▪ Noise levels due to construction activities at sensitive receptors shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs)	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
		Dust/air pollution	▪ Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes ▪ Vehicles delivering construction materials shall be covered. ▪ Vehicles and construction equipment shall be regularly serviced and well maintained ▪ Vehicles and construction equipment shall comply with statutory emission standards	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
7	Interference with utilities and blockage of access ways	Disruption of community access to amenities and services	▪ Ensure existing access to public and private amenities are maintained throughout construction period	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
8	Equipment servicing	Contamination of receptors (land, water, air)	▪ Provision of hard standing areas for equipment servicing, refueling and wash down with drainage directed through oil and grease interceptors.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
9	Storage of chemicals and materials	Contamination of receptors (land, water, air)	▪ Fuel and other hazardous materials securely stored above high flood level in hard standing area undercover	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
			surrounded by containment bunds.				
10	Provision of facilities for construction workers	Contamination of receptors (land, water, air)	▪ Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
11	Health and safety	Injury and sickness of workers and members of the public	▪ Contractor to comply with WB EHS requirements or equivalent for worker and public safety related to electric power infrastructure ▪ Contractor to prepare and implement a worker health and safety plan prior to commencement of construction. ▪ Contractor to arrange for health and safety training sessions for workers	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
12	Inadequate construction stage monitoring	Likely to maximize damages	▪ Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements ▪ Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Comply with monitoring requirements	Review PIU monitoring reports and undertake periodic site visits	Reporting of environmental compliance in monthly progress reports	Routinely throughout construction period
OPERATION AND MAINTENANCE							
13	Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	▪ Careful design using appropriate technologies to minimize hazards ▪ Safety awareness raising for staff. ▪ Preparation of fire emergency action plan and training given to staff on implementing action plan ▪ Provide adequate sanitation and water supply facilities	Azerishig to comply with requirements	N/A	N/A	Design and operation
14	Electric Shock Hazards	Injury/mortality to staff and public	▪ Careful design using appropriate technologies to minimize hazards ▪ Security fences around facilities ▪ Appropriate warning signs on facilities ▪ Electricity safety awareness raising in	Azerishig to comply with requirements	N/A	N/A	Design and Operation

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
			project areas				
15	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	▪ Adequate training in O&M to all relevant staff of facility maintenance crews. ▪ Preparation and training in the use of O&M manuals and standard operating practices.	Azerishig to comply with requirements	N/A	N/A	Operation
16	Inadequate periodic environmental monitoring.	Diminished ecological and social values.	▪ Azerishig O&M staff to receive training in environmental monitoring of project operations and maintenance activities.	Azerishig to comply with requirements	N/A	N/A	Operation

7C: Environmental Monitoring Plan for Group 5 and Group 6 Subprojects – 10kV and 0.4V SIW Distribution Lines

No	Environmental Features	Aspect to be Monitored	Time and Frequency of Monitoring	Location	Responsible party		
					Azerishig PIU	PMC	Contractor
PRE-CONSTRUCTION STAGE							
1	All design related mitigation measures	Inclusion in the project design. Tender Design Review	▪ As needed before tendering	-	Initial review of tender design	Audit tender design	N/A
CONSTRUCTION STAGE							
2	All construction related mitigation measures	Implementation on site. Observations on/off site; construction records; review of site layout & safety plan; vehicle log records of construction material and waste transport; interviews with people and workers	▪ Monthly during construction	All construction sites	Monthly site inspections	Review of PIU monthly site inspection reports and periodic site visits.	Checklist of implementation status of SSEMP mitigation measures completed on weekly basis
3	Noise	Noise levels due to construction activities at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Noise levels recorded at the nearest residence shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs	Monthly during the construction period during noisy activities such as platform such as auguring of holes or use of a mobile crane	All construction sites	Spot checks to be undertaken by PIU environment specialist	Review of noise monitoring data and actions taken	Monthly noise monitoring
OPERATION STAGE							
4	Noise Level	Noise levels on dB (A) scale	▪ 2 times in a year	Where substations are within 50m of sensitive receptors	Azerishig	N/A	N/A

7D: Environmental Management Plan for Group 7 Subprojects –Complete Transformer Substations

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
PRE-CONSTRUCTION							
1	Equipment specifications and design parameters	Release of toxic pollutants chemicals and gases in receptors (air, water, land)	▪ PCBs will not be used in substation transformers and other project facilities or equipment. ▪ Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in exiting processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of Government of Azerbaijan.	Tender preparation	Check contract document to ensure compliance	Detailed design to comply with specifications	Part of tender specifications for the equipment
2	Design and Layout of equipment	Exposure to noise	▪ Design of equipment to comply with noise regulations and World Bank EHS guidelines.	Tender preparation	Check contract document to ensure compliance	Detailed design to comply with specifications	Part of equipment design
		Interference with other utilities and traffic	▪ Obtain necessary clearances from other utilities that could be affected by the project	Confirm with relevant agencies	Check compliance	Comply with requirements	Prior to commencement of construction
3	Interference with drainage patterns/Irrigation channels	Flooding hazards	▪ Appropriate siting of facilities and drainage design to avoid channel interference and avoid off-site flooding.	Audit detailed design	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed design layout
4	Escape of polluting materials	Environmental pollution	▪ Equipment designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill cleanup equipment. ▪ Facilities to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Audit detailed design	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed equipment design /drawings

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
5	Explosions/Fire	Hazards to life	▪ Design of facilities to include modern fire control systems/firewalls. ▪ Provision of fire fighting equipment to be located close to transformers	Audit detailed design	Confirm audit undertaken	Detailed design to comply with specifications	Part of detailed layout and design /drawings
CONSTRUCTION							
6	Planning for construction environmental management	EMP not effectively properly implemented	▪ Prior to mobilization the Contractor required to prepare and submit a site specific environmental management plan (SSEMP) to Azerishig for approval. The SSEMP will include any corrective measures relating to the existing environmental risks associated with wastes exiting at the facilities prior to the new project. ▪ SSEMP to provide details on how contractor plans to implement the construction mitigation measures specified in this EMP	Approve SSEMP	Train /support PIU &contractor prepare SSEMP including requirements for approval	Prepare SSEMP	Prior to mobilization of Contractor to site
7	Disposal of hazardous waste (PCB oils) due to decommissioning and disposal of old transformers	Water and soil pollution, hazard to human health	▪ Oil from all transformers to be replaced will be tested to determine the chlorine content. If the chlorine content of oil exceeds 50 ppm the oil from that transformer will be properly tested for PCBs by Azerishig. If PCB's identified, MENR to be advised. MENR will arrange for the disposal of the PCB oils. ▪ Retired transformers awaiting testing and disposal will be stored in a designated storage area in compliance with international requirements for storage of hazardous chemicals	Test for PCBs and coordinate with MENR on disposal requirements.	Support PIU coordinate with MENR	Comply with MENR requirements	Construction period
8	Uncontrolled erosion/silt runoff	Soil loss, downstream	▪ Minimize removal of vegetation and topsoil.	Check implementation	Review PIU inspection	Implement mitigation	Construction period

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
		siltation;	▪ Limit site clearing to work areas ▪ Top soil disturbed during site development to be used to restore the surface of excavated areas (where applicable) ▪ Regeneration of vegetation to stabilise works areas on completion (where applicable) ▪ Water courses protected from siltation through use of bunds and sediment ponds	using checklist	records	measures	
9	Mechanized construction including vehicles transporting materials to site	Noise and vibration	▪ Schedule activities during daytime working hours ▪ Construction equipment to be well maintained. ▪ Noise levels due to construction activities at sensitive receptors shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs)	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
		Dust/air pollution	▪ Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes ▪ Vehicles delivering construction materials shall be covered. ▪ Vehicles and construction equipment shall be regularly serviced and well maintained ▪ Vehicles and construction equipment shall comply with statutory emission standards	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
10	Interference with utilities and blockage	Disruption of community	▪ Ensure existing access to public and private amenities are maintained	Check implementation	Review PIU inspection	Implement mitigation	Construction period

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
	of access ways	access to amenities and services	throughout construction period	using checklist	records	measures	
11	Equipment servicing	Contamination of receptors (land, water, air)	▪ Provision of hard standing areas for equipment servicing, refueling and wash down with drainage directed through oil and grease interceptors.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
12	Storage of chemicals and materials	Contamination of receptors (land, water, air)	▪ Fuel and other hazardous materials securely stored above high flood level in hard standing area undercover surrounded by containment bunds.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
13	Provision of facilities for construction workers	Contamination of receptors (land, water, air)	▪ Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
14	Health and safety	Injury and sickness of workers and members of the public	▪ Contractor to comply with WB EHS requirements or equivalent for worker and public safety related to electric power infrastructure ▪ Contractor to prepare and implement a worker health and safety plan prior to commencement of construction. ▪ Contractor to arrange for health and safety training sessions for workers	Check implementation using checklist	Review PIU inspection records	Implement mitigation measures	Construction period
15	Inadequate construction stage monitoring	Likely to maximize damages	▪ Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements ▪ Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Comply with monitoring requirements	Review PIU monitoring reports and undertake periodic site visits	Reporting of environmental compliance in monthly progress reports	Routinely throughout construction period
OPERATION AND MAINTENANCE							
16	Inadequate provision of staff/workers health and safety during	Injury and sickness of staff /workers	▪ Careful design using appropriate technologies to minimize hazards ▪ Safety awareness raising for staff.	Azerishig to comply with requirements	N/A	N/A	Design and operation

No	Project activity /stage	Potential impact	Proposed mitigation measure	Institutional Responsibility			Implementation schedule
				Azerishig PIU	PMC	Contractor	
	operations		▪ Preparation of fire emergency action plan and training given to staff on implementing action plan ▪ Provide adequate sanitation and water supply facilities				
17	Electric Shock Hazards	Injury/mortality to staff and public	▪ Careful design using appropriate technologies to minimize hazards ▪ Security fences around facilities ▪ Appropriate warning signs on facilities ▪ Electricity safety awareness raising in project areas	Azerishig to comply with requirements	N/A	N/A	Design and Operation
18	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	▪ Adequate training in O&M to all relevant staff of facility maintenance crews. ▪ Preparation and training in the use of O&M manuals and standard operating practices.	Azerishig to comply with requirements	N/A	N/A	Operation
19	Inadequate periodic environmental monitoring.	Diminished ecological and social values.	▪ Azerishig O&M staff to receive training in environmental monitoring of project operations and maintenance activities.	Azerishig to comply with requirements	N/A	N/A	Operation

7D: Environmental Monitoring Plan for Group 7 Subprojects – Complete Transformer Substations

No	Environmental Features	Aspect to be Monitored	Time and Frequency of Monitoring	Location	Responsible party		
					Azerishig PIU	PMC	Contractor
PRE-CONSTRUCTION STAGE							
1	All design related mitigation measures	Inclusion in the project design. Tender Design Review	▪ As needed before tendering	-	Initial review of tender design	Audit tender design	N/A
CONSTRUCTION STAGE							
2	All construction related mitigation measures	Implementation on site. Observations on/off site; construction records; review of site layout & safety plan; vehicle log records of construction material and waste transport; interviews with people and workers	▪ Monthly during construction	All construction sites	Monthly site inspections	Review of PIU monthly site inspection reports and periodic site visits.	Checklist of implementation status of SSEMP mitigation measures completed on weekly basis
3	Noise	Noise levels due to construction activities at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Noise levels recorded at the nearest residence shall not exceed 50dB(A) during daytime hours (0700-2300hrs) or 40 dB(A) during night-time hours (2300-0700hrs	Monthly during the construction period during noisy activities such as platform excavation and delivery of materials to site	All construction sites	Spot checks to be undertaken by PIU environment specialist	Review of noise monitoring data and actions taken	Monthly noise monitoring
OPERATION STAGE							
4	Noise Level	Noise levels on dB (A) scale	▪ 2 times in a year	Where substations are within 50m of sensitive receptors	Azerishig	N/A	N/A

APPENDIX 8: FORMAT OF BI-ANNUAL ENVIRONMENTAL MONITORING REPORT

Table of Contents

Part I Introduction

- Construction activities and Project Progress during previous 6 months
- Changes in project organization and Environmental management team
- Relationships with Contractors, owner, lender, etc.

Part II Environmental Monitoring

- Environmental monitoring summary – summarise the previous six months monitoring data and provide explanations of any instances where environmental standards or guidelines are exceeded. Typically this will cover:
  - Noise and Vibration
  - Water Quality
  - Air Quality
  - Flora and fauna monitoring

- Recommendations are required to show how any exceedences will be prevented in the future.
- Graphs can be used in this section to show trends, however large tables of data or multiple graphs should be attached as an appendix.

Part III Environmental Management

- EMS, SSEMP and work plans. Report on delivery of documents, required amendments etc.
- Site Inspections and audits – summarise the number and type of site visits
- Non-compliance notices – summarise the details on the number of notices given out and the issues covered. Summarise the ranking of issues.
- Corrective action plans - report on timeliness of preparation and completion
- Consultation and complaints – report on any consultation undertaken and list any complaints received.

Annexes

- Monitoring data
- Photographs
- Implementation report on EIA/IEE mitigation requirements

Reference	Requirement	Action to date	Action required/comment

APPENDIX 9: HEALTH IMPACTS ASSOCIATED WITH EMF

A. CONSIDERATIONS TO ELECTRIC AND MAGNETIC FIELDS

Because there are no national standards about limit values for magnetic and electric fields, some general information about effects on the environment and on biological systems and internationally used recommendations are given below

A.1 Electric and Magnetic Fields – General Considerations

Considering low frequency (50 Hz) alternative current (AC) as used in power transmission, not electromagnetic waves are of interest but we have to look at the strength of the generated electric and the magnetic field separately. A short calculation shows that in case of a 50 Hz alternative current the wavelength of the electromagnetic wave is 6,000 km.

Such wavelengths are not of relevance for humans. An electromagnetic wave of such a length cannot interfere with a human body that is only about 1.80 m.

However, considering mobile phones, using frequencies in the range of GHz, the associated wavelengths are of some mm and have to be considered electromagnetic fields.

Being in operation the strength of electric and magnetic fields is one of the permanent effects on the environment especially for people living e.g. along transmission lines or working in sub-stations (mainly open air sub-stations).

These fields can have effects on organism but can also interfere with other technical installations.

Because at present extensive discussions take place about effects of electromagnetic fields on the human health all over the world especially related to the use of mobiles, this issue should be considered comprehensively in HSE studies to such projects. Doing so, it has to be clarified that we are talking about electromagnetic fields only in high frequency ranges as used by mobiles.

In power transmission 50 Hz (low frequency) is used. Here, the generation of electromagnetic fields is not relevant because of its large amplitude. Using 50 Hz we have to consider both electric fields and magnetic fields separately. The electric field exists permanently if voltage is impressed, whereas the magnetic field only results if actual current is flowing.

In **Section A.4** some results of recent scientific researches concerning biological and health effects of electric and magnetic fields are given.

Section A.2 describes internationally used standards and limit values, and in **Annex A.3** an excerpt is given about the guideline of the internationally accepted International Commission on Non-Ionizing Radiation Protection (ICNIRP).

Regarding the Azerbaijan Power Distribution Enhancement Investment Program, it has to be stated that all internationally recognised standards with regard to EMF levels and public exposure as discussed in the various sections of this annexure will be met.

According to measurements in other similar projects the fields around the sub-stations will be far below any internationally accepted standard. The standards stipulated below,

however, can become relevant in case of high voltage overhead lines if, settlement are closely bypassed and within high voltage substations for workplaces.

A.2 Internationally Used Standards/ Limit Values Concerning Electric and Magnetic Fields (50 Hz) for the Public and at Working Places

Source	El. Field Strength [kV/m]	Magn. Flux density [µT]
ICNIRP recommended 50/60 Hz Reference levels for exposure to time-varying electric and magnetic fields (unperturbed r.m.s. values)		
Occupational exposure	10	500
General public exposure	5	100
Limit values according to the European Directive 2004/40/EC		
Exposure of workers	10	500
Limit (r.m.s) value as per 26. BimSchVer 12/96		
General public up to 24 hours /day	5	100
Limit values as per VDE V 0848 Part 4/A3 at 50 Hz		
r.m.s. values for equivalent field strength in exposure range 1 for exposure times up to 1 h/d	30	4,240
r.m.s. values for equivalent field strength in exposure range 1 for exposure times up to 2 h/d	30	2,550
r.m.s. values for equivalent field strength in exposure range 1 for continuous exposure	21.32	1360
r.m.s. values for equivalent field strength in exposure range 2	6.67	424

Note:

r.m.s. = root mean square (value)

Exposure range 1 includes monitored areas, e.g. operating zones, areas monitored by operators, generally accessible areas, in which, owing to the operating mode or the length of stay, it is guaranteed that exposure only occurs for a short period of time

Exposure range 2 includes all areas in which not only short-term exposure can be expected, for example: areas containing residential and social buildings, individual residential sites, parks and facilities for sport, leisure and relaxation, operating zones where a field generation is not expected under normal conditions (ICNIRP=International Commission on Non-Ionising Radiation Protection, BimSchVer=German Bundesimmissionsschutzverordnung, VDE=Verband Deutscher Elektrotechniker e.V., Cenelec=European Committee for Electro technical Standardisation)

As it can be seen from the data given above, limit values arising from different organisations and used in different countries can vary.

The core problem is that up to now nobody knows exactly what the effects of electric and magnetic fields on the biology are and what the best limit values are to protect human health as discussed in **Section A.4**.

However, some generally accepted recommendations can be given. At the moment, it is internationally agreed that **for the public and for permanent exposure, the electric field must not exceed 5 kV/m and the magnetic flux density must not exceed 100 µT**. This means, outside the fence of substations 5 kV/m and 100 µT respectively is the limit. The

same is valid for settlements/houses along transmission lines. The corridor for transmission lines has to be wide enough that the electric and magnetic field strength at the edge of this corridor is less than the limits mentioned above.

A.3 ICNIRP Guidelines and Statements (excerpt) Guidelines for Limiting Exposure to Time-varying Electric, Magnetic, & Electromagnetic Fields

In 1974, the International Radiation Protection Association (IRPA) formed a working group on non-ionizing radiation (NIR), which examined the problems arising in the fields of protection against the various types of NIR.

At the IRPA Congress in Paris in 1977, this working group became the International Non-Ionizing Radiation Committee (INRC).

In co-operation with the Environmental Health Division of the World Health Organization (WHO), the IRPA/INRC developed a number of health criteria documents on NIR as part of WHO's Environmental Health Criteria Program, sponsored by the United Nations Environment Program (UNEP).

Each document includes an overview of the physical characteristics, measurement and instrumentation, sources, and applications of NIR, a thorough review of the literature on biological effects, and an evaluation of the health risks of exposure to NIR. These health criteria have provided the scientific database for the subsequent development of exposure limits and codes of practice relating to NIR.

At the eighth International Congress of the IRPA (Montreal, 18-22 May 1992), a new independent scientific organization – the International Commission on Non-Ionizing Radiation Protection (ICNIRP) – was established as a successor to the IRPA/ININRC. The functions of the Commission are to investigate the hazards that may be associated with the different forms of NIR, develop international guidelines on NIR exposure limits, and deal with all aspects of NIR protection.

Biological effects reported as resulting from exposure to static and extremely low frequency (ELF) electric and magnetic fields have been reviewed by UNEP/WHO/IRPA. Those publications and a number of others, provided the scientific rationale for the Guidelines for limiting Exposure to time varying Electric, Magnetic, and Electromagnetic Fields.

The main objective of the guidelines is to establish the limit of EMF exposure that will provide protection against known adverse health effects.

An adverse health effect causes detectable impairment of the health of the exposed individual or of his or her offspring; a biological effect, on the other hand, may or may not result in an adverse health effect.

Studies on both direct and indirect effects of EMF are described; direct effects result from direct interaction of fields with the body, indirect effects involve interactions with an object at a different electric potential from the body. Results of laboratory and epidemiological studies, basic exposure criteria, and reference levels for practical hazard assessment are discussed, and the guidelines presented apply to occupational and public exposure.

The guidelines will be periodically revised and updated as advances are made in identifying the adverse health effects of time-varying electric, magnetic, and electromagnetic fields. In establishing exposure limits, the Commission recognizes the need to reconcile a number of

differing expert opinions. The validity of scientific reports has to be considered, and extrapolations from animal experiments to effects on humans have to be made.

There is insufficient information on the biological and health effects of EMF exposure of human populations and experimental animals to provide a rigorous basis for establishing safety factors over the whole frequency range and for all frequency modulations. In addition, some of the uncertainty regarding the appropriate safety factor derives from a lack of knowledge regarding the appropriate dosimetry.

The restrictions in the guidelines were based on scientific data alone; currently available knowledge, however, indicates that these restrictions provide an adequate level of protection from exposure to time-varying EMF.

Two classes of guidance are presented:

1. Basic restrictions: Restrictions on the effects of exposure are based on established health effects and are termed basic restrictions. Protection against adverse health effects requires that these basic restrictions are not exceeded.

2. Reference levels: Reference levels of exposure are provided for comparison with measured values of physical quantities; compliance with all reference levels given in these guidelines will ensure compliance with basic restrictions. If measured values are higher than reference levels, it does not necessarily follow that the basic restrictions have been exceeded, but a more detailed analysis is necessary to assess compliance with the basic restrictions.

Basic Restrictions:
Basic restrictions on exposure to time varying electric, magnetic, and electromagnetic fields are based directly on established health effects. Depending upon the frequency of the field, the physical quantities used to specify these restrictions are current density (J), specific energy absorption rate (SAR), and power density (S). Only power density in air, outside the body, can be readily measured in exposed individuals.

Different scientific bases were used in the development of basic exposure restrictions for various frequency ranges. For electric power transmission and distribution only the low frequency (50 Hz) fields are relevant which are indicative of much lesser biological effects than fields caused by high-frequency energy. This is the reason that the basic restrictions for the range of frequencies between 1 Hz and 10 MHz are provided exclusively on current density to prevent effects on nervous system functions. The basic restrictions for current densities, whole body average SAR, and localized SAR for frequencies between 1 Hz and 10 GHz are presented in **Table 1.**

The occupationally exposed population consists of adults who are generally exposed under known conditions and are trained to be aware of potential risk and to take appropriate precautions. By contrast, the general public comprises of individuals of all ages and of varying health status, and may include particularly susceptible groups of individuals.

In many cases, members of the public are unaware of their exposure to EMF. Moreover, individual members of the public cannot reasonably be expected to take precautions to minimize or avoid exposure. It is these considerations that underlie the adoption of more stringent exposure restrictions for the public than for the occupationally exposed population.

Table 1: Basic Restrictions for Time-varying Electric and Magnetic Fields for Frequencies up to 10 GHz

Parameter	Frequency Range	Current Density f. Head and Trunk (mA m-2) (rms)	Whole-Body average SAR (W Kg-1)	Localized SAR (Head + Trunk) (W Kg-1)	Localized SAR (limbs) (W Kg-1)
Occupational Exposure	up to 1 Hz	40	-	-	-
	1 – 4 Hz	20/f	-	-	-
	4 – 1 KHz	10	-	-	-
	1 -100 KHz	f/100	-	-	-
	100 KHz-10MHz	f/100	0.4	10	20
	10 MHz- 10 GHz	-	0.4	10	20
General Public Exposure	up to 1 Hz	8	-	-	-
	1 – 4 Hz	8/f	-	-	-
	4 – 1 KHz	2	-	-	-
	1 -100 KHz	f/500	-	-	-
	100 KHz-10MHz	f/500	0.08	2	4
	10 MHz- 10 GHz	-	0.08	2	4

*** Note:**

1. *f is the frequency in hertz.*
2. *Because of electrical inhomogeneity of the body, current densities should be averaged over across- section of 1 cm^2 perpendicular to the current direction.*
3. *For frequencies up to 100 kHz, peak current density values can be obtained by multiplying the rms value by • √2 (~1,414). For pulses of duration to the equivalent frequency to apply in the basic restrictions should be calculated as f = 1/(2t).*
4. *For frequencies up to 100 kHz and for pulsed magnetic fields, the maximum current density associated with the pulse can be calculated from the rise/fall times and the maximum rate of change of magnetic flux density. The induced current density can then be compared with the appropriate basic restriction.*
5. *All SAR values are to be averaged over any 6-min period.*
6. *Localized SAR averaging mass is any 10 g of contiguous tissue; the maximum SAR so obtained should be the value used for the estimation of exposure.*
7. *For pulses of duration tp the equivalent frequency to apply in the basic restrictions should be calculated as f = 1/(2tp). Additionally for pulsed exposures in the frequency range 0.3 to 10 GHz and for localized exposure of the head, in order to limit or avoid auditory effects caused by thermo elastic expansion, an additional basic restriction is recommended. This is that the SA should not exceed 10 mJ Kg^{-1} for workers and 2 mJ kg^{-1} for the general public, averaged over 10 g tissue.*

Reference levels

These levels are provided for practical exposure assessment purposes to determine whether the basic restrictions are likely to be exceeded. Some reference levels are derived from relevant basic restrictions using measurement and/or computational techniques, and some address perception and adverse indirect effects of exposure to EMF.

The derived quantities are electric field strength (E), magnetic field strength (H), magnetic flux density (B), power density (S), and currents flowing through the limbs (I). Quantities that address perception and other indirect effects are contact current (Ic) and, for pulsed fields, specific energy absorption (SA).

In any particular exposure situation, measured or calculated values of any of these quantities can be compared with the appropriate reference level.

Compliance with the reference level will ensure compliance with the relevant basic restriction. If the measured or calculated value exceeds the reference level, it does not necessarily follow that the basic restriction will be exceeded. However, whenever a

reference level is exceeded, it is necessary to test compliance with the relevant basic restriction and to determine whether additional protective measures are necessary. The reference levels are intended to be spatially averaged values over the entire body of the exposed individual, but with the important provision that the basic restrictions on localized exposure are not exceeded.

Reference levels for exposure of the general public have been obtained from those for occupational exposure by using various factors over the entire frequency image. These factors have been chosen on the basis of effects that are recognized as specific and relevant for the various frequency ranges.

Generally speaking, the factors follow the basic restrictions over the entire frequency range, and their values correspond to the mathematical relation between the quantities of the basic restrictions and the derived levels as described below:

In the frequency range up to 1kHz, the general public reference levels for electric fields are one-half of the values set for occupational exposure.

The value of 10 kV m^{-1} for 50-Hz or 8.3 kV m^{-1} for a 60-Hz occupational exposure includes a sufficient safety margin to prevent stimulation effects from contact current under all possible conditions.

Half of this value was chosen for the general public reference levels i.e. 5 kV m^{-1} for 50 Hz or 4.2 kV m^{-1} for 60 Hz, to prevent adverse indirect effects for more than 90% of exposed individuals.
Table 2 shows the related reference levels for occupational and for general public exposure. ICNIRP notes that the industries causing exposure to electric and magnetic fields are responsible for ensuring compliance with all aspects of the guidelines.

Table 2: Reference Levels for Occupational and General Public Exposure to Time-varying Electric and Magnetic Fields (unperturbed rms values)

Parameter	Frequency Range	E-FIELD Strength (V m-1)	H-FIELD Strength (A m-1)	B-FIELD Strength (μT)	Equivalent plane wave power density Seq (W m-2)
Occupational Exposure	up to 1 Hz	-	1.63 x 105	2 x 105	-
	1 – 8 Hz	20000	1.63 x 105/f2	2 x 105/f2	-
	8 – 25 Hz	20000	2 x 104/f	2.5 x 104/f	-
	0.025 – 0.82 kHz	500/f	20/f	25/f	-
	0.82 – 65 kHz	610	24.4	30.7	-
	0.065 – 1 MHz	610	1.6/f	2.0/f	-
	1 – 10 MHz	610/f	1.6/f	2.0/f	-
	10 – 400 MHz	61	0.16	0.2	10
	400 – 2000 MHz	3f½	0.008f½	0.01f½	f/40
	2 – 300 GHz	137	0.36	0.45	50
General Public Exposure	up to 1 Hz	-	3.2 x 104	4 x 104	-
	1 – 8 Hz	10000	3.2 x 104/f2	4 x 104/f2	-
	8 – 25 Hz	10000	4000/f	5000/f	-
	0.025 – 0.8 kHz	250/f	4/f	5/f	-
	0.8 – 3 kHz	250/f	5	6.25	-
	3 – 150 kHz	87	5	6.25	-
	0.15 – 1 MHz	87	0.73/f	0.92/f	-
	1 – 10 MHz	87/f½	0.73/f	0.92/f	-
	10 – 400 MHz	28	0.073	0.092	2
	400 – 2000 MHz	1.375f½	0.0037/f½	0.0046f½	f/200
	2 – 300 GHz	61	0.16	0.20	10

**** Note:***

1. f as indicated in the frequency range column.

2. Provided that basic restrictions are met and adverse indirect effects can be excluded, field strength values can be exceeded.

3. For frequencies between 100 kHz and 10 GHz. Seq, E2, H2, and B2 are to averaged over any 6-min period.

4. For peak values at frequencies up to 100 kHz see Table 13-1, note 3.

5. For peak values at frequencies exceeding 100 kHz see Figs.1 and 2. Between 100 kHz and 10 MHz, peak values for the field strengths are obtained by interpolation from the 1,5-fold peak at 100 kHz to the 32-fold peak at 10 MHz. For frequencies exceeding 10 MHz it is suggested that the peak equivalent plane wave power density, as averaged over the pulse width does not exceed 1000 times the Seq restrictions, or that the field strength does not exceed 32 times the field strength exposure levels given in the table.

6. For frequencies exceeding 10 GHz, Seq, E2, H2, and B2are to be averaged over 68/f 1.05–min period (f in GHz).

7. No E-field value is provided for frequencies <1 Hz, which are effectively static electric fields. Electric shock from low impedance sources is prevented by established electrical safety procedures for such equipment Perception of surface electric charges will not occur at field strengths less than 25 kVm^{-1}. Spark discharges causing stress or annoyance should be avoided.

More information about the work of ICNIRP can be found on the internet under **www.icnirp.org**.

A.4 Biological and Health Effects of Electric and Magnetic Fields

To be precise in physical terms, when speaking about electrical facilities, a distinction has to be made between two types of fields: the electric and the magnetic field.

The **electric field** denotes the difference in electric potential measured as a voltage between two points one meter apart. If an electric current flows in a conductor, a magnetic field will always build up around it. The electric field is generated by the line voltage on the conductors. The electric field of power lines depends on the voltage, on the circuit numbers, on the design of the circuits and on the design of the cable itself. Its strength lessens rapidly according to the distance. Normally, the field is strongest in the middle of the line span where the phase conductors have the greatest slag.

The strength of the electric field is expressed in volts per meter, and in the power-line context usually in kV/m. Strong 50 Hz electric fields occur mainly in high voltage installations, i.e. inside switchyards and below transmission lines. Electric fields are shielded by objects which are earthed, such as trees, buildings etc.

The magnetic field around a power line is generated by the current in the conductors. Since the current is proportional to the line's load, the magnetic field often varies both over 24 hours and from one season to another. The magnetic field under a power line is strongest in roughly the same areas as the electric field. The magnetic field is expressed in terms of teslas [T] (1 T = 1 Vs/m^2), which is a measure of the field's flux density. In the context of power lines, microteslas [µT] are used. An older unit, Gauss [G], is used in e.g. USA (1 mG = 0.1 µT). Magnetic fields are not shielded by walls and roofs. Around power lines they are often weaker than those one may come into contact with in many other contexts in everyday life at work.

In Indonesia and Southeast Asia, electricity is transmitted with alternating current at a frequency of 50Hz (change of polarity at 50 cycles per second). This gives rise to an alternating electric and magnetic field.

There follows a brief discourse on the status of knowledge concerning the influence of 50Hz electromagnetic fields on the environment. Investigations and research on these effects of low frequency electromagnetic fields have been more intensive worldwide from the early Seventies.

In the Federal Republic of Germany, with the establishment of the subcommittee "Electric and Magnetic Fields" in the Association of German Electricians (VDE), a forum for discussions has been created, in which an intensive exchange of experience and ideas takes place.

The International Radiation Protection Association (IRPA), a body working under the auspices of the World Health Organization (WHO), has initiated activities concerned with non-ionizing radiation by forming a working group in 1974. At the IRPA Congress in Paris in 1977, this working group became the International Non-Ionizing Radiation Committee (INRC). An excerpt of the "Guidelines for limiting exposure to time varying electric, magnetic, and electromagnetic fields" is given in **Section A.3**.

Magnetic fields have the property of penetrating the human organism. Low frequency fields which arise in connection with 50Hz alternating current can cause tissues and cells to enter into an excited state due to energy absorbed by the human body. If fields are intense, this can result in stimulation of nerves, muscles and organs.

The above effects are felt especially in the higher frequency range.

The general rule is that the higher the cycling rates of the alternating electromagnetic field, the more pronounced are its effects on health. High frequency fields in the range above 30,000Hz, which occur, for example, in communications in the form of radio waves, have a disproportionately high significance for the human organism, as these give rise to heating effects.

The biological effects of electric and magnetic fields depend primarily on their field strengths. Greater biological impact is ascribed to magnetic fields than to electric fields. Electric fields can be screened relatively easily, whereas magnetic fields are highly penetrating. Though electricity has intensively been used in industry and household for more than a century, as shown above, thorough scientific research on biological effects of electromagnetic fields has been conducted only in the last 25 years.

Today, among scientists there is still a considerable difference of opinion as to what degree of possible detrimental health influence caused by these fields.

There are several investigations and publications reporting a severe influence of electromagnetic fields, but the discussion about biological and health effects is still going on. The International Council on Large High Voltage Electric Systems (CIGRE), a permanent non-governmental and non profit-making international association based in France, publishes from time to time summaries of latest researches on bio- and health effects of electric and magnetic fields. An excerpt as of 1999 is given below:

Cancer
In October 1996 a large-scale evaluation was published in the U.S. (U.S. National Research Council EMF Committee, 1996) reviewing more than 500 studies from 1979 onwards. The report came to the conclusion that ‘no clear, convincing evidence exists to show that residential exposures to electric and magnetic fields (EMF) are a threat to human health’.

Some other epidemiological studies have demonstrated statistical associations between childhood cancer, especially leukemia, and proximity to power lines. However, childhood leukemia is a rare illness and the number of cases is very small what makes statistical statements very difficult. In addition, a statistical association is not synonymous with proof that a causal connection exists.

Although several studies show that leukemia and brain tumours are more common in ‘electrical occupations’, animal-experiment studies have failed to link exposure to electric or magnetic fields with an elevated cancer risk.

However, electric and magnetic fields have an influence on melatonin rhythm. Melatonin is a hormone formed in the pineal gland of the brain and it is known that it plays a role in the development of certain hormone-dependent types of cancer, such as breast cancer.

Reproduction
There is no evidence that electric or magnetic fields have any impact on fertility, miscarriage, malformations or other reproduction parameters in either animals or human beings.

Effects on nervous system
Soviet and Swedish studies suggest various symptoms, such as headache, tiredness, insomnia, mild depression, etc. arise among male switchyard workers. A possible mechanism can be the proven influence of electric and magnetic fields on melatonin excretion. Melatonin also controls sleep, wakefulness, and mood. One entirely new research

in this field is the possible connection of magnetic fields and certain forms of dementia, such as Alzheimer's disease. However, no actual direct influence of magnetic and electric fields regarding the diseases stated above has yet been demonstrated in scientific experiments or investigations.

The above given descriptions show that much research has been undertaken with contradictory results and some results that are often hard to interpret.

However, some large-scale research is now underway in Germany, USA, Canada, UK, and Sweden, and it is expected that knowledge in this field will grow substantially over the next few years.