National Transmission and Despatch Company (Pakistan)

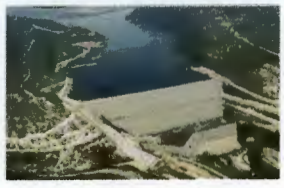
Open Joint Stock Holding Company (OJSHC) Barki Tojik (Tajikistan)

Da Afghanistan Breshna Sherkat (Afghanistan)

Joint Stock Company (JSC) National Electric Grid of Kyrgyzstan (the Kyrgyz Republic)

CASA-1000: Central Asia South Asia Electricity Transmission and Trade Project

Regional Environmental Assessment (REA), Summary



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Abbreviations

AC	Alternative Current
AC-DC	Alternative Current – Direct Current
ADB	Asian Development Bank
ARAMS	Avian Risk Assessment and Management Study
AusAID	Australian Agency for International Development
CAF	Central Asian Flyway
CAREC	Central Asia Regional Economic Cooperation
CASA-1000	Central Asia South Asia Transmission and Trade Project
CASAREM	Central Asia South Asia Regional Electricity Market
CGP	Consultation Guidance Plan
CoI	Corridor of Impact
DABS	Da Afghanistan Breshna Sherkat
DC	Direct Current
DC-AC	Direct Current – Alternative Current
DfID	Department for International Development
EAEAF	East Asian – East African Flyway
EPC	Engineering Procurement Construction
EMP	Environmental Management Plan
EA	Environmental Assessment
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Assessment
ESIA Consultant	Independent consultant conducting the country-specific ESIA
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
E&S	Environmental and Social
FATA	Federally Administered Tribal Areas
FS	Feasibility Study
GWh	GigaWatthour
HVAC	High Voltage Alternative Current
HVDC	High Voltage Direct Current
IBA	Important Bird Area
IEL	Integrated Environments Ltd
IEMC	Independent Environmental Monitoring Consultant
IGC	Inter-Governmental Council
IFI	International Finance Institution
IsDB	Islamic Development Bank
km	kilometer
kV	kiloVolt
kWh	kiloWatthour
LARPF	Land Acquisition and Resettlement Policy Framework
m	meter
MW	Megawatt
NESK	National Electric Grid of Kyrgyzstan
NGO	Non-Governmental Organization

NTC	National Transmission Company
NTDC	National Transmission and Despatch Company
OJSHC	Open Joint Stock Holding Company
OP	World Bank Operational Policy
PAC	Project Affected Communities
PAP	Project Affected People
PCR	Physical and Cultural Resource
pESIA	Preliminary ESIA
REA	Regional Environmental Assessment
RoW	Right of Way
SEA	Strategic Environmental Assessment
TL	Transmission Line
ToR	Terms of Reference
SIA	Social Impact Assessment
US	United States
USAID	United States Agency for International Development
UXO	Potential Unexploded Ordnance

List of Plans

AEMP	Aesthetics and Ecological Management Plan
APP	Avian Protection Plan
CIMP	Construction Impact Management Plan
CMP	Construction Monitoring Plan
CSP	Construction Supervision Plan
CRHMP	Community Relations and Health Management Plan
EMP	Environmental Management Plan
ESMP	Environmental and Social Management Plan
LAP	Land Acquisition Plan
PCP-CF MP	Physical Cultural Property – Chance Finds Management Plan
PMP	Pollution Management Plan
SaMP	Safety Management Plan
SMP	Social Management Plan
SPRMP	Site Preparation and Restoration Management Plan
RAP	Resettlement Action Plan
WMP	Waste Management Plan
WSIMP	Workforce and Site Installation Management Plan

1 Introduction

1.1 Project Context

This document presents the summary of the Regional Environmental Assessment (REA) for the CASA-1000 electricity trade project and is produced as a separate document to allow translation to the national languages and sharing amongst the stakeholder groups.

The development of the Central Asia South Asia Regional Electricity Market (CASAREM) is envisaged as a phased development of institutional arrangements and infrastructure to link Central Asia's surplus energy resources with South Asia's energy shortages and growing demand. It offers an opportunity to alleviate poverty in some of the poorest parts of the world (such as Tajikistan, Afghanistan and Pakistan's border areas), contribute to stability and growth in Afghanistan, and boost inter-dependent prosperity in all the countries involved. Lessons from initial phases can serve to attract private investment to further develop the region's energy and mineral resources, and the necessary human and transport infrastructure, paving the way for a modern day revival of historical trade routes.

The proposed CASA-1000 project (Project) will facilitate the first electricity trade of 1,300 megawatts (MW) of existing summertime hydropower surplus between the two regions, involving Kyrgyz Republic and Tajikistan in Central Asia and Afghanistan and Pakistan in South Asia. Project preparation is advancing, building on guidance from the 4-country minister-level Inter-Governmental Council (IGC) with a Secretariat that was put in place in 2011 and through consultations with the 10-member Central Asian Regional Economic Cooperation (CAREC) program. The Project is expected to consist of the construction and operation of transmission infrastructure in the four countries, associated technical assistance during implementation, and mechanisms for the sharing of benefits with communities along the transmission corridor. It is of strategic importance for both regions that would help alleviate power supply shortages in Pakistan and Afghanistan and enhance revenues and economic prospects in the Kyrgyz Republic and Tajikistan (and open up new and complementary electricity markets).

The CASA-1000 has been under preparation for a number of years and has therefore been the subject of several Environmental & Social (E&S) investigations.

1.2 Environmental & Social Assessments Reports to Date

The Project Environmental & Social (E&S) investigations and studies (Figure 1-1), include:

- Environmental and Social input to the initial Feasibility Study work;
- In December 2010, the World Bank awarded a contract to Integrated Environments (2006) Ltd. (IEL) of Canada to complete an Environmental and Social Impact Assessment and Environmental & Social Management Plan (ESIA/ESMP) of the Project;
- Project Feasibility Study Update by SNC Lavalin, February 2011 (updating previous studies by SNC);
- An Avian Risk Assessment and Management Study (ARAMS) by Normandeau;
- A Social Impact Assessment (SIA) undertaken in 2012, which reported on the social and community aspects through targeted consultation and early work around potential community benefit sharing initiatives; and
- A range of consultations have been undertaken on the project since its development concept; these are reported on in this REA and will be updated following consultations on the draft REA, for incorporation into the final version of the REA.

The main report preceding the REA is the ESIA, which is briefly summarised below and which forms the majority of investigative work on the E&S aspects of the Project.

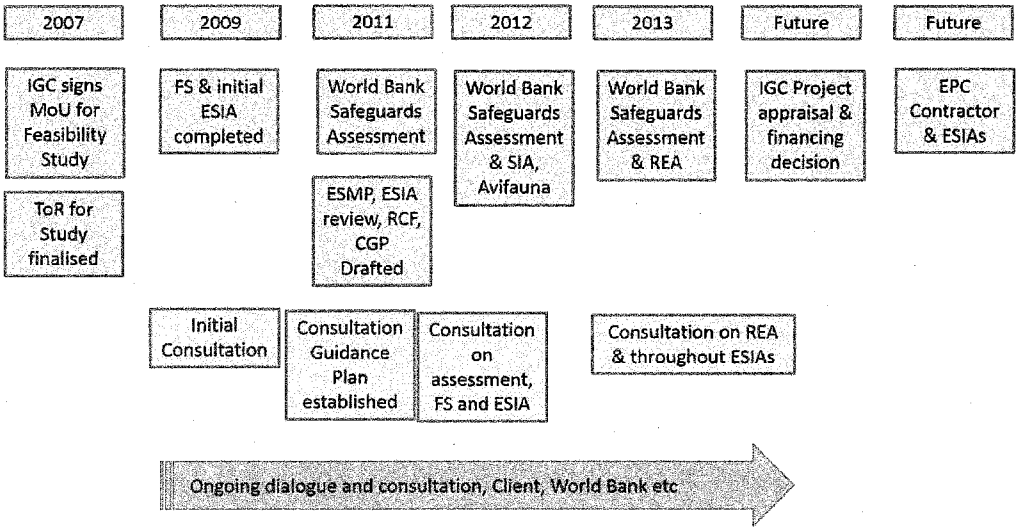

Figure 1-1 Chronology of the Project to date

1.2.1 Environmental and Social Impact Assessment

The objectives of the Environmental and Social Impact Assessment – Feasibility Stage were to:

- Produce one document summarizing, analysing and assessing all environmental and social information available to date on the Project;
- Summarize existing social and environmental impact assessments and identify, where possible, additional data which needs to be collected during the implementation of the ESMPs prior to the construction phase;
- Describe and provide analysis of environmental and social Alignment Sheets that document environmental and social concerns along the entire 1200 km Right of Way (RoW) corridor of the Project; and
- Prepare country-specific preliminary ESIAs (pESIAs) for each of the four participating countries.

1.2.2 Avian Risk Assessment

The objectives of the Avian Risk Assessment and Management Study (by Normandeau) were to provide a preliminary diagnostic of the avian risks associated with the Project and determine the need for additional studies or provide justification for concluding that the avian risk level is sufficiently low that no further studies are required.

The work used existing data sources on species occurrences; their susceptibility to collisions and electrocutions; locations of important habitats; and GIS data on the general transmission line corridor location. Sufficient information was available to identify general locations of the CoI that intersect with recognized areas of conservation interest, such as Important Bird Area (IBA) and Ramsar sites, to assess the potential impacts of the transmission line in these areas and to determine the need for additional studies during the preparation of the country-specific ESIAs..

1.3 Purpose of this REA

1.3.1 Introduction

This assessment is a Regional Environmental Assessment (REA), which by definition is an 'impact-centred' Strategic Environmental Assessment (SEA). REAs are instruments that examine environmental issues and

impacts associated with a particular strategy, policy, plan or programme or with a series of projects for a particular region or sector (e.g. power transmission, as is the case with CASA-1000).

The body of E&S assessment work is more detailed than a typical Strategic or Regional Environmental Assessment, but not as detailed as a project-specific or country-specific evaluation. This latest assessment is termed a REA, to encapsulate all the previous study components, whilst at the same time bringing the work up to date, with additional evaluation and incorporation of the avifauna work and overall consultations undertaken on the cumulative body of assessment work.

The ESIA and REA summarize potential primary impacts from construction of transmission lines within a broader corridor of 2 km width. The final routing/alignment of transmission lines and exact location of DC-AC converters, substations and footings for towers would be defined later by the Engineering, Procurement & Construction (EPC) Contractor(s) after carrying out detailed route surveys and a consideration of the site-specific environmental and social aspects through further individual ESIAs in each country. These country specific ESIAs will have to be approved by Borrowers and the WB, therefore, it was agreed that a framework approach would be the appropriate one.

The typical approach in sequential ESIA is one of 'funnelling' through progressive analysis, whereby at a strategic or regional level, the project and its components are screened and analysed to reach an acceptable configuration. Successive iteration is then undertaken at a country or site-specific level, which can also scrutinise in-situ Environmental or Social sensitivities, land use and ownership etc. and also crucially the construction and operational aspects. Consequently, at this stage, it is practicable to conclude that the selection of the 2km wide corridor is broadly acceptable from an E&S perspective and that this should form the basis of the subsequent country-specific ESIAs conducted by independent consultants ('the ESIA Consultants'). However, one or more of the participating countries may be introducing changes to the Transmission Line routing. In anticipation of this possibility, the REA provides additional guidance to allow the requisite E&S analysis to be undertaken to avoid and/or minimize potential adverse environment and social impacts, so that progressive ESIA is achieved for the project.

1.3.2 Report Limitations

The REA is prepared based on existing information, (namely the IEL ESIA, the Feasibility Study and the avifauna report), without additional fieldwork or collection of new information. However the results from consultations on the draft REA are to be incorporated into the final version of the REA.

Additional analysis of the Alignment Sheets (based on the 6m resolution satellite imagery) used for the ESIA were conducted to try to recover any additional information to strengthen the assessment. Analysis of the Alignment Sheets revealed little useful extra detail that could be of use in the REA.

There are known to be security, fragility and other related issues in areas of Afghanistan and Pakistan, however no specific information is available at this stage to draw conclusions in the REA.

The IEL ESIA did not specifically cover the social impacts separately or in a very comprehensive manner, mainly due to the nature of the assessment, which was at a 'higher' level. The social and community assessment predominantly consisted of the identification of settlements along with some commentary, from analysis of the satellite imagery. This information was supplemented by a number of representative field visits to sections of the TL route, to collect data on the populations and some information on infrastructure. Thus it commented, for example, on whether the TL routing crossed sparsely populated areas or more densely populated areas within each of the Project countries.

However the overall analysis is not comprehensive, as it did not, for example, identify and evaluate the amount or type of land that would be required temporarily or permanently, or any quantum of associated resettlement. This level of analysis was commensurate with the feasibility level of Project design, which identified only a corridor within which the TL and its infrastructure would be constructed, and as explained elsewhere, this actual corridor can be expected to be modified during the detailed design process and following pre-construction walk

over surveys. On a wider basis, identification and analysis of potential impacts during construction such as: the number of people potentially affected by the Project or their final proximity to the infrastructure or TL; the number of workers that can be employed; the amount of land that is required; the location and length of either temporary or permanent access roads; any compensation arrangements; and a range of other issues will be assessed during the forthcoming ESIAs in each Project country.

In this REA it is consequently not feasible to present a comprehensive social impact assessment, from the information supplied that is to be used for the report. In a similar manner, this REA has no background data on a range of aspects such as security or fragility of the communities that can be presented or analysed. The ESIA also contains no information on physical cultural resources and related aspects and these are required to be evaluated during the forthcoming country-specific ESIAs, through field work, surveys and consultations with the relevant organisations and communities. Once the route of the transmission line is finalized, a detailed screening for protected sites of cultural significance will be conducted in each country as part of the country-specific ESIAs.

The initial screening of the route has not revealed any important Physical Cultural Resource (PCR) from a national and global perspective. The final routing and alignment of the transmission line will be detailed in the country-specific ESIAs and will avoid damaging PCR if any, or restricting access to them. Special precautions will be detailed in the country-specific EMPs with specific mitigation measures and provisions for the use of chance find procedures, if encountered.

1.3.3 Disclosure and Consultation of the REA

This draft REA Summary will be available in English as well as in countries' respective local languages, namely Pashto, Dari, Urdu and Russian. The main REA will be available in English and in Russian. All four participating countries, will then disclose the entire REA summary and the entire main REA in their respective countries in different project locations which are easily accessible by Projected Affected People (PAP). Information about the availability of this draft Summary of the REA will be disclosed in the respective local media. Additionally, the entire REA Summary and the entire main REA reports will be posted on the websites of the respective implementing agencies and in the Bank Infoshop. The Governments will then organize public consultations, results of which will be incorporated in the revised REA Summary and in the main REA. The final revised reports will be re-disclosed in all locations.

2 Project Description

2.1 Project Overview

The Project consists of two separate HVAC and HVDC components:

- A High Voltage Alternate Current (HVAC) 500 kV line from Datka to Khujand (477 kilometers) to transfer the surplus power from the Kyrgyz Republic to Tajikistan; and a 500 kV line from Regar to Sangtuda to strengthen Tajikistan's grid network for power evacuation. Population centres have been avoided as much as possible, as are enclaves of Uzbekistan and Tajikistan located within Kyrgyz Republic boundaries.
- A High Voltage Direct Current (HVDC) transmission system, including a 500 kilovolt (kV) line with a capacity of 1,300 MW from Sangtuda to Peshawar via Kabul (750 kilometers); 1,300 MW alternating current to direct current (AC-DC) converter station in Sangtuda, a 1,300 MW DC-AC converter station in Peshawar; and a 300 MW DC-AC converter station in Kabul; Key population centres along the route include Kabul, as well as the towns of Kunduz, Baghlan, Pul-e-Khumri, Raqi, Mehtar Lam and Jalalabad. Wherever possible population centres will be avoided.

The Project has been assigned Category A by the World Bank for the purposes of environmental assessment, with an estimated budget of around US$1,000 Million.

The Project will utilise only existing available power and does not involve the construction of any additional generating capacity, nor modifications to current operating regimes and therefore will have no impact on water resource management or operational arrangements in the participating countries.

2.2 Country Energy Demand/Production Capacity

2.2.1 Kyrgyz Republic

The Kyrgyz Republic's existing system is mainly hydro (3,030 MW, 81 %), with some thermal plants (716 MW, 19 %) providing additional power generation capacity in dry seasons and peak periods.

The hydro system relies on the Toktogul reservoir and hydro power plant (1,200 MW, 5,110GWh/year). Downstream plants benefit from Toktogul's turbined outflow as a regulated inflow, and provide a considerable amount of annual energy (7,235 GWh).

2.2.2 Tajikistan

Tajikistan possesses considerable hydropower resources with hydropower potential of the country (mainly in the south) estimated at 527 billion kWh per annum. The considerable hydropower potential of the country could allow the country to increase power sales and exports and develop energy-intensive industries.

2.2.3 Afghanistan

Presently, the Afghan power system is connected to those of its Northern neighbours; the Central Asian Republics of Tajikistan, Turkmenistan, and Uzbekistan. The total installed generation capacity in Afghanistan is about 475 MW including 261 MW from hydropower, 151 MW from thermal and 63 MW from diesel engines.

With a fast growing population of 4 to 5 million people, Kabul is facing erratic power supply due to years of war and chaos in the country. The lack of development of power supply infrastructure over the previous years has also compounded the problem of electricity supply to the region.

2.2.4 Pakistan

The electricity sector of Pakistan is facing acute shortages in supply which have led to power outages on a large scale. At the end of financial year 2008-09, the total installed generation capacity in the country was 20,306MW. The share of thermal, hydro and nuclear capacities was 13,370 MW, 6,474 MW and 462 MW respectively.

The electricity demand in Pakistan is growing at a rapid pace due to an increase in the population and an increase in the demand for power in all sectors of the economy.

2.3 Description of Project Components

The proposed transmission line (TL) corridor has been established, based on a site reconnaissance and preliminary Environmental and Social Impact Studies.

The 500 HVAC Transmission Line route begins at the Datka substation in the Kyrgyz Republic and terminates at the Khoudjand substation in Tajikistan. The total length of the transmission line is 477 km, out of which 452 km passes in the South-Western Kyrgyz Republic and the remaining 25 km lies in Tajikistan. A 500 kV line from Regar to Sangtuda will strengthen Tajikistan's grid network.

The 500 HVDC Transmission Line route begins at the Sangtuda Hydropower Plant in Tajikistan and extends south, crossing into Afghanistan near Nizhny. From there, the corridor proceeds via the Salang Pass and Charika to the outskirts of Kabul. From Kabul the corridor goes east to Peshawar (Pakistan) via Jalalabad (Afghanistan). Key population centres along the route includes Kabul, as well as the towns of Kunduz, Baghlan, Pul-e-Khumri, Raqi, Mehtar Lam and Jalalabad. HVDC Converter stations are proposed at Sangtuda-1 (1300 MW), Kabul (300

MW) and Peshawar (1300 MW). The route traverses 117 km in Tajikistan, 562 km across Afghanistan and finally 71 km in Pakistan.

The Right of Way (RoW) is the strip of land along either side of the centreline; typically up to 50-60m wide (20 to 30m on each side of the centreline). Vegetation within the RoW is not allowed to grow to a height above 4 m and no permanent structures shall be constructed within the RoW. A suitable location for a ground electrode close to the converter station, but at least 5 km away must be found.

At the feasibility stage neither the final centreline of the TL, nor the final location of towers has been identified. The route is shown in Figure 2-1 and Figure 2-2.

Internationally accepted design standards/codes will be used for the Project and internationally accepted standards, guides from IEEE, IEC or CIGRE and best industry practices are to be utilised in the design of the converter stations and ground electrodes.

A minimum of five tower types are required for the line: Tangent Suspension, Small Angle, Medium Angle, Heavy Angle and Terminal Tower.

2.4 Construction Aspects

Based on the low level of interest from the private sector in developing and investing in a complex multi-country project in a security-challenged region, the four countries have decided to implement CASA-1000 as a public sector project through their respective national transmission companies with support from International Finance Institutions (IFI) and other donors.

The implementing agencies are the four National Transmission Companies (NTCs) in their respective countries, which will be responsible for (i) establishing the transmission infrastructure for the CASA-1000 Project, (ii) operating and maintaining the AC system in their countries; and (iii) coordinating with the DC system operator for smooth operation of the overall CASA-1000 system.

Local residents will be hired when possible and workers will be transported to and from residences.

Tower foundations will be constructed in reinforced concrete and the foundation will be "pad and chimney" foundations will be approximately 2.5 m x 2.5 m x 2.5 m. Stringing of conductors and overhead ground wires will be done with the "tension" method.

The amount of workers will vary throughout construction activities. Typically 10% of workers may be expatriate specialists, 20 to 30% would be local skilled staff and the remainder will be general labour. Operation and Maintenance Arrangements Common repairs needed on transmission lines include: vegetation overgrowth, cracked/broken insulators, minor washouts of foundation backfill and missing tower members. Emergency repairs may be required throughout operation of the TL due to accidents, violent storms, etc.

The approximate number of towers expected to be required in each country is as follows: Kyrgyz Republic - 1050; Tajikistan - 610; Afghanistan - 1200; and Pakistan 150. The Contractor will adopt best practice industry standards during construction and ensure public safety at all times. The TL and all towers will be inspected annually to determine the maintenance needs.

Figure 2-1 HVAC Transmission Line Kyrgyz Republic- Tajikistan

Figure 2-2 HVDC Transmission Line Tajikistan-Afghanistan-Pakistan

2.5 Summary Description of Proposed Implementation Arrangements

To make this project a reality, the Kyrgyz Republic, Tajikistan, Pakistan, and Afghanistan have signed an Inter-Governmental Agreement and established an Inter-Governmental Council with a Secretariat based in Almaty, Kazakhstan. In addition to the commitment of these four countries, CASA-1000 is proposed to be financed by the World Bank Group, Islamic Development Bank, and possibly by other donor agencies such as United States Agency for International Development (USAID), US State Department, United Kingdom Department for International Development (DfID), Australian Agency for International Development (AusAID)..

The FS concluded that the project can be completed within a minimum of 58 months (five years). EPC contractor(s) will be engaged to advance the project, including finalisation of design, procurement of materials and construction. In parallel will be conducted the additional ESIA work by the ESIA Consultants most probably at a country and project site level.

The NTC in each country will have overall responsibility for environmental and social performance of the Project, including: day to day supervision and management of all aspects of project preparation and construction; coordination with local authorities to facilitate the participation of local communities and PAPs during project preparation and implementation; ensuring that the requirements of World Bank safeguards policies (and other potential IFI lender requirements) are met and that all measures set out in the Project EMP, the respective ESIAs and other relevant documentation are implemented.

The implementing agencies are the four National Transmission Companies (NTCs) in their respective countries who will be responsible for (i) establishing the transmission infrastructure for the CASA-1000 project, (ii) operating and maintaining the AC system in their countries; and (iii) coordinating with the DC system operator for smooth operation of the overall CASA-1000 system. These companies are:

- National Transmission and Despatch Company (NTDC, Pakistan)
- OJSHC Barki Tojik (Tajikistan)
- Da Afghanistan Breshna Sherkat (DABS, Afghanistan)
- JSC National Electric Grid of Kyrgyzstan (NESK, the Kyrgyz Republic)

Barki Tojik in Tajikistan has successfully implemented the cross-border 220kV transmission line from Nurek to Pul-e-Khumri under ADB financing, and the 220kV line in the Rasht region under IsDB financing.

NESK in Kyrgyz Republic has successfully implemented a 220 kV transmission line from Aigul-Tash to Samat and an another 500 kV line with associated substations both under IsDB financing, as well as a Chinese-funded 500 kV transmission line from Datka to Kemin and from Kemin to Osh with associated substations.

NTDC in Pakistan is implementing a distribution and transmission improvement project and a hydropower extension project with full safeguard assessment under World Bank safeguard policies.

DABS of Afghanistan is currently preparing two Bank-supported projects, including a category A hydropower rehabilitation project and is receiving capacity-building accordingly.

The institutional capacities of the above mentioned NTCs will be further assessed during preparation of the country specific ESIAs (see discussions under OP 4.01 below) and, if needed, appropriate country-specific capacity building measures will be incorporated in the respective Environmental Management Plans (EMPs).

3 Applicable Policy, Legal and Administrative Framework

3.1 Introduction

Within the ESIA undertaken to date, the legal framework for each of the four countries was reviewed and presented as part of each of the country-specific pESIAs that were included in the document. The overall ESIA also presented information on the World Bank guidelines and requirements. According to the latest Integrated Safeguard Data Sheet on CASA-1000 released by the World Bank, the following policies are triggered:

- WB OP 4.01 – Environmental Assessment;
- WB OP 4.04 – Natural Habitat;
- WB OP 4.36 – Forests; and
- WB OP 4.12 – Involuntary Resettlement. .

This REA presents additional detail on the relevant legislation within the participating countries, provided by World Bank staff in the regional offices (see following text). As with all World Bank projects, the standard of the safeguards that will be applied will be those of the Bank, applying over and above any lesser standards that individual country may have. Any gaps or conflicts between the two sets of standards will be fully expounded in the subsequent country-specific ESIAs and there are mechanisms in place to ensure that the more rigorous standard is adhered to. This is particularly the case in aspects like public consultation and potential resettlement, whether that be actual physical resettlement of residences or more likely, compensation and other arrangements for loss of or interruption to agricultural activities.

3.2 National laws and regulations

3.2.1 Kyrgyz Republic:

Environment policy of the Kyrgyz Republic is anchored in the 1995 National Environment Action Plan (NEAP) which effectively shaped the evolution of the country's environmental laws and regulations. The two most significant pieces of legislation being the Law on Environmental Protection (No. 53 of June 16 1999) and Law on Ecological Expert's Review (No. 54 of June 16 1999).

The Law on Environmental Protection requires that in the process of designing, placing, construction, re-construction, putting into operation facilities, and other activities having a direct or indirect impact on environment, the actions for protection, use and restoration of the environment and natural resources shall be identified and undertaken "according to ecological norms". The Law also requires that an EIA be prepared for a planned activity (Article 17).

The Law on Ecological Expert's Review states that EIA means the identification, analyses, assessment, and taking into consideration possible impacts of development activities (Article 1). Article 10 defines the activities that require EIA and the process for the project proponent to undertake the EIA.

Once prepared the EIA is reviewed by the authorized government body on environmental protection (Agency on Environment Protection and Forestry – Department of Ecological Expertise). The final EIA shall be the statement on ecological consequences of a project or planned activity and contain guarantees for adoption of the actions to ensure protection of the environment and ecological safety throughout the implementation of the project or planned activity.

According to both laws the public has the right to organize and conduct its own Ecological Expert Review of the proposed projects and/or provide comments on the decisions made by the Department of State Ecological Expertise.

The supervision of EIA implementation is the responsibility of the State Inspection on Environmental and Technical Safety of the Kyrgyz Republic. This body has its regional branches which are responsible for state control in the areas of: labour safety, construction, exploitation of mineral resources, radiation and environmental protection, including on land and biological resources.

3.2.2 Tajikistan

The State Environmental Committee (SEC) is the key institution responsible for the establishment and implementation of environmental policy and EA in Tajikistan. The rules and procedures of the Environmental Impact Assessment are specified in the "Law on Environmental Protection" and the "Law on Ecological Expertise". The EIA studies have to be reviewed and approved by the State Ecological Expertise which is part of the SEC. Supervision and enforcement of the EIA is also the responsibility of the SEC as well as of its regional branches.

The Law on Environment Protection was adopted in 2011 (21 July, 2011, № 208) and defines the applicable legal principles, the protected objects, the competencies and roles of the Government, the SEC, the local authorities, public organizations and individuals. The Law also stipulates measures to secure public and individual rights to a safe and healthy environment and requires a combined system of ecological expertise and environmental impact assessment of any decision on an activity that could have a negative impact on the environment. According to the law the citizens have the right to live in a favourable environment and to be protected from negative environmental impacts. Citizens also have the right to environmental information, as well as to participate in developing, adopting, and implementing decisions related to environmental impacts.

The Law on Ecological Expertise provides rules and procedure for the state ecological review (literally, state ecological "expertise" – SEE) which seeks to examine the compliance of proposed activities and projects with the requirements of environmental legislation and standards and ecological security of the society. It stipulates the mandatory cross-sectoral nature of SEE, which shall be scientifically justified, comprehensive, and objective and which shall lead to conclusions in accordance with the law. SEE precedes decision-making about activities that may have a negative impact on the environment. Financing of programs and projects is allowed only after a positive SEE finding, or conclusion, has been issued.

3.2.3 Afghanistan

The current legal and procedural framework for implementing Environmental Impact Statements in Afghanistan is laid out in the Environmental Law (Jan 2007), the National Environmental Impact Assessment Policy (November 2007), and the Interim Environmental Impact Assessment Regulations (March 2008). Additionally, the Interim-Administrative Guidelines for the Preparation of Environmental Impact Assessments (June 2008) are also in development, aimed to guide project proponents through the Interim-EIA process.

The Interim EIA regulation is currently applicable but NEPA has undertaken the EIA regulation review process with key stakeholders and in 2013 extensive discussions with stakeholders will hopefully help in strengthening the regulation further.

Legislation pertaining to Environmental Impact Assessments is contained in Chapter 3 of the Environmental Law, *Management of Activities Affecting the Environment*.

Overall, the effective implementation of international standards on ESIA are considered challenging and compounded by issues such as national security; tribal and land ownership traditions; the rule of law *per se* and other factors within an on-going conflict area.

3.2.4 Pakistan

Prior to enactment of the 18th Amendment to Pakistan's Constitution in 2010, the federal government had enacted the Pakistan Environmental Protection Act (PEPA), 1997, which established a comprehensive framework for environmental management. The 1997 law, which is applicable to numerous forms of pollution,

empowered the Government of Pakistan to develop and enforce regulations to protect the environment. Among other things, PEPA, 1997 included provisions for creating Provincial Sustainable Development Funds, establishing environmental tribunals, and developing an EIA system.

Other key legislation includes the Environmental Protection Agency (Review of IEE/EIA) Regulations, 2000 which define the procedures for categorization, preparation, review and approval of environmental assessments reports of all developmental projects.

Key institutions responsible for the establishment and implementation of environmental policy in Pakistan are a Climate Change Division and its Pakistan Environmental Protection Agency and provincial Environmental Protection Agencies.

3.3 Summary Requirements of the applicable World Bank Policies

Key requirements of the World Bank OPs that are applicable to CASA-1000 are summarized below.

3.3.1 Environmental Policies

Environmental Assessment OP/BP 4.01

The project is rated Category A because it involves greenfield construction of a long span of high voltage overhead Transmission Lines (TL), some of it through potentially sensitive areas.

The final package of environmental assessment documents for the project will include: (i) prior to appraisal, an REA providing general information for the whole project area and a guidance framework for preparing country-specific ESIAs and site-specific plans; (ii) during implementation, a country-specific ESIA/EMP for each country; and (iii) site-specific EMPs and site management plans to be prepared by the EPC Contractor(s) and approved by the NTCs, the respective national agencies and the World Bank.

Country-specific ESIAs will be prepared based on the REA and public consultations will be held in each of the four countries on the Terms of Reference for preparation of the ESIAs and on the ESIAs themselves. In addition, as this is a Category A project, the REA will be disclosed in-country and in Infoshop when finalized, with an Executive Summary submitted to the Board prior to appraisal.

During project implementation, the standard disclosure and consultation requirements will apply for the country-specific ESIAs and site-specific EMPs, including disclosure both in-country and in Infoshop. All requirements for preparation, disclosure and consultation on ESIAs/EMPs will be met prior to commencement of construction works to which they relate.

The current practices for maintenance of the right of way of the transmission line and facilities have been reviewed for each country with respect to the use of pesticide or chemicals. The four countries have confirmed that no chemicals or pesticide would be used for that purpose.

The initial screening of the route has not revealed any important PCR from a national and global perspective. The final routing and alignment of the transmission line will be detailed in the country-specific ESIAs and will avoid damaging PCR if any, or restricting access to them. Special precautions will be detailed in the country-specific EMPs as part of OP 4.01 with specific mitigation measures and provisions for the use of chance find procedures, if encountered.

Natural Habitats OP/BP 4.04

This project is not expected to cause significant impact to critical and natural habitats based on the nature of the project investments and the results of the preliminary ESIA. However, the Avian Risk Assessment and Management study identified several Important Birds Areas and Ramsar sites within the project area that need to be considered during the detailed design phase and as part of country-specific environmental and social assessments to be prepared. Furthermore, during the construction phase (and potentially during the operations stage), there will be some cutting of vegetation for right-of-way maintenance and for access roads and other

associated facilities. The construction and operation may also cause disturbance or increased pressures to fauna. All these would require developing relevant mitigation and monitoring activities which are being considered in the preparation of the REA as well as in the country specific ESIAs and EMPs under OP 4.01. Specific measures may include alternative alignments to avoid natural habitats, avian protection measures on cables and towers, prohibiting wildlife hunting, and minimizing impacts to habitats from operation and maintenance of lines, among other potential measures.

Forests OP/BP 4.36

This project is not expected to cause significant impact to critical and natural forests. While the project does not include any plantation activity, commercial harvesting or harvesting conducted by small-scale landholders or local communities, it might require tree cutting during construction and maintenance of the right of way. This presence of forests is being considered in the context of OP 4.01. in the preparation of the REA at the scale of the project, and in country-specific ESIAs and EMPs at a more local scale. Measures would be included in the EMP's to avoid or minimize impacts to forests if any are identified in the project area.

3.3.2 Social Policies

Indigenous Peoples OP/BP 4.10

OP/BP 4.10 on Indigenous Peoples is not triggered for CASA-1000 since communities in the project area in the four project countries, both within and along the transmission lines corridors, do not fall under the definition of indigenous people as stated under OP 4.10 (paragraph 4 in defining indigenous peoples). However, considering the unique characteristics of the ethnic groups in the project areas, particularly the tribal communities in Afghanistan and Pakistan, the project has carried out desk research as well as some field surveys to identify these communities and understand their socioeconomic conditions, unique cultural and institutional systems. These are summarized in the various field reports and the Social Impact Assessment. The countries will ensure effective consultations with these communities of different ethnicities, and ensure culturally appropriate benefits for these communities. Necessary mechanisms and measures will be incorporated into the project design to ensure their participation, mitigation of any possible adverse impacts upon them and benefit-sharing arrangements under the project.

Involuntary Resettlement OP/BP 4.12

OP 4.12 is triggered due to the potential need for land acquisition related to the various components of the transmission system; the existence of physical structures that might have to be removed; and the possibility that affected settlements might have to be physically relocated.

Because the precise locations of the tower footings and alignment of the transmission lines are not yet determined, the exact scope of the impacts cannot be determined until the technical designs are finalized. Also, since the relevant national policies, laws, institutions and conditions differ in each country, separate Land Acquisition and Resettlement Policy Frameworks (LARPF) have been prepared as a condition of World Bank appraisal to guide the land acquisition/resettlement planning process. Based on the LARPFs for each of the four countries, specific Resettlement Plans and/or Land Acquisition Plans will be prepared as required when precise details of transmission line locations (alignment, locations for pylons, substations and other structures) are available.

4 Baseline Data

4.1 Introduction

The baseline data comprises that presented in the Feasibility Study; ESIA; the Avian Risk Assessment, and SIA, supplemented by web-based searches during the REA. The majority of the baseline data are contained within the pESIAs, the avifauna study (Annex 2) and also the SIA and are all referenced in Annex 3 to this REA. In

addition, many of the elements of the infrastructure, such as the exact TL alignment and the positioning of towers and bases will be 'fine-tuned' during the detailed design stage following appointment of the EPC Contractor(s) and respective national ESIA Consultants. Roles and responsibilities of EPC Contractor(s), national ESIA Consultants and respective project implementing agencies (the NTCs) in finalizing the TL routes, tower designs etc. are elaborated in the REA. The existing ESIA already contains country-specific pESIAs, based on the level of infrastructure development detail established to date and E&S data obtained from satellite imagery, some ground-truthing and site survey and consultations in each country. Nonetheless, this 'hybrid' REA presents information on the baseline data established to date and possible gaps that could be filled for a more comprehensive assessment of potential E&S impacts and their mitigation.

Subsequent to the pESIAs and ESIA, a Social Impact Assessment (SIA) has been prepared by the NTCs to supplement the existing work completed under separate studies. Initial field consultations have been carried out in the Project areas regarding local community perceptions of the project and their views, concerns, and recommendations on what the project can support in the form of local area development. The initial stages of the SIA comprised a preliminary assessment of potential effects and an initiative for benefit sharing, by considering outline initiatives that could be implemented to assist community development and foster a positive relationship with the Project.

The IEL ESIA does contain information on gap analysis, which together with guidance in the EMP, outlined the main gaps, such as the need to establish a final centreline for the TL; identify the final positioning and layouts for the towers; finalise vegetation clearing and treatment plans; and a whole range of information and dialogue that is required as part of the social component, for consultation and resettlement planning.

At this stage, considering that the routing corridor is generally established, the independent ESIA Consultants will conduct individual ESIAs, and other aspects working alongside the EPC Contractors, and it will be possible to close any gaps in information during the subsequent ESIAs and analyse alternatives if necessary to the routing in coordination with the design team.

4.2 Project Wide

In general, the land across large sections of the Project route is characterised by steep mountainous terrain, often in semi-arid conditions and very limited or no agricultural activity across large swathes. The route through Afghanistan is very remote and very sparsely populated, whereas in Pakistan some areas along the route are more densely populated, particularly around locations of military significance such as Peshawar and Machi. There are stretches of agricultural lands with a number of population centres in the vicinity of the route.

From an avifauna perspective the Project route lies within two international flyways, through which bird populations traverse on seasonal migratory movements. However, the Project footprint occupies a very small percentage of these overall overlapping areas (Figure 4-1), such that the presence of the Project is highly unlikely to have an adverse effect *per se*. This conclusion was presented by the avifauna specialists in the avifauna report, based on factors of scale, whereby the flyway is not a precisely defined area, but a wide zone through which birds pass on migration and the Project TL represents a very small part or area of that entire flyway.

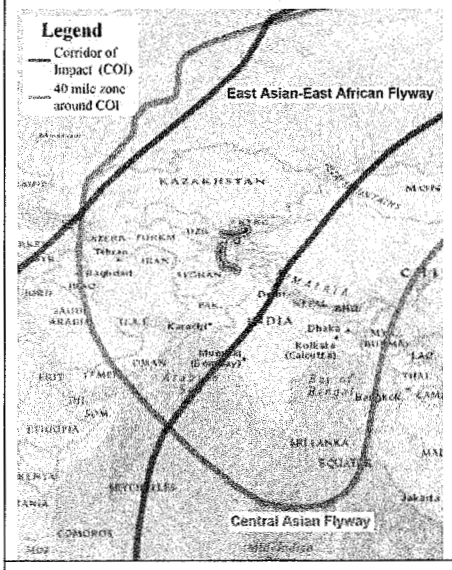

Figure 4-1 Map showing the relationship of the CASA-1000 study region and proposed corridor of impact to the Central Asian Flyway and the East Asian-East African Flyway

Figure 4-2 IBAs, Ramsar site Tajikistan, Afghanistan border region

Within the entire Project footprint there are five Important Bird Areas (IBAs) and one Ramsar site and these are addressed in the REA based on current known information and will be evaluated in detail in the subsequent country-specific ESIAs. Figure 4-2 shows the IBA and Ramsar site at the border between Tajikistan and Afghanistan; other IBAs lie close or within the wider CoI and will be evaluated in the ESIAs.

Central Asian Flyway (CAF)

The CAF is used by 279 migratory waterbird populations of 182 species, including 29 globally threatened and near-threatened species that breed, migrate, and spend the nonbreeding (winter) period within the region. Species such as the critically endangered Sociable Lapwing (*Vanellus gregarius*), endangered White-bellied Heron (*Ardea insignis*), vulnerable Black-necked Crane (*Grus nigricollis*), and Indian Skimmer (*Rynchops albicollis*), as well as Barheaded Goose (*Anser indicus*), Ibisbill (*Ibidorhyncha struthersii*), and Brownheaded Gull (*Larus brunnicephalus*) are completely (or largely) restricted to the CAF region.

East Asian–East African Flyway (EAEAF)

The EAEAF is used by more than 330 species of migratory birds, including 20 globally threatened species and an additional 13 near-threatened species. In addition to some of those mentioned above as using the CAF, globally threatened species using the EAEAF include the critically endangered Northern Bald Ibis (*Geronticus eremita*).

Internationally Recognized Avian Habitats

There are two habitat categories that are internationally recognized as high bird use areas including:

- Important Bird Areas (IBA). These are key bird sites for conservation that are small enough to be conserved in their entirety, often already part of a protected area network, and have more than one of the following characteristics: attract significant numbers of one or more globally threatened species,) are one of a set of sites that together hold a suite of restricted-range species or biome-restricted species,

and/or) have exceptionally large numbers of migratory or congregatory species. The program to identify such areas was initiated by BirdLife International.

- Ramsar Sites. These are wetlands of international importance designated by the contracting parties under the convention on wetlands of international importance the Ramsar Convention. These sites meet one or more of the Ramsar criteria. The Ramsar Convention is the only global environmental treaty that deals with a particular ecosystem (i.e., wetlands).

4.3 Kyrgyz Republic

The Kyrgyz Republic is a landlocked, mountainous country in Central Asia, bordered by Kazakhstan to the north, Uzbekistan to the west, Tajikistan to the southwest, and China to the east. Formerly part of the Soviet Union, the country gained independence in December 1991 as the Republic of Kyrgyzstan, but officially changed its name to the Kyrgyz Republic in 1993. The population as of 2011 was just over 5.5 million. The Kyrgyz Republic is a low income country, largely dependent on agriculture, and with high levels of poverty and weak human development indicators. There are Uzbek and Tajik enclaves, which will be avoided by the Project routing.

The Project design includes a 477 km 500 kV line from the Kyrgyz Republic south to Tajikistan. Of this total, 452 km runs through the Kyrgyz Republic. The route generally traverses areas of low population densities through the three southern provinces of Jalal-Abad, Osh and Batken and thus the potential social impact is expected to be extremely low.

From a land category and land use perspective the route traverses mountainous terrain with mostly grass and bush vegetation, steep sided barren land, rivers and cultivated land.

4.4 Tajikistan

Tajikistan is bordered by the Kyrgyz Republic to the north, Uzbekistan to the west, Afghanistan to the south, and China to the east; it is separated from Pakistan's Khyber Pakhtunkhwa province and Gilgit-Baltistan by the narrow Wakhan corridor. The country is landlocked, largely mountainous, and the smallest as well as the poorest country in Central Asia. The 7.3 million population is mostly ethnic Tajiks. Following independence from the Soviet Union in 1991, it suffered a devastating civil war for five years. Since then Political stability and external assistance have contributed to improved economic growth.

One IBA and one Ramsar site are located within the Tajikistan portion of the CoI.

IBA site—Tigrovaya Balka Nature Reserve (68° 26.52' E 37° 19.16' N) spans 49786 ha.

Figure 4-2 shows that the CoI passes through or extremely closely (within 2 Km) of the south-eastern edge of the reserve. This reserve also overlaps at this point with the Ramsar site of the Lower Pyandj River habitat. The IBA is known to contain resident Saker Falcon (*Falco cherrug*) listed as vulnerable and a species known to be susceptible to electrocutions, and passage populations of Common (Eurasian) Crane (*Grus grus*), a species susceptible to collisions, winter populations of Red-crested Pochard (*Netta rufina*), Pygmy Cormorant (*Phalacrocorax pygmeus*) and breeding populations of Pallid Scops-owl (*Otus brucei*) all classified as of least concern. This IBA is on the border with Afghanistan and has overlapping habitat with Imam Sahib IBA within the Afghanistan portion of the CoI.

Ramsar site—1084, Lower part of Pyandj River (68° 30'8.107 E 37° 10' 30'.436 N)

This site has no associated species information but is considered for its value as a wetland site. The transmission line crosses the Pyandj River 10km ENE of the GPS co-ordinate identifying the central location of this site. As the site has no distinct boundary and the connecting habitat is directly crossed by the transmission line, this could expose wetland species such as duck, geese and cranes to collision. Information from the IBA site mentioned above, which includes this habitat, confirms this as likelihood. This Ramsar site is right on the border

with Afghanistan and has overlapping habitat with Imam Sahib IBA within the Afghanistan portion of the CoI (Figure 4-2).

As in Kyrgyz Republic, the route traverses mountainous terrain with mostly grass and bush vegetation, steep sided barren land, rivers and only partially cultivated land. It is clear from the mapped information and the SIA survey work that the proposed transmission line route through Tajikistan largely passes through areas of very sparse population, thereby the potential social impact is expected to be extremely low.

4.5 Afghanistan

Afghanistan is a landlocked state falling within both Central Asia and South Asia (and to some extent Western Asia). It is bordered by Turkmenistan, Uzbekistan and Tajikistan in the north, Iran in the west, Pakistan in the south and east, and China in the far northeast. It has a population of approximately 30 million, but after decades of war is highly under-developed and one of the poorest countries in the world.

There are four IBA locations that occur within the Afghanistan portion of the CoI discussed here in geographic order from north to south.

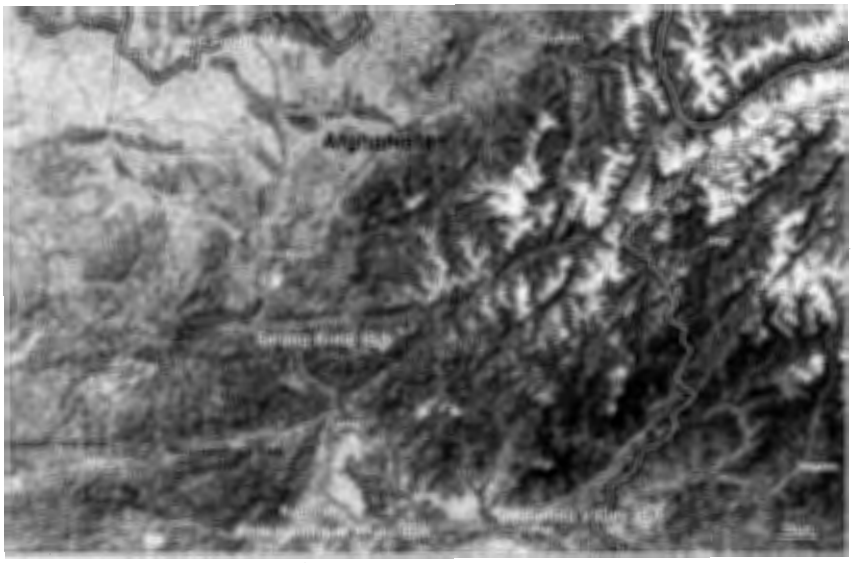

Figure 4-3 Afghanistan Important Bird Area sites that fall within the corridor of impact

IBA site—Imam Sahib

(68° 49′ 21.183 E 37° 15′ 15.42 N) comprises 20000 ha. (See Figure 4-2 above.) The site is known to have breeding Marbled Teal (*Marmaronetta angustirostris*). Other large numbers of unspecified waterfowl utilize the area during migration. Some specific habitat ground-truthing by national ESIA Consultants will be necessary to adjust positioning of the towers, or to be able to suggest suitable mitigation.

IBA site—Salang Kotal

(68° 59′17.601 E 35° 25′ 50.412 N) comprises 2000 ha. It has an altitudinal range of 1500 to 3658 m, and has a marked passage of Common (Eurasian) Crane passing through. Of note, for their possible interactions with overhead power lines, are resident Himalayan Vulture (*Gyps himalayensis*) passage Lesser Kestrel (*Falco naumanni*) and passage Siberian Crane (*Grus leucogeranus*) which is Critically Endangered. Figure 4-2 and Figure 4-4 plot the transmission line through the Salang Kotal IBA, showing contour information. The relief data suggest that the Salang Valley might act as a corridor for migrating birds. Ground truthing by national ESIA Consultants in this area is necessary for tower and line siting and for appropriate design alternatives for mitigation and avoidance of any potential impacts on endangered species.

IBA site—Kole Hashmat Khan.

(69° 12'10.337 E 34° 30'2.265 N). To the east of the Kole Hashmat Khan IBA, the hills slope down into the subtropical Jalalabad valley. This IBA abuts the Jalalabad Valley IBA. It is a wetland and lake area of 250 ha containing large numbers of breeding, passage and wintering waterfowl. As this IBA connects with the Jalalabad Valley, inclusion in ground-truthing within the vicinity for sighting and for specific mitigation measures would be recommended.

IBA site—Jalalabad Valley

(70° 24'7.039 E 34° 27'43.167 N) comprises 25,000 ha. The CoI passes along this valley which contains resident and breeding populations of Laggar Falcon (*Falco jugger*) categorized as Near Threatened, and Egyptian Vulture (*Neophron percnopterus*) categorized as Endangered. Some specific habitat ground-truthing will be necessary to suggest suitable adjustment of the position of the towers, or to be able to suggest suitable mitigation measures. The proximity of the line to this river valley is drawn in Figure 4-5. The valley is represented in orange.

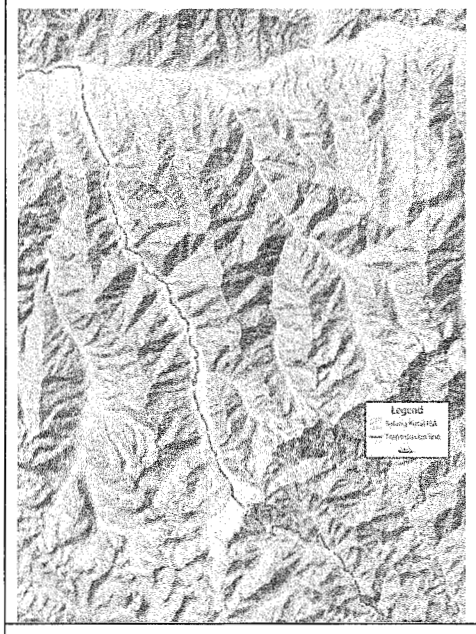

Figure 4-4 The relationship of Salang Kotal IBA and the proposed transmission line.

Figure 4-5 Relationship of the CASA-1000 Transmission Line to Jalalabad Valley IBA

Overall the proposed transmission line route passes through mountain areas which are arid, poorly vegetated and supports low biodiversity as well as a limited number of settlements/villages, and in some areas through cultivated land, water courses and community infrastructure. The likely social impact of the project will therefore not be expected to be significant.

4.6 Pakistan

Pakistan, officially called the Islamic Republic of Pakistan, is neighboured by Iran to the west, Afghanistan to the west and north, China to the far north-east, and India to the east. With a population of over 180 million it is the sixth most populous country in the world. Strategically located at the crossroads of Central, South and Western Asia, it is also one of the most troubled countries in the region – facing serious development and security challenges.

There are no IBA or Ramsar sites that fall within the buffer area for the CoI in Pakistan. Ramsar site 98, Tanda Dam is the nearest Ramsar site (71° 21'22.499E 33° 35'5.452N). This site is 40 km away from the CoI. Although large numbers of waterfowl pass though the site during spring and autumn migration, and roughly 500 waterfowl winter in the dam area, it appears that no other wetland areas are near the CoI in Pakistan. Therefore, there is unlikely to be any interaction between these populations and the CASA-1000 transmission line.

The proposed country specific ESIAs will need to do a thorough analysis of alternatives, including significant changes in TL alignments and tower designs and locations, especially in areas where critically endangered species are present.

5 Analysis of Alternatives

5.1 Introduction

EIA standards call for the identification and assessment of feasible alternatives to project design and implementation, not least to demonstrate that the cheapest or easiest project option has not been selected (if that had significant negative consequences) and that E&S aspects have been considered and taken into account during project development.

There are no definitive 'rules' when considering alternatives, as by definition only feasible alternatives (along with of course the 'no-project' scenario) can be considered; there is no point to (create and) assess an alternative that is not feasible, practical or cost-achievable. In this regard, there are a number of 'project drivers', which affect potential alternative options and scenarios:

- The key infrastructure components (e.g. the network in Kyrgyzstan and the end delivery point in Pakistan) are in effect fixed and there are a limited number of routes to connect these up. The FS did not specifically compare and iterate different alignments, taking E&S into consideration, but predominantly selected a route that followed existing infrastructure. The key decisions around this have already been established in the SNC Feasibility Study (FS), which adopted a (feasible, viable) 2km wide Corridor of Impact (CoI) within which the TL should be routed, allowing flexibility within the 2km width to avoid sensitive features and such like to minimise potential adverse effects;

- Whilst the basic alignment has been identified at FS stage, it is common practice in linear infrastructure developments such as roads, power lines and pipelines to review the precise alignment during the detailed design stage and following pre-construction surveys by design engineers and construction managers. This work considers a range of aspects such as geology, soil type, constructability and access arrangements and the like and will be conducted in parallel with the country-specific ESIAs that are required. Thus adjustments to the identified corridor can be expected to be made, which should interface with the ESIAs, such that sensitive features can be taken into account during route finalisation; and

- The only real alternative consideration (demonstrated in the SNC FS) was based around the alignment through the Salang Pass and to the Kabul-Peshawar portion of the DC TL. Given security and other considerations such as demining, and operation and maintenance requirements around access to the line for repair and maintenance, the line routing recommended in the original study was deemed most suitable. Furthermore, an alternative route that bypasses the congestion at the Salang Pass is a western detour via Shibar Pass. This increased the length of the TL by 150-200km and added around $50-65 million to the overall project cost.

In consideration of the above factors, potential alternatives within the CASA-1000 Project are naturally restricted to the following aspects:

- The No Project option;
- Alternative Projects;
- Different alignments or sections of alignment for the Transmission Line (TL);
- Different locations of towers and other key infrastructure, within operational constraints; and
- Different construction methods, timings and other construction-related modifications, including those needed for minimizing potential avian risks.

The ESIA quickly appraised the No Project option and Alternative Project scenarios as unfeasible for various technical, economic and financial reasons.

The REA has reviewed the issue of alternatives and their impacts and generally supports the preceding assessment work. However, as stated earlier, the NTCs may propose alternative alignments (including modifications to tower designs, locations) during project implementation. These decisions will be taken in consultation with the ESIA Consultants and with the EPC Contractor(s)' teams, and in concurrence with the WB task team, to avoid sensitive military areas (particularly in Afghanistan), minimize potential social and environmental impacts and avoid impacts on critically endangered species. In the light of this, specific guidance is contained herein for the requisite assessment (Section 8).

As explained elsewhere, there are no absolute 'drivers' that categorically determine the alignment, such as a stipulated distance between the TL and say residential areas or agricultural lands. However, there is of course a general presumption to site power infrastructure as far as feasible away from residences, sensitive community assets such as schools and hospitals and away from valuable agricultural land, which could be restricted for operational reasons, e.g. tree growth under power lines.

Other factors to take into account during routing are terrain, access, soil type and erosion potential, along with the visual envelope whereby power infrastructure interferes with valuable landscapes, such as National Parks or culturally sensitive or traditional landscapes. A somewhat less tangible aspect is routing to avoid the TL being an obvious feature on the landscape and a reminder of electrical power across areas that suffer from power shortages and poor voltage, exacerbating peoples' resentment towards the project, as they cannot access this high voltage source domestically.

The Uzbek and Tajik enclaves in Kyrgyz Republic will be avoided by the Project routing.

Further consideration of alternatives should be undertaken as part of the supplementary ESIAs that require to be undertaken within each country so as to conform to national EIA legislation and World Bank standards (see ESIA guidance, Section 8 of the main report).

5.2 No Project Alternative

The power generation capacity of Pakistan falls significantly short of its current and future needs. At present it is estimated that only half of Pakistan's 141 million people have access to electricity. Additional pressure is being put on already deficient electrical capacity by a growing population, increasing urbanization and expansive industrialization. Pakistan's current shortfall is estimated at 3,000 MW and the Government of Pakistan is actively looking for options to reduce this gap.

Although its shortfall is not of the same magnitude as Pakistan's, Afghanistan is also dealing with a shortfall of electricity. A growth of urban centres and increased industrialization as Afghanistan tries to integrate into the modern global economy has resulted in a need to increase the amount of electricity available in the nation.

The No Project alternative would require Pakistan and Afghanistan to either develop additional generation capacity within their own borders or import additional electricity from countries other than Tajikistan and the Kyrgyz Republic. Both Afghanistan and Pakistan are already in the process of maximizing local generation capacity, but in the absence of the Project their needs are unlikely to be filled. Importing from countries other than Kyrgyz Republic and Tajikistan is likely to come at a higher fiscal cost. For Pakistan to import from other

countries would also take much more time and require much more investments in Afghanistan; as described in the recent ADB Masterplan.

The No Project alternative would also require the Kyrgyz Republic and Tajikistan to find different markets to purchase their additional electricity or lose the value of that capacity. As stated in the Project summary, Tajikistan and the Kyrgyz Republic are poor countries and the income potentially created by CASA-1000 is expected to have a significant positive impact on the nations and their people.

The Project and the CASAREM have the potential to strengthen regional cooperation. The No Project alternative would dampen the opportunity to foster this cooperation and the ancillary benefits it could create. This would be a net loss for the Central Asian and South Asian regions as a whole. The selection of the No Project option has therefore been discounted in this analysis.

5.3 Alternative Projects

5.3.1 New Hydropower Stations

A number of hydro stations are currently planned in the northern region of Pakistan that could potentially be considered as alternatives to the Project, however Hydro Power station construction is time consuming and expensive. Extensive technical, geological, environmental, and social studies are required prior to making a decision on the feasibility and economic viability of new stations. It is unlikely that new hydro power capacity could be generated quickly enough to meet Pakistan's growing need for power and therefore this is not seen as a feasible alternative to the Project.

5.3.2 New Thermal Power Stations

Different types of thermal power stations were considered as alternatives. Conventional thermal and combined cycle power plants require considerable amounts of fuel and water, and discharge warm water and pollutants to the environment. The cost to operate thermal power stations is high due to crude oil and gas prices and may not be as affordable as the transmission line.

5.4 Alternative Routing

The Feasibility Study (FS) lead to the identification of the CoI, within which the transmission line and essential infrastructure will be constructed. This CoI was selected after a consideration of the overall routing options that were considered feasible to link up the existing power infrastructure and reach the 'end points' in the target infrastructure. In other words there are inherent limitations in terms of routing that are feasible to connect up existing sites and to connect those with target infrastructure, such as sub-stations and grid connections.

In linear projects, such as power lines, the shortest most direct distance is often cheaper, due to less material usage *per se* and therefore routing is a 'compromise or balance' between issues of material use (and therefore direct cost), topography, rock and soil type (which affect constructability and access considerations) and a range of other factors which include proximity to existing infrastructure (e.g. rail or telecoms which could be adversely affected) and environmental and social factors.

The FS arrived at the CoI, to correspond with the routing followed by the existing linear infrastructure as far as possible and maintain the flexibility (within the 2km wide corridor) to adjust infrastructure siting and align the TL to avoid/minimize potential impacts on sensitive features. This approach and conclusion was supported in the ESIA undertaken by IEL, who analysed E&S and physical features using satellite imagery and ground-truthing and fieldwork in some cases.

The ESIA took into consideration the site-specific features from each of the participating countries, as best they could, given the inherent limitations with respect to direct access in certain places due to conflict in Afghanistan, for example.

The ESIA did take note of hot spots from published literature and web-based data and therefore identified the key avifauna sites, such as the IBAs and took them into account in the assessment work. The ESIA addressed these IBAs by developing mitigation, which they presented as part of a wide ranging Environmental Management Plan (EMP). The specialist avifauna report presented the same sites and made its own evaluation, whilst recommending a range of further assessments, management plans and monitoring.

The broad conclusion of the work conducted before the REA was that overall E&S impacts are considered minimal, due to the lack of protected areas and the general avoidance of heavily populated communities; and there being sufficient flexibility remaining in which to adjust the TL and infrastructure to avoid any 'local' sensitive features that might be encountered during subsequent analysis. It is important to note that during the detailed design stage and associated country-specific ESIAs the majority of sensitive features should be able to be avoided as the TL routes can be changed. The specific area of work that requires to be addressed is the ecological 'hot spots' in particular the sites of importance for birds. These issues need to be evaluated by field work and survey, taking into account the potential issues such as bird strikes and electrocution, both of which should be avoided and reduced by change in TL routes and design aspects, such as relevant diverters and the requisite spacing between electrified components on the towers.

5.5 Alternative Locations for Infrastructure

5.5.1 Design Alternatives

In theory there are a number of options to connect the required power modules up across the project length to deliver the electricity that is required to the end point. These could be different towers and modifications to their arrangement or even buried cabling and other conceivable arrangements. However, in large infrastructure projects such as this, there are finite arrangements of modules and approaches, governed by cost, approved methods and other factors, which result in the selection of typical infrastructure, such as certain towers, cabling and sub-stations. In practice, therefore this potential option can be discounted and variations to standard modular components can be evaluated during the ESIAs of the preferred project option, such as altering heights of the line or routing sections underground and so on.

Constructing a 500 kV HVAC line for the southern route from to Tajikistan to Pakistan was considered as an alternative to the 500 kV HVDC transmission interconnection. Not only was the cost estimate of the HVAC transmission line significantly higher than the HVDC transmission line, it was also determined to be unstable. HVDC lines generally have smaller "foot prints" because their RoW requirements are less, and they require smaller tower and line dimensions. For the reasons mentioned above, the 500 kV HVDC transmission interconnection was chosen.

5.6 Feasibility Reports

The FS Update Report did not address E&S issues as specific elements by way of collecting baseline data and analysing potential impacts, other than to estimate the cost of their implementation in terms of safeguards application. It is understood that both earlier and later phases of the FS considered E&S aspects in principle, through selection of routes that had already been subject to infrastructure, rather than greenfield sites, as far as practicable. Either way, to comply with World Bank policy, the ESIA is required to be undertaken by an independent organisation to the one that has conducted the FS, hence IEL was subsequently commissioned.

6 Assessment of Potential Project Impacts

6.1 Introduction

This section deals with assessment of the potential impacts (positive and negative) associated with implementation of the Project. This assessment seeks to focus on the project-wide issues, due to the nature of

the assessment, namely an REA. However, in view of the amount of country and site-specific data and analysis that has already been carried out, information is also presented within the participating country pESIAs. These individual pESIAs will be completely reviewed and re-evaluated as part of supplementary ESIAs for each of the countries, conducted by the ESIA Consultants.

As stated earlier, the work conducted during the Feasibility Study screened and selected a corridor within which the TL will be constructed. The subsequent ESIA supplemented this work by the inclusion of country-specific assessment work that sought to identify if there were any site-specific 'show stoppers' due to sensitivities. This subsequent work also developed a range of measures to mitigate potentially adverse effects and manage project implementation, as part of an ESMP that was developed.

Subsequent (independent) work focussing on avifauna revealed that there were some inherent risks to birds, generally considered to be at a local level, but which required further evaluation through field study. This work also discovered that there were several sites in proximity to the TL routing that were of strategic importance to birds due to the habitat type. Consequently, further detailed field work need to be undertaken as part of the individual, country-specific ESIAs that are scheduled to be undertaken by the national ESIA Consultants.

The FS arrived at the CoI, after evaluating the above factors and related considerations and considered that the environmental and social impacts should not be significantly adverse, given the flexibility (within the 2km wide corridor) to adjust infrastructure siting and align the TL to avoid sensitive features. This approach and conclusion was supported in the ESIA undertaken by IEL, who analysed E&S and physical features using satellite imagery and ground-truthing and fieldwork in some cases.

The broad conclusion of the work conducted before the REA was that overall E&S impacts are considered minimal, due to the lack of protected areas and the general avoidance of heavily populated communities; and there being sufficient flexibility remaining in which to adjust the TL and infrastructure to avoid any 'local' sensitive features that might be encountered during subsequent analysis.

This ESIA took into consideration the site-specific features from each of the participating countries, as best they could, given the inherent limitations with respect to direct access in certain places due to conflict in Afghanistan, for example. A summary of key potential impacts is discussed below.

6.2 No Expected Downstream Hydrological Impact

The REA presents an analysis of potential downstream hydrological impacts from CASA-1000 and concludes that there is no impact on hydrology expected from the project. This analysis is based on information available from the feasibility study and other studies in the region, as well as from the public domain. The basic premise for the CASA-1000 project is that the Central Asia countries have existing (in the Kyrgyz Republic) or potential (in Tajikistan) surplus of clean energy in summer from their existing hydropower plants without new generation, which is supported by the analysis of past exports and spillage of water, that could be used to offset shortages in South Asian countries, particularly Afghanistan and Pakistan and the planned energy exports over the CASA to Afghanistan and Pakistan. The summer surplus is primarily linked to the operation of the Nurek and Toktogul reservoirs, which regulate the releases in the Vaksh River (Tajikistan) and the Naryn River (Kyrgyz Republic) respectively, and, thus, control the generation at the cascades on these two rivers.

The feasibility update was finalized in February 2011 confirms the soundness of the considerations that led to the CASA-1000 project, i.e. sufficient quantities of existing or potential surplus electricity from current hydropower generation capacity are available in the Kyrgyz Republic and Tajikistan, even under the most conservative scenario of no new generation projects. The analysis is also based on the following information:

- Both the Kyrgyz Republic and Tajikistan are hydro-dependent with all of their summer electricity being generated through their HPPs. Thus, water releases equal to the amount of electricity generated and any spillage releases with no generation.
- The expected CASA-1000 project related export supply period is limited to May-September. In both countries, the volume of electricity to be generated for CASA will represent a small portion of the

overall electricity generation and a correspondingly small amount of water to be released in order to generate the electricity.

The designed transmission capacity of the CASA-1000 project and, therefore, the estimated volumes of electricity export and corresponding water releases under CASA-1000 project from both the Kyrgyz Republic and Tajikistan will remain within the range of historic maximum and minimum parameters.

6.3 Overall Project Construction Related Impacts

This section of the report addresses the project-wide issues associated with construction of the current envisaged configuration of the Project and is followed later by details for each of the four countries, where relevant.

There are common construction elements across all participating countries, such as:

- Location, establishment and operation of the construction camps;
- Construction of about 3010 towers required to support the TL;
- Routing and construction of the many access roadways required throughout the length of the project;
- Soil resource management and the need for erosion control;
- Potentially sensitive cultural social aspects in many places due to factors which include religious practices, tribal societies and communities living in remote locations; and
- A range of security issues (including unexploded ordnance and land mines), particularly associated with the on-going conflict in Afghanistan and some associated security issues in parts of Pakistan

The main potential impacts for the northern 477 km CoI are considered to be minimal for the following reasons:

- There are a limited number of identified important bird areas and migratory routes;
- There are limited settlements and little areas of agriculture for the majority of the route;
- A large portion of the route is unsettled and not used by people.

Similar conditions exist in the southern 750 km HVDC corridor and where the Tajik grid will be strengthened:

- There are no protected areas, natural habitats or areas of important biodiversity in both Tajikistan and Pakistan that could be adversely affected given the remaining flexibility in study and iterative design;
- Most of the CoI in Afghanistan is arid, poorly vegetated and supports low biodiversity;
- There is one IBA and one Ramsar site in Tajikistan. There are four IBAs in Afghanistan where special bird protection measures may have to be implemented, once further studies have been done and the need for an Avian Protection Plan (APP) has been established;
- Two species, the Egyptian Vulture (endangered) and Laggar Falcon (Near Threatened) are found in the Jalabad Valley IBA and routing through this area should be carefully considered during the country-specific ESIAs.

The main operational aspects include:

- Inspection of the TL and all towers annually to determine any maintenance needs.
- Emergency repairs may be required throughout operation of the T/L due to accidents, violent storms, etc.
- Maintenance of the TL will require six to ten employees, one bucket truck, one or two 4 WD vehicles and miscellaneous line tools. Access roads must be controlled so they cannot be used by the public.
- Outside of the inspections, maintenance and repairs, very little noticeable activities occur along a transmission line.

Subsequent to the ESIA, the Avian Risk study revealed both generic risks to birds within strategic flyways (global or regional migratory routes used by birds) as well as individual habitat areas valuable to birds, such as Important Bird Areas (IBAs) and Ramsar sites. It is considered that the fieldwork recommended by the Avian

Study should be considered for implementation as part of supplementary ESIA studies, namely the individual country-specific ESIAs to be undertaken.

From the assessment work undertaken to date there is nothing to suggest that significant adverse E&S impacts will result that cannot be avoided or otherwise mitigated through further specific ESIA and associated assessment and management.

6.3.1 Kyrgyz Republic

The majority of potential issues that arise due to the project are associated with the presence of communities adjacent to riverine areas, raising potential effects on community infrastructure, at river crossings and across agricultural land. Sections of steep terrain also raise issues of working on steep ground and potential soil erosion. Conceptually, the current alignment should not result in significant adverse effects that cannot be mitigated through further study and iterative assessment work; however the countries may modify alignment.

The proposed transmission line route is very sparsely populated, passing by less than two dozen villages/towns. Major adverse social impacts will be on some cultivated lands, while during the construction phase disruption could be caused to local communities, e.g. in carrying out farming activities, access to roads. Negligible resettlement and permanent land acquisition are anticipated. The overall social impact is thus likely to be small and temporary, and can be mitigated through designed interventions.

6.3.2 Tajikistan

There are several places where settlements, community infrastructure and agricultural land lie in the vicinity of the current alignment and will require particular attention during the subsequent ESIA. Some larger river crossings and areas of steep terrain, along with the bird habitats (Tigrovaia Balka reserve and Pyandj river) will also require particular study in the ESIA.

Given the sparse population along the proposed transmission line route, only a small number of agricultural lands (orchard and cotton fields) will be directly under the line, and no public infrastructure/utilities fall within the CoI. Hence the social impact of the project will be very small.

6.3.3 Afghanistan

There are relatively few settlements that would be affected by the routing and similarly limited community infrastructure, however there are some local areas of interest, but it is anticipated that these should be avoided even within the existing CoI. There are water course issues and areas of steep terrain, some with fruit trees and limited agriculture that would need evaluating in the ESIA. The bird habitat sections will require further evaluation in the country-specific ESIAs, to assess if re-routing is required or other mitigation and management measures. Later in the route there are community infrastructure, such as radio station equipment and also military training and conflict sites. The NTCs and the ESIA Consultants will determine potential impacts and the requisite management. Lengths of poor erodible soil will require careful assessment and working and compliance to the plans in the EMP and further work in the ESIA, working alongside the EPC Contractor(s), will yield detailed plans for such areas.

The proposed transmission line route passes through a number of settlements/villages, and in some areas through cultivated land, water courses and community infrastructure. The likely social impacts are related to land acquisition, temporary leasing and possible disruption of local communal infrastructure.

Additional issues arise from potential unexploded ordnance (UXO), land mines, and specific security situations, along with working through tribal regions.

6.3.4 Pakistan

Similar issues prevail through Pakistan, including community infrastructure, river crossings, agricultural land and areas of steep terrain and there are also military and religious sites which require assessment. The alignment does contain a lot more community agricultural land issues, due to the much denser population in certain sections. Main social safeguard impacts are related to possible land needs, permanent or temporary, possible damages to crops, disruption of local infrastructure etc. Additional issues may arise from potential unexploded ordnance, some tourist sites and specific security situations, along with working through tribal regions.

Security may be an issue as some factions could attempt to use the power infrastructure running through their area as a valuable asset in negotiations for sectoral issues. Certain practices are known to exist in some tribal areas where users of power do not actually pay the proper rate, however these are considered internal issues which must be resolved by the national power operator and are not seen as representing a significant risk to the project concept and its implementation.

7 Public Consultations

7.1 Introduction

Public consultation is an essential component of ESIA as *inter alia*, it is important that the views and inputs of Project Affected Communities (PAC) and Project Affected People (PAP) form a vital component in the overall ESIA process. The principles of public consultation are to enable representation of PAC and PAP in the overall decision making process, however there are no absolute rules of engagement, as it were, in terms of whom exactly one engages with and at what stage in the ESIA process. Up to the point of the REA, the public consultation aspects have been naturally limited, due to the high level of the assessment. However, as one moves forward into the individual ESIAs, the NTC in each country will have to undertake a full and relevant engagement with the civil society and all relevant stakeholders. The results of the consultations on this REA report will be reported on in the final draft of the REA.

7.2 Consultations to Date

A variety of consultations have occurred to date, commencing at the project identification stage and through into the Feasibility Studies, which included preliminary environmental studies. Following this phase, a round of consultations were initiated when IEL were commissioned to undertake the ESIA. The NTCs in each of the four countries were invited and assisted to conduct consultations on the ToRs for the ESIA. Annex 1 presents a summary of consultations to date.

A web site has been established for the Project http://www.casa-1000.org, making the project available for web users across the participating countries. This is a useful mechanism for consultation, but of course is limited to internet users.

Subsequent to the IEL ESIA the World Bank commissioned studies on community benefit sharing options for the four countries participating in the project, and involved selected engagement with communities and PAPs. Consultation Status & Way Forward

Going forward there needs to be a comprehensive approach to appropriate consultation and stakeholder engagement and guidance on these aspects is presented in the Consultation Guide.

The objective is to undertake inclusive consultation and engage with the relevant Government Ministries and Departments, local and regional authorities, the NGO sector, Project Affected Communities (PACs) and Project Affected People (PAPs) and interested parties. The NTCs should discuss the approach and representativeness of consultees with the IFI, such as the World Bank, to ensure all parties are in agreement that the consultation is compliant to both Safeguards Policies and culturally appropriate. Following the consultation on this REA, the lessons learned should be inputted into the individual ESIAs, such that the ESIA Consultants can benefit from

the preceding engagement and build on it to address the site specific aspects, including land take, potential resettlement, socio-economic impacts, access to work sites, employment aspects and the like.

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8 Environmental Management Plans

8.1 Introduction

This section addresses Environmental Management Plans (EMPs) to manage the implementation of E&S aspects for the Project. Due to the strategic nature of this REA, the EMP section focuses on the provision of guidance for the forthcoming country-specific ESIAs and their requisite EMPs.

This section of the REA therefore contains details on the scope and methodology for the country-specific ESIAs themselves, along with organisational elements for environmental management and guidance on the ToRs for the engagement process of the ESIA Consultant. Guidance for the ESIA covers presentation and content of the report, including background information, applicable legal and regulatory framework, applicable donor standards and policies, project and alternatives description, environmental baseline and approach for impact assessment, mitigation and monitoring.

The EMP provides a framework approach to future develop of specific EMP[1] plans and sub-plans by the ESIA Consultant, the EPC Contractor and other EMP organizations. The EMP contains guiding principles and procedures for communication, reporting, training, monitoring and plan review to which all Project personnel, contractors and subcontractors are required to comply with throughout the preconstruction and construction phases of the Project. An operation phase EMP will be subsequently developed by the NTCs, once the Project has been constructed. A key component of project performance is to include specific aspects of this EMP into construction contract provisions.

Initial budget costs of the EMP are estimated at US $3,300,000[2]. These indicative costs exclude the environmental staff costs and expenses on behalf of each EPC Contractor, who has to provide personnel during pre-construction and construction.

It is essential that the key control components such as the authority vested in the positions and the penalty system and other aspects are reflected and incorporated into the form of contract, otherwise many of the mechanisms specified in this EMP will not be allowed to operate; this document addresses those aspects.

[1] This REA focuses on environmental aspects since a separate SIA initiative is underway, which will yield some form of Social Management Plan (SMP). For this REA, reference is consequently only made to EMP, although it is expected that a final ESMP will be in place in due course.

[2] There are a great many unknowns that would influence the final budget, such as institutional capacity and contract arrangements. Therefore this is an estimate solely intended for budget allocation purposes.

8.2 EMP Context

This EMP section of the REA presents guidance on the principles, approaches, procedures and methods that will be used to control and minimize environmental and social impacts. It is intended to guide development of E&S management within each of the four ESIAs that are to be conducted in each Project country. Each ESIA will include assessment of potential impacts and the mitigation and management of potential issues will be governed by an individual EMP. As this REA is at a strategic level (rather than a specific EIA), there is no EMP *sensu strictu*, as this section aims to guide the future assessment work and the management of potential impacts and issues.

8.3 Guidance for Alignment Changes

To date in the Project development, starting with the Feasibility Study, a 2km wide CoI has been established and was then assessed in the ESIA. However, modifications to this alignment will be made by EPC Contractor(s) and national ESIA Consultants, to avoid potential impacts on critically endangered species (see earlier discussions), physical cultural resources and issues like security, military installations and cultural issues such as enclaves of ethnic populations and areas where national boundaries have historic issues with their positioning.

In theory, it would be very advantageous to have all the sensitive features and 'hot-spots' identified and mapped out across a wide area, such that potential route changes could be evaluated. In practice, however, this is seldom achievable as the effort and cost of doing this would be high and also the route change could still lie outside this wider zone if a large deviation were to be enacted. This section therefore presents guidance on the approach to assessing route changes.

The approach for assessing alignment changes should involve the ability to screen potential CoIs for statutorily protected sites such as National Parks, Ramsar sites, protected habitats or valuable sites and habitats that support protected species at either international or national level, vulnerable species etc., and the REA provides draft ToRs for national ESIA Consultants to address these aspects.

8.4 EMP Roles and Responsibilities

The EMP includes a Table of Contents for the ESIAs that are required and guidance and methodologies for conducting the ESIAs in each of the four Project countries. It also presents in detail the recommended organisational arrangements, including role descriptions and qualifications for each of the key positions envisaged in the organisation and implementation of the EMP, covering the Project Environmental Officer(s) recruited by the NTCs, the Environmental Supervisory roles recruited by the EPC Contractor(s), and independent monitoring arrangements (see Figure 8-1).

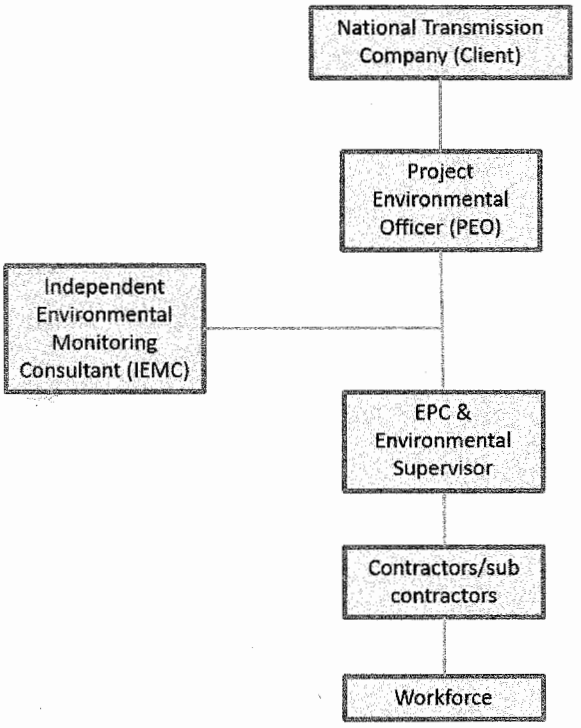

Figure 8-1 Supervision Structure for CASA-1000

8.5 Management Plans

The Management Plans (MP) are separated into those that arise following, and as part of, the ESIAs (and are ultimately the responsibility of the NTCs) and those 'operational' Management Plans which each EPC Contractor prepares to control and manage issues that they in effect have control of. A range of Plans are described for use to manage environmental (and social) issues during construction, including their monitoring and reporting.

The REA provides guidance for the preparation of the MPs by the ESIA Consultant on behalf of the NTCs. These plans include:

- Workforce and Site Installation Management Plan (WSIMP);
- Site Preparation and Restoration Management Plan (SPRMP);
- Construction Impact Management Plan (CIMP);
- Waste Management Plan (WMP);
- Pollution Management Plan (PMP);
- Aesthetics and Ecological Management Plan (AEMP);
- Safety Management Plan (SaMP);
- Physical Cultural Property – Chance Finds Management Plan (PCP – CFMP);
- Community Relations and Health Management Plan (CRHMP).

In addition to these MPs, the EPC Contractor will develop a Construction Supervision Plan (CSP) and the Independent Environmental Monitoring Consultant (IEMC) will develop a Construction Monitoring Plan (CMP).

9 Social Interventions

Under the current engineering design, a broad corridor is established for the transmission line, and the exact alignment of the Right of Way will be determined and demarcated later with detailed engineering design. It is therefore not possible to establish the project boundary of impacts prior to the World Bank appraisal of the project. Therefore a Land Acquisition and Resettlement Policy Framework (LARPF) is being developed for each of the four project countries in line with their relevant respective laws and with World Bank policies. The LARPFs outline the principles, entitlement policy and planning steps to develop full Land Acquisition Plan (LAP) and/or Resettlement Action Plans (RAP) to address the land acquisition and resettlement impacts, as well as institutional setups, grievance redress mechanisms and monitoring arrangements.

The project has carried out consultations in communities along the transmission line corridor to obtain their views, expectations and requests of the project. These consultations indicate strong requests and a need to start some benefit-sharing initiatives to support development within these communities. These consultations further assessed the expectations and development needs among the communities and have proposed a set of benefit-sharing schemes for the communities located within the project corridor. These schemes are being reviewed by governments of the participating countries.

Annex 1 – Consultation Summary

	Consultation	Date	Participants	Comments
	Afghanistan			
1	Initial consultation by SNC	2007	- Ministry of Energy and Water - Representatives of municipalities and other ministries/department; Government officials - Locations along the corridor: Shir Khan Border, Madrasa area, Omarkhyel village, oshi, Khanjan Jabul Saraj, Qara Bagh, Qalire-Moradbig, Deh Sabs, mula Omar area, Suruby, Tangi Abrishom, Mahsal-e-Kamar, Kakas, aziz Khanka, Bella village, marko, Gerdi Ghous, Oaka and Shaheed Mol.	
2	Consultation of the TORs for the ESIA. Invitation sent to: - Afghanistan Civil Society Foundation (ACSF) - ACTED - GRSP - AKDN - UN-Habitat - DACCAR - SDO - ACTION AID - MADERA - BRAC	08 Dec 2010 At World Bank office in Kabul.	- Majority of concerned FPs present - Representative from MEW - Representative from CSOs	- High level of interest for CASA and comments expected to be sent to MEW - No feedback were received on the ToRs for the ESIA

	Consultation	Date	Participants	Comments
	- IRC			
3	Benefit-Sharing Consultations and Key Informant Interviews (KII) conducted by UN Habitat	Dec 2012	Focus Group Discussions (FGD) with at least 10% representation of communities were conducted in: - Barzangi Mullah; Sher Khan Bandar; Alokozay; Qasab Madrasa; Bajawory; Laqi Huliya; Qezel Sai; Qaram Qoli; Meer Shekh; Ghulam Bai; Qandahari Hai Se; Gudan Ha; Khogyani; Zaman Khil; Shamraq; Chihl Ghori Payan; Ahangaran; Oghorsang; Gazan; Manjana; Darwaza; Noch payeen; Qalatak; Lewan; Takhma; Mairkhan Bala; Qazi Khania; Malik Jan Khil; Kamangar Naw; Fateh Khan Khill; Milan Shakh; Dolan; Deh Pashian; Shayhi Deh Mullah; Toghchi; Deh Dawlat Shahi; Langar; Bagh Alam; Aqa Saray; Deh Yaha Qalai ; Qara E Shah Mohd Khil; Mullah Khill; Lowy Kalay; Pass Kaakas; Mansoor Kelay; Koozshahidan; Qalai E Janan Khan; Bar Daman; Naw Abad; Belayari; Khalisa; Barikaw Maktab Kalay; Akhunzadgan; Chardi Hussain Khill; Koz Sarband; Ziyarat Kalay; Aka Zoo	In 57 communities FGD gathered: (a) elected representatives of CDCs, (b) community people including vulnerable groups (returnees, IDPs, differently-able and female headed) and women members, (b) community institutions (school, clinic etc); (c) local Energy Department, relevant project/NGO, and (d) local authorities such as DDA, and District Governor Office. A second round of consultation for each community gathered: (a) 1 CDC representative, (b) 2 women community members, (c) 1 school representative, (d) 1 health representative. The key objective of second round of FGD was to map out communities' existing practices on energy saving interventions and their interest on using some of the interventions for the future should there be an opportunity to do so.
	Kyrgyz Republic			
1	Initial Consultation (SCN)	2007	Limited information available on these consultations	

	Consultation	Date	Participants	Comments
2	Consultation on draft TORs of ESIA.	14 Oct 2010	- Mr. A.R. Tiumenbaev, Head, Development and Innovations Department - Mr. R.S. Orosaliev, Manager, PIU - Mr. E. Dj. Shukurov, Chairman, Ecological Movement of Kyrgyzstan "Aleine" - Mr. E. E. Shukurov, Leading Ornithological Flights Safety Engineer, Manas Airport - Mr. R. Isaev, Specialist, Camp Alatoo Public Fund - Ms. N. Iosipenko, Public Information Assistant, World Bank	Considering discussion results and opinion exchange it has been agreed that the attending NGOs will prepare and share their comments to the draft Terms of Reference, if any.
3	Public discussions on "Energy Security of Kyrgyzstan: Advantages and Disadvantages of CASA-1000"	March 16, 2011. Bishkek, Kyrgyz Republic: organized by Taza Tabigat and Human Rights Bureau	CSOs: A number of Kyrgyz CSOs attended WB: Alex Kremer, WB Country Manager	
4	Meeting with BIC Energy Fellows from Kazakhstan and Kyrgyzstan (on CAEWDP, CASA-1000)	May 2, 2011 Washington, D.C., Office of the World Bank	CSOs: Rita Karasartova (Alliance for Transparent Budget, Kyrgyz Republic), Sergey Belov (Active Youth NKA, Kazakhstan), Aynabay Yaylymova (BIC), and Sarah Bedy (BIC) WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Elena Karaban	
5	CASA-1000 public hearings	June 28, 2011 Bishkek, Kyrgyz Republic. Ministry of Energy of the Kyrgyz Republic	Government: - Office of the Government of the Kyrgyz Republic – Aibek Kaliev (Fuel, Energy and Mineral Resources Unit); - Ministry of Energy of the Kyrgyz Republic – Avtandil Kalmambetov (Deputy Minister of Energy), Almazbek Stamaliev (Head, Electricity Production and Transmission Unit), Anara Djumagulova (Head, External Relations Unit), R. Orozaliev (Head of Project Implementation Unit), and specialists Batyrkanov and Doolotov; - Ministry of Foreign Affairs of the Kyrgyz Republic - Meder Soorbekov,	

	Consultation	Date	Participants	Comments
			Azamat Almakunov - OJSC Power Plants - Ch. Dokbaev, External Relations and Project Implementation Unit - OJSC National Electricity Grid of Kyrgyzstan - M. Aitkulov (Director General), K. Ismailov (Deputy Director General), L. Popov (Head, Capital Construction and Perspective Development Unit). Donor organizations: - Asian Development Bank - A. Berdybekova - Japanese International Cooperation Agency - G. Suyunalieva - USAID, RESET Project - O. Terentieva, Z. Chargynov - World Bank - Zhanetta Baidolotova, Natalya Iosipenko Embassies - Russian Federation Embassy - K. Verkholantseva - Embassy of the Islamic Republic of Pakistan - Tanvir Ahtar Haskeli, M. Kalina - Embassy of the Islamic Republic of Afganistan - Khamidullo Gani Civil society organizations and Supervisory Board of the Ministry of Energy - N. Kravtsov, Chairman, USTIN Public Association of Consumers' Rights Protection - N. Abdrasulova, Director, UNISON - V. Kasymova, Expert of Association of Power Engineering Specialists of the Kyrgyz Republic - R. Karasartova, Financial Expert, Alliance "For Transparent Budget" - Muratova, Human Rights Bureau - J. Tumenbaev, "Anti-Corruption Commission" Public Union - Toktomusheva, Women Discussion Club Mass Media - S. Akhmetshina, Akipress - Y. Kostenko, 24kg - Amankulova, 5-th Channel	
6	Meeting with the Kyrgyz CSOs on CASA-1000	September 7, 2011 Bishkek, Kyrgyz Republic. Office of	CSOs: Tolekan Ismailova (Citizens Against Corruption), Farida Abdyldaeva (Citizens Against Corruption), and members of the Public Supervisory Council of the Ministry of Energy of the Kyrgyz Republic -- Nikolai Kravtsov, Nurzat	

	Consultation	Date	Participants	Comments
		the CSO	Abdirasulova. Government: Deputy Minister of Energy of the KR Kairat Djumaliev. WB: Alex Kremer (Country Manager), Jyldyz Djakypova and Natalya Iosipenko (EXT).	
7	Meeting with the Kyrgyz CSOs on CASA-1000	September 20, 2011 Bishkek, Kyrgyz Republic. Office of the CSO	CSOs: members of the Public Supervisory Council of the Ministry of Energy of the Kyrgyz Republic -- Nikolai Kravtsov, Valentina Kasymova, Zamira Akbagysheva, Rita Karasartova, and a representative of the Human Rights Bureau Zulfia Marat WB: Theodore Ahlers (ECA Director, Strategy and Operations), Jyldyz Djakypova (EXT)	
8	Meeting with the BIC and Kyrgyz Republic CSO on Kyrgyz ISN and CASA-1000	September 22, 2011 Washington, D.C., Office of the World Bank	CSOs: Tolekan Ismailova (Citizens Against Corruption, Kyrgyz Republic), Aynabat Yaylymova (BIC) WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Alex Kremer, Elena Karaban	
	Pakistan			
1	Initial consultation by SNC	2007	- Mr Zarshad Khan, Chairman of Department of Agronomy, Agriculture University of Peshwar - Mr Muihammad Mumatz Malik, Chief Conservator, Wildlife, NWFP Wildlife Department - Mr Fazal Elahi, Sub-divisional Forest Officer, Khyber Forest Division, NWFP Forest Department - Mr Hameed Hussain, Assistan Director, Peshawar Torkhum Express Way - Mr. Pervaiz Khan Jadoon, Chief Engineer, IPD Warsak Road - Mr. Liaqat, Assistant Director, Environmental Protection Agency, Peshawar	
2	Consultation of draft ToRs for ESIA	Posted on NTDC website in English, Urdu and Pushto. Public notice for		

	Consultation	Date	Participants	Comments
		comments advertised on 14 Dec 2010		
3	Consultation meetings on draft ESIA by the World Bank Social Specialists	May 2011	Consultation meetings were held with Ministry of Water and Power, IUCN, Sustainable Development Policy Institute, Strengthening Participatory Organizations, Agha Khan Rural Support Program and Leadership for Environment and Development.	
4	Dissemination of ESIA in English and local languages (Urdu and Pashto)	Jun 2011	English, Urdu and Pashto versions of draft ESIA Executive Summary, Frequently Asked Questions, Technical Questions and a presentation based on key information about CASA 1000 and ESIA shared with key stakeholders of federal and provincial governments and NGOs.	
5	Consultation on draft ESIA by IEL	Comments received by NTDC (28 Sept 2011)		
6	Benefit-Sharing Consultations and Key Informant Interviews (KII) conducted by SABAWON	Feb 2012	Focus Group Discussions (FGD) were conducted in: - Mushtarzai (male group): 7 participants - Sheikh Mohamdi: 8 participants - Mashu Khel: 12 participants - Sheikhan Killay: 9 participants - Sulemankhel: 10 participants - Sheikh: 10 participants - Mushtarzai (female group): 10 participants - Sheikh Mohammadi (female group): 10 participants - Shahkas: 9 participants - Torkham: 9 participants - Gagra: 9 participants	During the Benefit Sharing Study, the Study team held direct and indirect consultations over 5,600 persons in the study area, including 93 through FGD, 13 KII and 15 NGOs.

	Consultation	Date	Participants	Comments
	Tajikistan			
1	Initial consultation by SNC	2007	- M. G. Gulmatov, Chairman of the Khatlon Oblast - Mr Abdurahmanov, Deputy Chairman (water supply and dekhan farm) of the Khatlon Oblast - D Mirzoev, Head of the Khukumat Economics Management - Shokirov Shodmon Shokirovich, Chairman of Oblast Statistics Agency - Radzhabov Hukmatullo Fazliddinovich, Mayor of Sarband - Mukhsiddinov Zainiddin, Head of the Khukumat Administration, city of Sarband - Khakimov Kurbon, Head of Statistics Department, city of Sarband - Nazaraliev Kurbon, Head of Labour Department, city of Sarband - Kendzhaev Gulyam Rasulovich, Chairman of J. Guliston Kishlak Botrobod - Sangaliev Emomali, Chairman of the Makhalin Committee - Dzhurahonov Hamzai Hodzhamurod, Chairman of the Makhalin Committee - Sattorov Aloviddin Mirzoevich, Chairman of the Rayon, Vakhsh - Huseinoz Saiddzhalol Rahmatovich, First Deputy Chairman - Davlatov Sherali, Chief Architects of the Rayon - Alihonov Dzhurahon Chief Specialist of Land Management Committee - Madmusoev Nosirdzhon, Secretary of J. Kirov - Sharipov mahmadi, Chairman of J. Marshal - Rahmonov Amonullo, Chief Specialist - Kadyrov Manon, Chairman of the Environment Committee District Department - Kholboev Alimahmad Chief Specialist of the Environment Committee District Department - Shomurodov Hojamurod, Chief Specialist of the Flora and Fauna Department - Sadulloev habibullo Naimovich, Chairman of the Rayon, Rumi	

	Consultation	Date	Participants	Comments
			- Nazhmiddinov mukim Pirovich, First Deputy Chairman, Rumi - Hamroev Olimbhudzha, Statistics Department - Hallov, Mahmadsharif, Land Management Committee - Mahmudov Saidali, Deputy Chairman, Department of State Supervision of natural Resources Disposal - Samadov Abdurahmon, Deputy Chairman of J. Guliston - Mirzoev Szhavharsho, Secretary, Kishlak Toshrobod - Umratulloev Ajnullo, head of Administration, Kumsangir - Burhanov Murtazo, Chairman of the Jamoat, Pyanj - Badadzhanov Sharif, Chairman of the Jamoat, Dusti - Eshhamadov Rahim, Chairman of the Jamoat, Krupskayy - Kuganov Kuchar, Chairman of the Jamoat, Yakkadin - Boimatov Toir, Chairman of the Jamoat, Kumsangir	
2	Consultation on ToRs for ESIA	14 October 2010. Dushanbe, Tajikistan. Ministry of Energy of the Republic of Tajikistan	- Muhiddinov P.M. – First Deputy Minister of Energy and Industry of the Republic of Tajikistan - Kholnazarov N. – Head of Department for power energy of the Ministry of Energy and Industry of the Republic of Tajikistan - Valamat-Zade T.G. – Chief specialist of Energy Department of the Ministry of Energy and Industry of the Republic of Tajikistan - Salokhiddinov K. – Leading specialist of Energy Department of the Ministry of Energy and Industry of the Republic of Tajikistan - Azizova T. – Press-secretary of Energy Department of the Ministry of Energy and Industry of the Republic of Tajikistan - Samiev F. – Chief specialist of major construction works of the Ministry of Energy and Industry of the Republic of Tajikistan - Zardova M. – Chief specialist of international relations department of the	List of invitees: - Community Information Center - Renascence - Zumrad - Avrora - Association of Internet providers - Zdorove Associations of Banks of Tajikistan - Giplariya - Partnership for Development

	Consultation	Date	Participants	Comments
			Ministry of Energy and Industry of the Republic of Tajikistan - Damonov F. - specialist of international relations department of the Ministry of Energy and Industry of the Republic of Tajikistan - Gulov R.R. – Deputy Chief Engineer OJHC "Barki Tojik" - Azimov B.R. – First Deputy Chairman of OJHC "Barki Tojik" - Hakimov A. – Head of Investments Department of the Ministry of Energy and Industry of the Republic of Tajikistan - Abdurakhimov B. – State Expert Examination for Environment under the Committee for Environment under the Government of the Republic of Tajikistan - Habibov B. – Executive Director. Consumers Union of the Republic of Tajikistan. - Hairdarov M. – Chairman of NGO "Society and Law". A network of the NGO forum under ADB. - Kabutov K. – Head of Centre under the Academy of Sciences of the Republic of Tajikistan. - Asliddinov N.B. – Director of projects forecasting. General Information Centre. - Zoirova D. – Expert (observer). World Bank.	- Shahrvand - Surkhob - Bakhtovar - Special Olympics of Tajikistan - Orzu - Youth of XX Centaury - Imon - Global Initiative of Psychologists - Civil Society Development Center - Tarakkiyot - National Association of Managers and Marketing Specialists - National Association of Dehkan Farms of Tajikistan - Harmony of Universe - Tajikistan Scout Association - Manija - Society and Law - International Center for non-commercial law - Modar - Oftob - HelpAge International - Center of Help for People with disabilities - Femida - Tabiati Toza

	Consultation	Date	Participants	Comments
				- Tajik Social-and-Ecological Union - Institute of Economy - Navnihol - Kuhiston Foundation - Chashma - Women with Higher Education - Asti - Guli Umed - Association of Political Scientist - Samo - Association of Builders of Tajikistan - Youth of New Century - Youth Ecological center - Medservice - Vatanam - Vakhdat - Tajikistan Judicial Consortium - Tajik Association of Political Scientist - Panorama - Navstrechu Zhizni
3	Meeting with CSO to discuss CASA-1000	26 April 2013	- Michael Petrushkov, Coalition "Transparency for Development" - Rashid Gulov, Chief Engineer, Barki Tojik - Furkat Kadyrov, Tajik and Norwegian Centre	

	Consultation	Date	Participants	Comments
			- Rafika Musaeva and B. Sirojev, Association of Energetics of Tajikistan - M.A. Olimov, Information Centre "Sharq" - T. Sokhibov and E. V. Zasypkin, UE "South GeoPhysic Expedition" under GoT - Yelena Sherbakova, Tajik Telegraphic Agency - Abdullo Ashurov, Radio "Ozodi" - Pairav Chorshanbiev, Information Agency "Asia-Plus" - Kristina Erlih, NIAT "Khovar" - P. Aminov and Nigina Alieva, TV "Jahonnamo" - Nigina Alieva and Takhmina Mukhammedova, World Bank	

Source: World Bank, August 2013