

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)

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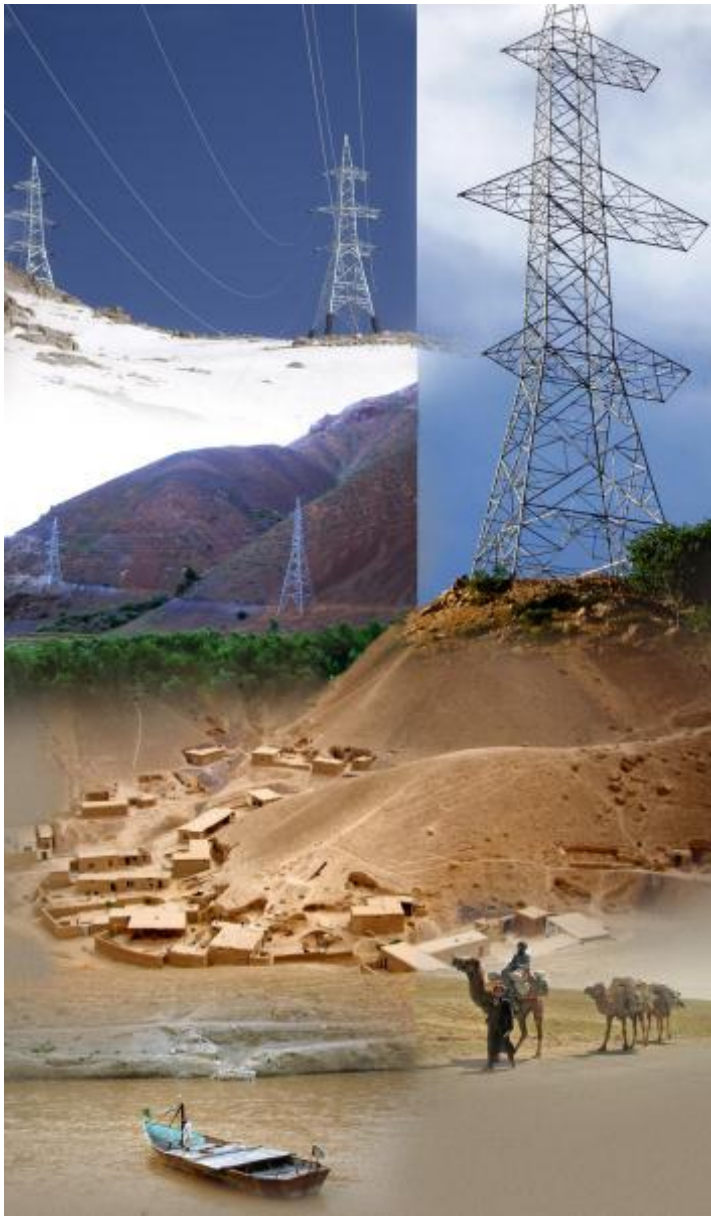
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List of Abbreviations

AC	Alternating Current
AC-DC	Alternative Current – Direct Current
ADB	Asian Development Bank
AIB	Afghanistan International Bank
APA	Assistant Political Agent
AP	Affected Persons
AREU	Afghanistan Research & Evaluation Unit
BP	Bank Policies
CASA	Central Asia-South Asia
CASAREM	Central Asia-South Asia Regional Electricity Market
CEP	Committee for Environmental Protection
CoI	Corridor of Impact
CRM	Conflict/ Complaints Resolution Mechanism
DABS	Da Afghanistan Breshna Sherkat
dB	Decibel
DC	Direct Current
DC-AC	Direct Current – Alternative Current
DEM	Digital Elevation Model
DMC	Developing Member Countries
EA	Environmental Assessment
EBRD	European Bank for Reconstruction and Development
ECO	Economic Cooperation Organization
EIA	Environmental Impact Assessment
ESIA	Environmental & Social Impact Assessment
E&S	Environmental and Social
ESMP	Environmental & Social Management Plan
IEL	Integrated Environments (2006) Ltd.
IR	Inception Report
EMMP	Environmental Management and Monitoring Plan
EMMM	Environmental Mitigation Management Matrix
EMP	Environmental Management Plan
EMF	Electro-magnetic Field
EMI	Electro-magnetic Interference

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EMO	Environmental Management Organization
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPC	Engineering Procurement Construction
ES	Environmental Supervisor
FCR	Frontier Crimes Regulations
FGD	Focus Group Discussion
FATA	Federally Administered Tribal Areas
E&SE	Environmental and Social Expert
E&W	Energy and Water
E&WD	Energy and Water Department
FI	Financial Intermediary
GB	Gigabyte
GDP	Gross Domestic Product
GIS	Geographical Information System
GoA	Government of Afghanistan
GoT	Government of Tajikistan
GW	Giga Watt
GPS	Global Positioning System
ha	Hectare
HH	Household
HPP	Hydro Power Plant
HVAC	High Voltage Alternate Current
HVDC	High Voltage Direct Current
IDP	Internal Displacement Policy
IEE	Initial Environmental Examination
IEIA	Initial Environmental Impact Assessment
IFC	International Finance Corporation
IFI	International Financial Institution
IGC	Inter-governmental Council
IPP	Independent Power Producers
IPDP	Indigenous Peoples Development Plan
IPDF	Indigenous Peoples Development Framework
ILO	International Labour Organization

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IRP	Involuntary Resettlement Policy
IsDB	Islamic Development Bank
ISIA	Initial Social Impact Assessment
Kg	Kilogram
Km	Kilometres
kV	Kilo Volts
LAA	Land Acquisition Act
LARP	Land Acquisition and Resettlement Plan
LARF	Land Acquisition and Resettlement Framework
MoU	Memorandum of Understanding
MAPA	Mine Action Program of Afghanistan
MEW	Ministry of Energy and Water
MASL	Metres above Sea Level
MCWG	Multi Country Working Group
MMM	Mitigation Management Matrix
NEB	National Energy Board
NEPA	National Environmental Protection Agency
NEQS	National Environmental Quality Standards
NESK	National Electric Grid of Kyrgyzstan
NGO	Non-Governmental Organization
NRP	National Resettlement Policy
NTC	National Transmission Company
NTDC	National Transmission & Despatch Company
NWFP	North West Frontier Province
OD	Operational Directive
OM	Operational Manual
OP	Operational Procedures
OMS	Operational Manual Statements
OD	Operational Directives
PA	Political Agent
PAC	Project Affected Communities
PAP	Project Affected Person
PEO	Project Environmental officer
pESIA	Preliminary ESIA (the country specific ESIA within the IEL ESIA)

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PIU	Project Implementation Unit
PIP	Participant Involvement Plan
PMU	Project Management Unit
PPE	Personal Protective Equipment
PS	Performance Standard
RAP	Resettlement Action Plan
REA	Regional Environmental Assessment
RF	Russian Federation
RoW	Right of Way
RP	Resettlement Plan
RPF	Resettlement Policy Framework
RTE	Rare, Threatened or Endangered
SABAWON	Social Action Bureau for Assistance in Welfare and Organizational Networking
SEO	Site Environmental Officer
SEE	State Ecological Expertise
SO	Safety Officer
SIA	Social Impact Assessment
SNC	SNC Lavalin
SRTM	Shuttle Radar Topographic Mission
ToR	Terms of Reference
TL	Transmission Line
TSS	Total Suspended Solids
TSP	Total Suspended Particles
UN	United Nations
UNESCO	United Nations Education Scientific and Cultural Organisation
UNMACA	United Nations Mine Action Centre for Afghanistan
UXO	Unexploded Ordinance
WB	World Bank
WHO	World Health Organization

1

INTRODUCTION

1 Introduction

1.1 Introduction and Context

1.1.1 Country Context

Regional Setting

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. CASAREM offers an opportunity to boost prosperity and alleviate poverty in all of the countries involved, particularly in some of the poorest parts of the world (such as Tajikistan, Afghanistan and Pakistan's border areas), and to contribute to stability and growth in Afghanistan.

The proposed CASA-1000 project will facilitate the first electricity trade of 1,300 megawatts (MW) of existing summertime hydropower surplus between the two regions, involving the 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. The project would contribute to alleviating power supply shortages in Pakistan and Afghanistan and would enhance revenues and economic prospects in the Kyrgyz Republic and Tajikistan.

Country Background

Kyrgyz Republic and Tajikistan inherited the well-developed infrastructure of the former Soviet Union, but are still recovering from the impacts of the breakup of established trade with other parts of the Soviet Union, including a rapid decline in living standards, social conflicts (such as the civil war in Tajikistan in the early 1990s, and violence in Kyrgyz Republic in 1990 and again in 2010). Both are also small, landlocked countries vulnerable to natural disasters and the influence of external economic conditions. Their gross national income (GNI) per capita is below US\$1,000, the lowest among the Central Asian countries. However, given their location in the Tien Shan mountain range, they are endowed with abundant water resources and considerable hydropower potential. Since their independence, both countries have launched structural reforms aimed at transitioning toward market-based economies, and both countries have endeavoured to improve their energy sectors. Both countries have a limited ability to realize their economic potential if they remain economically isolated and do not expand their options to address energy security challenges.

Afghanistan remains a country in conflict and is still extremely fragile. The country has weak state and civil society institutions and is faced with enormous development challenges. Despite the ongoing conflict and insecurity, there have been significant political achievements in the past decade, including two rounds of presidential and legislative elections coinciding with an emerging media and civil society. As a result of the ongoing conflict, Afghanistan has been receiving an extremely high level of foreign aid (estimated at US\$15.7

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billion in 2010), which is almost equivalent to the country's GDP. This current level of aid is unlikely to be sustained after 2014 when the departure of international forces is expected; the Afghan economy needs sustainable sources of long-term inclusive growth, as the slowdown in aid will produce a drag on the overall economy at a time when growth is vitally needed to cope with fiscal and demographic pressures. Under reasonably optimistic scenarios, growth in Afghanistan is projected to fall from a 10-year average of over 9 percent to between 5 and 6 percent in 2013–18. Unemployment, already at 8 percent in 2009–10, is projected to rise just as the labor force is expanding by 300,000 new entrants per year. A well-functioning electricity sector is key to growth and job creation; new infrastructure and reliable electricity are essential.

Pakistan has important strategic endowments and development potential, yet it faces significant economic, governance, and security obstacles to achieving development outcomes. The country's increasing working-age population presents the critical challenge of finding ways to provide adequate services and increase employment. Poverty levels have declined from 34.5 percent in 2001–02 to an estimated 17.2 percent in 2007–08. Persistent conflict in Pakistan's border areas and security concerns throughout the country affect all aspects of life and seriously impede development. As the country recovered from the 2008 global crisis, its GDP grew 3.8 percent in fiscal year 2009–10 (FY09–10). The 2010 floods, exacerbated by a hike in food and fuel prices, caused economic activity to slow to 2.4 percent in FY10–11. Growth has remained in the 3.5 percent range in FY11–12, well below the level needed to provide jobs for a growing population. More crucially, the availability of electricity is considered to be the main constraint to economic growth and industrial investment in Pakistan and ultimately, to shared prosperity.

Trade Prospects

Energy Export Potential. The countries in Central Asia, with large energy resource potential relative to their domestic needs, have been pursuing energy export-led growth strategies since their independence in 1991. Kazakhstan, with its significant oil and gas resources, has been the most successful, followed by Turkmenistan and Uzbekistan. During the Soviet era, these resources were managed centrally on a regional basis. The hydropower resources in Kyrgyz Republic and Tajikistan were operated primarily as an irrigation system, and power generation was secondary and occurred primarily in summer months. At that time, energy systems were designed to reap the benefits of diverse energy sources that ranged from hydropower to coal and natural gas, resulting in regional energy exchanges between the various republics. Following the breakup of the Soviet Union, regional trade declined by 90 percent of the 1990s level, as the individual states began to focus on achieving a greater level of energy self-sufficiency. As a result, there has been an increase in seasonal mismatches of energy, with a large hydropower summer surplus leading to spillages of water with no electricity generation and a widening gap between demand and supply during the winter months. The hydro-rich countries have not been able to realize their potential, in part because of (a) the significant resources needed to develop the necessary electricity infrastructure; (b) limited regional cooperation; and (c) lack of clarity about the main electricity export market.

Import Options. The neighboring South Asia region, on the other hand, is energy deficient, is heavily dependent on imported, expensive energy (mainly oil), and is increasingly looking into lower-cost, cleaner energy imports to meet its rising demand driven. While reliance on domestic power generation capacity remains the cornerstone of each country's sector policies, there is an increasing realization that electricity imports and trade can be a cost-effective and potentially secure means of reducing the demand-supply gap. In this regard, imports of existing summer surplus electricity from Central Asia offer a relatively low-cost means to both reduce current shortages and to develop and test the infrastructure and institutions which could then be expanded to meet future demand. Of particular note is the fact that Pakistan experiences a much larger deficit in the summer, when the hydro-rich Central Asian countries have substantial surplus generation. The economic linkages between the two regions would also contribute to a future stability that is rooted in these vested economic ties.

Planned Regional Initiatives. Various countries in South Asia and Central Asia have pursued a number of initiatives (including CASA-1000) as part of a broader ambition to create a regional energy market based largely

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on the export-import of either natural gas or electricity. For example, Turkmenistan, Uzbekistan, and Tajikistan are currently exporting electricity to Afghanistan in small quantities and hope to expand the trade market by generating power and exporting to South Asia, particularly Pakistan. The current generation from Turkmenistan and Uzbekistan is thermal-based, whereas in Tajikistan it is hydro-based. Pakistan is exploring various energy import opportunities that include a natural gas pipeline with Iran and an electricity interconnection with India.

Against this backdrop, it is clear that there is currently a substantial missed opportunity for regional trade that can be met by the CASA-1000 project, which can lay the foundation for a future energy market between the South Asia and Central Asia regions. The project fits well in the space of current energy market prospects in the two regions and does not exclude other proposed regional initiatives, as there are complementarities between them. The CASA-1000 Project is designed to utilize available surplus hydro generation without the need for new investments in power generation, thus making it economically viable and able to allow further development without precluding the option of trade expansion in the future with other neighbouring countries as an open access system.

In May 2006, a ministerial-level conference was held in Islamabad with the Kyrgyz Republic and Tajikistan (proposed exporters) and Afghanistan and Pakistan (proposed importers), at which the countries collectively declared their intention to pursue electricity trade opportunities. This was followed by another conference in October 2006 in Dushanbe, where the four governments signed the first inter-governmental memorandum of understanding in which they committed to pursue the development of the first phase of CASAREM—that is, to establish the necessary transmission and trading infrastructure and systems to enable a trade of roughly 1,300 MW of electricity between Central Asia and South Asia, or CASA-1000. The countries then entered into an inter-governmental agreement in August 2008 and set up an Inter-Governmental Council (IGC) to steer the development of the Project.

The four countries have intensified their cooperation since then and, together with partner international financial institutions (IFIs)¹ and bilateral donors,² have progressed in conducting the required analytical work for establishing the technical, economic, environmental, social, and commercial feasibility of the CASA-1000 transmission infrastructure.

Sectoral and Institutional Context

As noted, above, all four CASA countries share numerous power sector constraints, including weak finances and governance, and supply shortages, seasonal in Central Asia and perennial in South Asia (most pronouncedly in Pakistan). Additionally, electricity access is a significant problem in both Afghanistan and Pakistan.

South Asia

The South Asia region faces tremendous energy challenges. More than 400 million people still remain without access to modern electricity services in what are the most conflict-affected regions of the world. Data based on a major national household-level survey carried out and compiled in the European Union's "National Risk and Vulnerability Assessment in Afghanistan 2007/08"³ indicate that only about 20 percent of the population has

¹ Comprises the World Bank, the International Finance Corporation, the Islamic Development Bank, and the Gulf Coordination Group which includes the Saudi Fund for Development, Kuwait Fund for Arab Economic Development, Abu Dhabi Fund for Development, and OPEC Fund for International Development.

² The Australian Agency for International Development, the United Kingdom Department for International Development, the Private-Public Infrastructure Advisory Facility, the U.S. Department of State, and the U.S. Agency for International Development have been actively supporting the preparation of the project.

³ http://ec.europa.eu/europeaid/where/asia/documents/afgh_nrva_2007-08_full_report_en.pdf

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access to grid electricity. Afghanistan, as a fragile and conflict-affected state, requires significant support to build up its infrastructure services in a sustainable manner, including the provision of affordable electricity to its population. In Pakistan, protests and riots have become routine every summer, with electricity shortages that occur amid increasing heat waves resulting from temperatures regularly over 40 degrees Celsius (over 110 degrees Fahrenheit). A recent report on jobs and employment in South Asia⁴ cited the availability of reliable electricity as one of the most binding constraints facing all types of urban, formal firms, which generally have the highest productivity and the highest-paid jobs.

Afghanistan. Although Afghanistan has recently begun rehabilitating its power sector after two decades of conflict, it is clear that many more years will be required before this sector will be able to function adequately and meet the country's demand for electricity. 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. Currently the generation capacity of Afghanistan is only about 270 MW, as numerous facilities have been destroyed during recent conflicts. Transmission constraints add to the problem, as peak generation output cannot be delivered to the demand centres. The 2013 Asian Development Bank (ADB) Master Plan for Afghanistan developed by Fitchner forecasts no significant additional capacity in the Afghan system by 2016 and no new hydropower before 2024. In regards to importing power from neighbouring countries, if the planned transmission lines are commissioned, the import capacity could increase to about 900 MW by 2016.

In the meantime, demand is growing rapidly in the country. The ADB Master Plan forecasts demand in the Kabul area of 1,408 MW and countrywide demand should reach 3,502 MW by 2032. 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. From the data available on the loading of substations, the maximum total load on the substations in the Kabul region in 2010 was 197 MW. However, this figure does not represent the full power demand of Kabul, as substantial demand in the Kabul region may be suppressed.

The lack of access to electricity for a significant portion of the population continues to hamper economic growth and raises doubts about the country's future ability to provide this key infrastructure, especially during the impending transition from decades of conflict marked by the anticipated withdrawal of the North Atlantic Treaty Organization-International Security Assistance Force (NATO/ISAF) from the country in 2014.

The government's medium-term outlook for the sector focuses on: enhancing energy security through the rehabilitation of clean and low-cost major hydro plants, which is currently underway; adding local resources based on more generation capacity to meet unmet and future demand (coal-based power plants associated with mining activities); expanding small and medium hydro plants; and starting work on one or two large hydro plants based on the optimized development of water resources. In addition, the government places strategic importance on tapping into surplus power from neighbouring Central Asian countries, which would also enhance its prospects as a safe transit country and increase revenues from potential transit fees for sales to Pakistan and other neighbours.

Pakistan. Pakistan faces similar development challenges that are linked also to an ongoing energy crisis marred by long periods of load shedding and power cuts. These are largely attributable to, among other factors, weak sector governance, inefficiencies in the distribution system, and the high cost of supply. The sector is governed

⁴ Reema Nayar and others, *More and Better Jobs in South Asia* (Washington, DC: World Bank, 2012), available at http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1327936304951/MBJSA_ConsolidatedTextWithCover_Revised.pdf.

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by a regulator and relies on a single national transmission company (NTC), namely the National Transmission and Despatch Company (NTDC), and nine different distribution companies (DISCOs), as well as a vertically integrated utility serving the city of Karachi (Karachi Electricity Supply Corporation, KESC) for the provision of services to consumers. The Central Power Purchase Agency (CPPA) acts as an agent for NTDC with a mandate to procure each unit of electricity produced from different sources and sell it to the DISCOs and other bulk consumers. The performance and capacity of the DISCOs varies significantly. The gap between installed and available capacity reflects inadequate maintenance, particularly of public sector generation plants and reduced hydro capability in winter due to a decrease in water flows and releases from reservoirs. Available capacity is also often utilized sub-optimally, in particular for thermal plants, due to inadequate availability of gas as residential, commercial, fertilizer, and industry are accorded higher priority in allocation. Meanwhile, peak demand is estimated to be about 18,500 MW for a typical summer day and about 13,100 MW for a typical winter day (as computed by National Power Control Center-NPCC⁵). Shortages are therefore typically of the order of 4,200 MW in the summer and 1,900 MW in the winter (this peaked at about 7,000 MW during the summer of 2011).

Up to the late 1980s, the electricity fuel mix was dominated by hydropower (about 70 percent). To address continuing energy shortages, in the 1990s Pakistan launched an extensive program to mobilize private sector investments in power generation, but these were primarily concentrated on thermal generation, which typically require smaller investments and have a faster gestation time. As a result, the country's generation mix now comprises about 68 percent thermal generation, and the share of hydropower has decreased correspondingly. With the shift towards thermal, and in particular towards fuel oil, the cost of generation has also increased significantly resulting in a huge sectoral deficit. This has increased the vulnerability of the economy due to the sustained increase, and volatility, in international oil prices in recent years. Sector costs have also been growing due to many years of under-investment in an aging system, which, coupled with poor management control, has resulted in increasing technical losses in generation and distribution.

Another set of issues relates to the inability of revenues to keep pace with costs, as tariffs have not kept up with costs and the Government has a policy of a uniform national tariff that due to its design cannot cover the full cost of the power system. Available and affordable electricity is critical to long-term growth and improved quality of life. The annual per capita electricity consumption is low in Pakistan at only 433 Kilowatt-hours (kWh) – lower than lower middle income country standards, which on average consumed 643 kWhs per person per year in 2008.⁶ Moreover, electricity consumption in Pakistan grew by only about 73 percent since 1990 compared to 187 percent in Malaysia and 300 percent in China.

In a country of 180 million that is one of the most urbanized in the region, the demand for energy continues to grow. Between 2004 and 2009, electricity consumption grew by 22 percent while the supply remained practically stagnant. Shortages and concomitant load shedding, when system operators make scheduled or unscheduled interruptions to the power supply, are part of daily life and have been for years. In the summer of 2011, load shedding reached peak levels, averaging about eight hours per day and reaching sixteen to twenty hours in some areas. Such shortages have significantly affected the ability of businesses to operate efficiently while also disrupting daily routines for the general population, and have recently given rise to unrest and violence in the major cities. The economic consequences may be less visible but are no less severe. According to the Government of Pakistan Economic Survey 2009-10, the cumulative effect of the energy crisis on the economy of Pakistan is estimated at upward of 2 percent of GDP. An independent study was conducted in 2008

⁵ NEPRA, State of the Industry Report, 2010/2011, Table 24

⁶ *World Development Indicators*. Annual per capita consumption is 3,388 kWh for Malaysia and 2,040 kWh for China.

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estimating the cost of industrial load shedding to the economy at PKR 210 billion (US\$2.5 billion), resulting in the loss of 400,000 jobs and US\$1 billion worth of exports.⁷ From 2010 to 2012, Pakistan made a serious effort to deal with the electricity crises through investing in the domestic expansion of hydropower (1,410 additional MWs from an already constructed tunnel on the existing Tarbela Dam), improving the efficiency of the natural gas distribution system, and pursuing import opportunities for electricity/gas from Central Asia, Iran, and India.

Pakistan is endowed with hydropower resources (mainly on the Indus River) as well as some natural gas reserves.⁸ However, current gas supplies are not sufficient to meet the energy demand, especially from the fertilizer industry and household consumption. There is limited availability of gas for power generation, and the dual fuel plants are mostly run on expensive oil. Large coal reserves were discovered in 1991 but have not been in use since. While the generation expansion would mainly rely on hydropower, the country would still face significant shortages in the short and medium term, given the long gestation and high cost of hydropower construction and startup. This has led to the need to explore the import of electricity.

Central Asia

In contrast to South Asia, the Central Asian countries involved in this Project, Tajikistan and the Kyrgyz Republic, rely almost entirely (over 90 percent) on hydropower to meet their energy needs. Most of the assets in the electricity sector were inherited from the Soviet era and need continued investments in rehabilitation and/or replacement. Both the countries themselves and their development partners recognize the importance of rehabilitation investments, as they are the backbone of the domestic power supplies and the economy.

The natural hydrology driven by snow melts results in heavy water flows during the summer and significantly reduced flows during the winter. The rivers used for hydroelectric generation are transboundary, and Tajikistan and Kyrgyz Republic maintain an agreed level of water outflows in the summers for the irrigation needs of the downstream riparian countries. The water released in the summer is used for the generation of electricity up to the level of domestic demand and for export, and the rest is spilled without passing through turbines. Tajikistan and Kyrgyz Republic thus face the problem of surplus power in the summer months and perennial power shortages in the winter months. The combination of low tariffs, poor governance and under-maintenance of energy assets causes a severe disruption to the economy and affects the productivity and well-being of the population as a whole. With relatively low-cost surplus electricity available in the country, the governments would be able to generate much-needed revenues that could help finance fuel resources or additional generation capacity and other energy-efficiency programs as a means of dealing with their winter energy crises in the medium to long term.

The Kyrgyz Republic. With reference to the existing and committed supply, the Kyrgyz Republic's existing system is mainly hydro (2,910 MW, 85 %), with some thermal plants (530 MW, 15 %) providing additional power generation capacity in dry seasons and peak periods. The hydro system relies on the Toktogul reservoir with a storage capacity of 19 billion cubic meters (bcm) and hydro power plant (1,200 MW, 5,110GWh/year), enabling multiyear regulation of the cascade operation.. Downstream plants benefit from Toktogul's turbinized outflow as a regulated inflow, and provide a considerable amount of annual energy (7,235 GWh). The inflows into the cascade are highest during the summer period as a result of snow melts, leading to a surplus of unused electricity and the spillage of water due to the need to maintain the downstream flows and, at times, to the reservoir's limited storage capacity. Electricity exports during the summer are made to Kazakhstan based on yearly negotiations, but the price levels are low and the amount is uncertain.

⁷ *State of the Economy: Emerging from the Crises*, Second Annual Report 2009, Institute of Public Policy, Beaconhouse National University, Lahore.

⁸ Estimated at 27.6 trillion cubic feet or 0.8 trillion cubic meters as of 2010.

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The thermal system generating capacity for the Kyrgyz Republic is sourced mostly from the Bishkek plant, with minor contribution from the Osh plant. These plants are old, have very high variable cost, and are mainly used during winter. The capacities shown reflect the projected rehabilitation and the maximum attainable energy production; however the plants are not being considered as a source for exports to CASA 1000.

During the winter, when demand is high and the water inflows are not enough to meet the peak needs for electricity and heating, there are often four–six hours of load shedding. As a short-term measure to deal with its energy deficits in the winter, the Kyrgyz Republic has been exporting its summer surplus of electricity to neighbouring countries, such as Kazakhstan, in exchange for fuel supplies from coal and gas. The sector suffers from large losses (in excess of 30 percent of net generation), very low electricity tariffs (less than US\$0.02/kWh), and suboptimal contractual arrangements and payment mechanisms between the energy companies that hinder the transparency of power and financial flows in the sector and undermine the incentives for good performance and sound management by the sector entities. In recent years, there has been a strategic focus on implementing critical investments to improve the viability of the power sector and respond to the energy needs of the country in the medium to long term. The major cause for the lack of investments has been the poor financial health of the energy sector, due mainly to the above-mentioned very low level of tariffs (the lowest in the Europe and Central Asia region) and the poor operational performance of the utilities.

Tajikistan. Tajikistan possesses considerable hydropower resources. About 55% of the total water resources of Central Asia are in Tajikistan. Similar to the Kyrgyz Republic, Tajikistan relies almost exclusively on hydropower (96 percent of its 4,750 MW of installed capacity) to meet its electricity needs. With the Vakhsh cascade following the same hydrological patterns as in the Naryn River, the same pattern of summer surplus and winter shortages exists, except the Nurek reservoir storage capacity is much smaller and the water spillages in summer thus even larger.⁹ As one of the poorest countries in Central Asia, poverty alleviation is at the centre of the country's development challenges. The World Bank's recent Poverty Reduction Strategy Paper (PRSP) for 2010–12 underscored the essential role of the infrastructure sector in achieving the objectives of poverty reduction and growth. In particular, the energy sector was identified as a priority, given its significant development impact and potential. The power sector is managed mainly by Barki Tojik, a state-owned enterprise. Some of the key issues facing the sector are: (i) the financial viability of Barki Tojik, which carries a sizable cash deficit—about 2 percent of GDP for 2010; (ii) the seasonal mismatch between electricity supply and demand, contributing to economic losses and hardship for the population, with winter power shortages leading to 12–18 hours of load shedding during winter months outside of the capital city of Dushanbe; (iii) the increasing liability of the payments to independent power producers (IPPs) for electricity that cannot be commercially utilized during the summer months in the absence of export opportunities; and (iv) the country's overall limited management capacity in key operational areas of the power sector.

1.2 Environmental & Social Assessments Reports to Date

The CASA-1000 Project has been the subject of several E&S investigations and studies, including:

- 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 Project¹⁰;

⁹ Estimated to be around 3,000–6,000 Gigawatt hours every year, depending on the hydrology.

¹⁰ IEL submitted the final report on 28 September 2011, however this report is not considered as an approved World Bank report by the Project Team (pers comm to the REA Consultant during the REA)

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- Central Asia-South Asia Electricity Transmission and Trade (CASA-1000) Project Feasibility Study Update by SNC Lavalin, February 2011 (updating previous studies by SNC);
- An Avian Risk Assessment and Management Study (ARAMS) for the Central Asia–South Asia Regional Electricity Trade Project (CASA-1000), by Normandeu;
- A preliminary Social Impact Assessment (SIA) was undertaken in 2012, which reported on the social and community aspects through targeted consultation and early work around potential community benefit sharing initiatives, and which will be further refined; and
- A range of consultations have been undertaken on the project since its development concept; these are reported on later in this REA and include consultations on the draft REA.

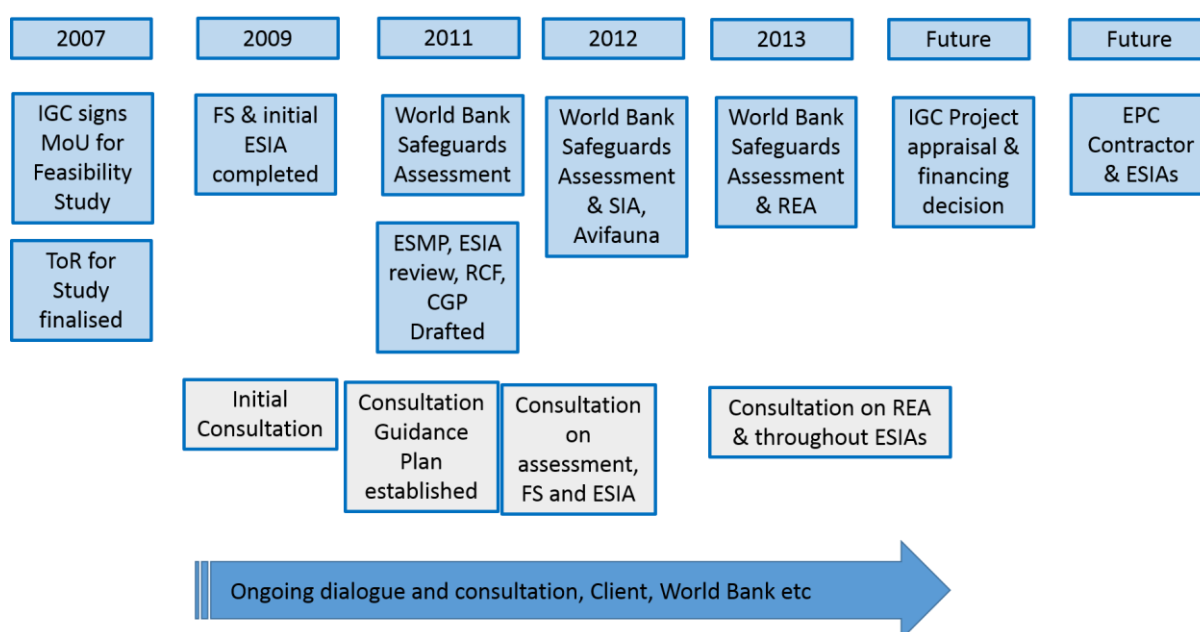


Figure 1-1 Chronology of the CASA-1000 Project to date

The studies and reports preceding the REA are briefly summarised below and are tabulated in Table 1-1.

SL	Document title	Date	Content	Author
1	Central Asia-South Asia Electricity Transmission and Trade (CASA-1000) Project Feasibility Study Update by SNC Lavalin, February 2011	February 2011	Feasibility Study for Project: aspects such as existing power generation capacity; construction and operational costs; engineering; and routing considerations.	SNC Lavalin
2	ESIA and ESMP of the Central Asia South Asia Electricity Transmission Project (CASA-1000): Feasibility Stage.	September 2011	Summarising, analysing and assessing all environmental and social information available to date on the Project.	IEL
3	Avian Risk Assessment and Management (ARAMS)	May 2012	Provide a preliminary diagnostic of the avian risks	Normandeu Associates

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SL	Document title	Date	Content	Author
	Information Collection and Preliminary Avian Risk Diagnostic		associated with the Project transmission line corridor. Determine the need for additional studies or provide justification for concluding that the avian risk level is sufficiently low that no further studies will be required.	
4	Social Impact Assessment Report	June 2013	Summarises previous work on social aspects, including community benefit sharing, social aspects from the IEL ESIA and risk assessment work in Afghanistan and Pakistan.	Unstated.

Table 1-1 Reports to date

1.2.1 Feasibility Study

The Feasibility Study (SNC Lavalin) considered the feasibility of constructing the Project, taking into account aspects such as existing power generation capacity; construction and operational costs; engineering; and routing considerations. Whilst there was no separate Environmental or Social Impact Assessment process *per se*, a decision was taken at the start to select an alignment that followed as close as possible to existing linear infrastructure (e.g. roads, power lines), so as to inherently reduce potential environmental and social effects and avoid greenfield sites (where possible).

The FS identified a corridor of 2km width, within which the TL would be routed, but did not finalise the precise centreline. This and the location of infrastructure and its design will be developed by the Engineering, Procurement, Construction (EPC) Contractors during the detailed design stage, which will be paralleled with country-specific ESIA's.

1.2.2 Environmental and Social Impact Assessment by IEL

Specific 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 needs to be addressed during the implementation of the EMPs and 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 RoW corridor of the Project; and
- Provide country-specific ESIA's for each of the four host countries identifying issues specific to those nations.

In summary, the following preliminary remarks are made on the ESIA, pending following discussion in the main REA document:

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- Given the limitations in terms of physical fieldwork, the approach to data collection using satellite imagery is appropriate and useful;
- Given the limitations on the availability of project information, such as precise details on construction methods, configuration, techniques, timing and locations, the approach to its assessment and mitigation design is appropriate and useful;
- The ESIA presents a logical and useful approach to the treatment of EMP aspects and components and this offers a good basis from which to effect sound E&S management during construction and into operations;
- There is much useful information from which to undertake supplementary ESIA's in individual countries so as to conform to country-specific Environmental permitting legislation; and
- The ESMP aspects present a good framework for implementation with EPC scopes of work and organisational arrangements, so as to ensure effective E&S management

The scope of work/Terms of Reference (ToR) for the IEL ESIA was issued to the NTCs for their comment (see later sections) and actually specifies a level of detail more commensurate with a project and country specific ESIA, as for example it calls for assessments of specific field elements like footbridges, cattle crossing etc. This level of detail was not achieved in the ESIA presented to date, which is more 'strategic' and higher level, as it addresses more generic issues such as identifying that community infrastructure and vulnerable communities will require assessment at a more local level. In view of the ESIA being strategic or regional, this finer level of detail should be able to be assessed during the individual, subsequent ESIA's for each of the participating countries.

In essence the ESIA concludes that no significant environmental and social impacts of the Project are predicted that cannot be mitigated by implementation of an Environmental and Social Management Plan (ESMP). It further concludes there are no protected areas or forest reserves within the RoW¹¹.

1.2.3 Avian Risk Assessment

This piece of work was conducted following the IEL ESIA and focusses solely on avian (bird) aspects. It represents supplementary environmental study which adds to the overall ESIA for the project and hence it is assimilated into the 'body' of ESIA work that has been undertaken to date and makes recommendations on the subject matter. As this material has not been incorporated into the earlier ESIA and has not yet been the subject of full and country-specific consultation, a summary is presented below and the full report is presented in Annex 2.

The objectives of the avian risk and management study (by Normandeau) were to:

- Provide a preliminary diagnostic of the avian risks associated with the Project transmission line corridor; and
- Determine the need for additional studies or provide justification for concluding that the avian risk level is sufficiently low that no further studies will be required.

A preliminary avian risk assessment for the transmission line was developed in the form of a Diagnostic Note using 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. This assessment identified potentially susceptible species from the literature of bird collisions and electrocutions. GIS mapping was used to generally characterize the risks of collisions and electrocutions to birds interacting with the proposed transmission line. Although coarse in scale, it was possible to provide a screening of some of the avian risk conditions along the Corridor of Impact (CoI) using published data and aerial photo-interpretation, to

¹¹ Subsequent work and the REA update these earlier findings

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identify the type of land features that might present potential risks for electrocutions and/or collisions, and to draw conclusions on the type of risk.

No 'ground-truthing' of the CoI was part of the Terms of Reference (ToR) or was conducted along the route. However, 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, and to assess the potential impacts of the transmission line in these areas. Based on this information, some preliminary mitigation was suggested.

This note was based on five considerations

- The nature of avian electrocutions and collisions;
- Environmental conditions and habitats potentially contributing to avian risks for electrocutions and collisions;
- The relationship between the CoI and recognized migratory flyways;
- Species of conservation interest associated with the CoI; and
- Other avian risk associated with anthropogenic change

The study identified that within the entire project footprint there are five Important Bird Areas (IBAs) and one Ramsar site; other IBAs lie close or within the wider CoI and these will be evaluated in detail in the subsequent four country-specific ESIA's. The study recommended that an Action Plan be developed to further assess and manage the risk to avian resources posed by the Project, taking into account fieldwork and monitoring during construction and operation; and institutional strengthening for the NTCs..

The study concluded that the presence of the bird areas was itself not a 'show stopper', but that work was required to further evaluate the transmission line routing and its infrastructure, as well as potential electrocution risks, taking into consideration rare and vulnerable species. It is considered that this work can be effectively undertaken in the forthcoming country-specific ESIA's.

1.3 Purpose of this Assessment

1.3.1 Introduction

This assessment is a Regional Environmental Assessment (REA), which by definition is an 'impact-centred' Strategic Environmental Assessment (SEA). SEA itself is an analytical and participatory approach to strategic decision-making that aims to integrate environmental considerations into policies, plans and programmes, and evaluate the inter linkages with economic and social considerations¹². REAs and sectoral EAs 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 (eg power transmission, as is the case with CASA-1000). These REAs evaluate and compare the impacts against those of alternative options; assess legal and institutional aspects relevant to the issues and impacts; and recommend broad measures to strengthen environmental management in the region or sector/programme.

As stated earlier, there have been a number of E&S investigations, studies and reports on the Project to date, including early work on concepts and routing at the Feasibility Stage; a Project-wide ESIA, which also included country-specific preliminary ESIA's (referred to herein as pESIA's); preliminary investigations on Social Impact Assessment (SIA) and a report on avian risks (Annex 2). Given that the NTCs have identified a possible 2 km broad corridor for construction this body of work constitutes an E&S assessment which is more detailed than a

¹² F Loayza. 2012. Strategic Environmental Assessment in the World Bank, Learning from recent experience and challenges. World Bank.

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typical strategic EIA or conventional Environmental Management Framework (EMF), but not as detailed as a project-specific or country-specific evaluation.

The IEL ESIA summarized potential 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 AC-DC (Alternative Current – Direct Current) convertors, substations and footings for towers will be proposed by the EPC Contractor and subject to approval by the respective Government authorities and the World Bank, after carrying out detailed route surveys and a consideration of the site-specific environmental and social aspects through further individual ESIA's in each country (by ESIA Consultants).

During the Feasibility Study the 2km wide corridor was identified, within which the Project would be constructed. This corridor was selected based primarily on routing of existing linear infrastructure between the key Project elements eg power source and final destination, so as to inherently minimise E&S effects, by not routing across undeveloped land. The alignment also took into consideration factors such as existing services, infrastructure, topographic features and steepness of terrain and the like. As such the corridor could be considered to be somewhat flexible, as little or no ground investigations of geology, soils and general constructability were undertaken, as this was only at a feasibility level and not outline or detailed design. In such situations it is common for the corridor to be modified during the detailed design stage, once Contractors and design engineers take ground conditions into consideration. Until this work is underway no further comments can be made on precise routing of the transmission line (TL). However, even just considering the 2km width already allocated, this is generally considered to be of sufficient width to allow the siting of the TL so as to avoid sensitive features. For example if there were residential properties in or near the corridor, the TL could be located up to 2km distance from them still within the corridor, to avoid or reduce potential issues. All such factors will be addressed during the detailed design and construction stage by the EPC Contractors, in parallel with country-specific ESIA's.

The REA includes baseline data using available information, such as satellite images procured for preparing the September 2011 Project ESIA; definition of environmentally sensitive areas where possible; potential environmental hotspots identified in the Avian Risk study; the results of an express screening on important Biodiversity areas by using Integrated Biodiversity Assessment Tool (IBAT), designed by IUCN, UNEP-World Conservation Monitoring Center, Conservation International, and BirdLife International for this purpose – which shows no such areas are located in the vicinity or under the proposed transmission line (TL) other than those specified in the Avian Risks Study; information from the preliminary Social Impact Assessment (SIA); and work on a more comprehensive SIA is on-going by the NTCs.

The REA includes guidance to the ESIA Consultants on generic mitigation to manage potential impacts during construction and operation of the proposed transmission lines; roles and responsibilities of EPC contractors; independent monitoring/supervision consultants; and environment and social development specialists/consultants etc.

Importantly the REA includes specifications and guidance for conducting the ESIA's that are required for each country, to satisfy national legislation as well as World Bank Operational Policies (OPs).

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. This later analysis is often conducted by construction contractors, in this case the EPC Contractors, or more likely independent Consultants who will undertake individual ESIA's within each of the countries.

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

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ESIAs by the Consultants. Furthermore, at this stage there are no obvious reasons or mechanisms that would drive a fundamental or piecemeal realignment of the transmission line or its infrastructure components. However, it appears that one or more of the NTCs may be looking to introduce changes to the Transmission Line routing. In response to this, the REA seeks to provide additional guidance to allow the requisite E&S analysis to be undertaken, so that progressive ESIA is achieved for the Project.

The Feasibility Study does not appear to contain specific design guidance that would constitute a ‘design driver’ i.e. a specification for an infrastructure component that limits its installation, such as a specific distance limit from a project component (eg tower or transmission line) to say, communities or other existing infrastructure. The ESIA contains notional reference to a 1km separation distance between key infrastructure and sensitive features such as residences, but is not supported by specific rationale. The World Bank EHS Guidelines for Electricity Power Transmission and Distribution, similarly do not stipulate specific designs for transmission line routing, other than to conclude that there are no empirical data to demonstrate adverse health effects from exposure to typical electric and magnetic fields (EMF) levels from transmission lines and equipment. Within this area the principle is to avoid centres of population wherever possible and avoid siting lines and infrastructure close to or above residences, school and offices etc. Thus, in principle, it is considered that the 2km wide corridor is generally of sufficient width to allow infrastructure to be located at a sufficient distance to sensitive features. Therefore where it is concluded that the broad corridor is satisfactory, the subsequent country-specific ESIA should be successful in reaching a satisfactory E&S effect. For sections where the NTC wants to alter the route from that assessed in the existing ESIA, framework-type guidance has been generated and includes aspects such as a general avoidance of populated areas, in the absence of firm design criteria such as stand-off distances and the like.

The EMP component addresses the generic aspects of design, construction and operation, commensurate with the regional nature of the project design to date. It also includes guidance on the management during implementation involving the EPC Contractors and monitoring mechanisms implemented by the NTCs. The EMP also include ToRs for the subsequent country-specific ESIA to be undertaken, to ensure that the appropriate level of analysis and management is achieved. This includes, for example, the findings and recommendations from the avifauna study, to reflect both the generic interactions between birds and power line projects and the specific sensitive areas such as the Important Bird Areas (IBAs) and Ramsar site in Tajikistan and IBAs in Afghanistan.

The IEL ESIA contained so-called ESIA for each of the CASA-1000 countries, predominantly based on information from satellite imagery with limited visits, rather than detailed ground truthing and fieldwork surveys and are hence referred to in this REA as preliminary ESIA (pESIA), to distinguish them from the IEL ESIA *per se* and in recognition of their preliminary nature.

The supplementary ESIA will be undertaken (on behalf of the NTCs) by independent Consultants in a close working relationship with EPC Contractors. The EPC Contractors will also ground-truth and finalise all the design work, procure all the equipment and construct the infrastructure as necessary.

This arrangement should allow an effective, iterative process to occur, whereby the engineers of the EPC Contractors can work with the E&S practitioners to evaluate all project elements to reach an environmentally and socially acceptable project. The existing ESIA already has, and the REA strengthens the range of guidance, plans and organisational requirements to ensure that management is applied to achieve the required objectives and standards.

In parallel to the preparation of REA, a Resettlement Policy Frameworks (RPF) or Land Acquisition and Resettlement Frameworks (LARF) were prepared within each country, reviewed by International Finance Institutions (IFIs) that are involved in the Project, and subjected to consultation in each country, the feedback from which was incorporated in the final versions. This work will dovetail into the ESIA that are to be undertaken for each country and will ensure that social aspects are adequately addressed in the Project. Consequently this REA does not cover these aspects.

1.3.2 Report Structure

This REA comprises a number of sections, as presented below, along with a number of Annexes designed to clearly organise the information, whilst keeping the main body of the report to a manageable size. The main piece of work on E&S assessment was the ESIA undertaken by IEL, which included analysis of satellite imagery, which was then divided into 105 Alignment Sheets, accompanied by description of the features and potential impacts, where this was feasible to identify. The full title of this report (finalised and submitted on 28 September 2011) is presented in Annex 4, References and it will be necessary for the ESIA Consultants to review and use much of the material from this report in the forthcoming ESIA's that are required for each Project country.

<i>Section</i>	<i>Content</i>
Summary	A summary of the REA background, baseline data, analysis, findings and management planning. <i>Separate Document.</i>
1. Introduction	Provides a general background to the report, its purpose and how it is organised.
2. Project Description	Summarises the project engineering and design details across the four participating countries.
3. Policy, Legal and Administration	Summarises the key relevant policy, legal and administration arrangements for the project.
4. Baseline Data	Provides summary information on the baseline data for the project, notably on a project-wide scale. The majority of site and country-specific data are presented in the individual pESIA's referenced in Annex 4.
5. Analysis of Alternatives	Summarises the key issues of analysis of alternatives, including the no project and alternative alignment aspects.
6. Assessment of Potential Impacts	Presents results from assessment of the potential impacts associated with project implementation.
7. Public Consultations	Summarises the results of the consultations held to elicit stakeholders views on project implementation.
8. Environmental Management Plan	The Environmental Management Plan (EMP) provides a framework as to how impacts of the Project can be mitigated and how the Construction Contractors can be managed to ensure compliance with environmental and social management provisions.

9. <i>Annex 1 Consultation Guidance Plan</i>	Presents supporting guidance to the ESIA Consultants
10. <i>Annex 2 Avian Risk Study</i>	Presents the avifauna study report
11. <i>Annex 3 E&S Specifications for Contractors</i>	Presents guidance on the Management Plans.
12. <i>Annex 4 References</i>	Presents reference sources

1.3.3 Report Limitations

The REA was prepared based on existing information from the IEL ESIA, the Feasibility Study and the Avian Risk Assessment and Management Study). No new information has been collected or fieldwork conducted, however the results from consultations on the draft REA were 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 was performed to try to recover any additional information to strengthen the assessment. It was found that there was little or no useful extra detail that could be extracted that would be of use in the REA. There are inherent problems with trying to analyse limited resolution imagery, without the use of a GIS platform and the pdf transcribed alignment sheets have errors in the GIS mapping of overlaid features such as roads and rivers, which are shown displaced up to 600m from their actual location, as can be determined from the native imagery (jpeg files types). The supplied map data that IEL handed over to World Bank is in ESRI shapefile format associated with shape index and attribute tables. In addition, database (.DBF format) files have been supplied for the route Angle points. The supplied ESRI map datasets consist of the following: International Boundaries; Internal Administrative boundaries; Settlements; Angle points along proposed routes; Polylines delineating proposed route. The shapefiles are topologically structured with the inclusion of attribute tables. Attribution is limited to individual point, geographic coordinates and local area and settlement names.

During the REA, IEL were contacted and the native satellite imagery was obtained, however data were supplied for only Afghanistan and Kyrgyz Republic. The attempt to get additional information on aspects such as building type, land use and so on, beyond being able to differentiate features such as agricultural land plots and settlements from the imagery was unsuccessful so there was no reason for demanding and analysing those for Pakistan and Tajikistan.

There are known to be security, fragility and other related issues in areas of Afghanistan and Pakistan, however no specific information was available during the preparation of the REA.

The IEL ESIA cites the following as a description of the data collection: The information supplied from The World Bank and SNC consisted mainly of Initial Social Impact Assessments (IESIAs), Initial Environmental Impact Assessments (IEIAs) and Technical Economic Feasibility Studies produced by SNC Lavalin.

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

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example, on whether the TL routing crossed sparsely populated areas or more densely populated areas within each of the Project countries. As part of the ESIA a certain amount of background information was presented on aspects such as percentage literacy, broader economic activities, such as say rice farming and the general development status.

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, dealing with identification and analysis of impacts during construction, there is virtually no information source to draw upon, therefore it is not possible to identify: 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; or a range of other issues that are required to be assessed during the forthcoming ESIA's in each Project country.

This REA is consequently not presenting a comprehensive social impact assessment. In a similar manner, this REA does not present an analysis or assessment on a range of aspects such as security or fragility of the communities. Physical Cultural Resources and related aspects are required to be evaluated during the forthcoming country-specific ESIA's, through field work, surveys and consultations with the relevant organisations and communities.

1.3.4 Future requirements

The next stage of environmental and social assessment will need to be ESIA's in each of the four Project countries to comply with national legislation and World Bank OPs (and other International partner organisations, where relevant).

Consequently it will be necessary for the NTCs to arrange the engagement of ESIA Consultants in parallel with that of Engineering, Procurement and Construction (EPC) Contractors. This REA contains guidance on those ESIA's, as well as some organisational and monitoring mechanisms, which are also required to be implemented by the NTCs.

2

PROJECT DESCRIPTION

2 Project Description

2.1 CASA-1000 at a Glance

The Kyrgyz Republic, Tajikistan, Afghanistan and Pakistan are pursuing the development of electricity trading arrangements and the establishment of a Central Asia South Asia Regional Electricity Market (CASAREM). Since 2005, these four countries have intensified their cooperation with a variety of International Financial Institutions (IFIs), including the World Bank.



Figure 2-1 Project location

A key aim of the CASAREM initiative is the proposed development of a cross-border electrical interconnection linking all four countries to facilitate the transfer of existing surplus power from the Kyrgyz Republic and Tajikistan, southwards to Afghanistan and Pakistan. The first phase of CASAREM is to establish the necessary transmission and trading infrastructure and systems to enable a trade of 1,000 to 1,300 MW of electricity between Central Asia and South Asia, and referred to as “CASA-1000”. It is envisaged that the major share of this export will be used by Pakistan, while a relatively smaller quantity of power (up to 300 MW) will be imported by Afghanistan. A map of the proposed project is shown in Figure 2-1 .

A Feasibility study was originally financed by the Asian Development Bank and undertaken by SNC Lavalin of Canada. The study was carried out in two phases, with Phase 1 covering a pre-feasibility assessment of the technical and economic viability of the

transmission interconnection, and Phase 2 providing the detailed feasibility analysis of the project. The Phase 1 report was completed in December 2007 and the Phase 2 report in January 2009. An update of the feasibility study was submitted in February 2011.

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The Asian Development Bank subsequently suspended their involvement in the Project and the World Bank was approached in mid-2009 by the Governments participating in CASA-1000 for continued technical and economic feasibility support. The World Bank decided to continue the technical and feasibility study by SNC Lavalin.

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

The final package of Environmental Assessment (EA) documents for the project will include: (i) an REA providing general information for the whole Project area and a guidance framework for preparing country-specific ESIA and site-specific plans; (ii) a country-specific ESIA/EMP for each country; and (iii) site-specific EMPs and site management plans to be prepared by the Engineering, Procurement and Construction (EPC) Contractors.

The four NTCs prepared an original project-wide ESIA (the IEL commission) based on the prefeasibility study, summarizing potential impacts from construction of transmission lines within a 2 kilometre-wide corridor. The detailed design, including final routing/alignment of transmission lines within this corridor and the exact location of DC-AC converter station and tower footings, etc. will be defined later by the EPC Contractors, following detailed route surveys and considering the site-specific environmental and social aspects.

While acknowledging the relatively early stage of project preparation and the security issues that preclude on-site data collection in some areas, the World Bank review of the original ESIA concluded that it did not satisfy World Bank requirements because it lacked sufficient information on baseline conditions to make a reasonable evaluation of potential project risks and because it was prepared by the same engineering consultants who prepared the prefeasibility study. As recommended by the World Bank, the NTCs subsequently engaged an independent consultant firm (IEL) to review and update the original ESIA, incorporating additional baseline data in the form of 6 m resolution satellite imagery for the entire Project route to augment existing baseline information. This helped identify some sites along the route which present particular risks that will require further assessment, including the Important Bird Areas (IBAs) and Ramsar sites etc. This additional baseline data will be strengthened further during the course of project preparation to provide a more detailed analysis of potentially sensitive areas based on the satellite images and a more concrete discussion of mitigation measures and actions to be taken during further design and implementation.

2.1.1 Implementation Structure

The governments of the four participating countries, namely the Kyrgyz Republic, Tajikistan, Afghanistan, and Pakistan, have entered into various Memoranda of Understanding and an Inter-Governmental Agreement (IGA) relating to the CASA-1000 Transmission Project. The IGA, signed in August 2008, is governed by international law and is considered to be a treaty within the meaning of that term under the Vienna Convention on the Law of Treaties. The countries have also established a ministerial-level Inter-Governmental Council (IGC), with a secretariat headed by an internationally recruited executive director, for steering the development of the CASA-1000 Project and realizing the vision of the Central Asia South Asia Regional Electricity Market (CASAREM). The IGC is responsible for taking such decisions as may be necessary regarding the realization and subsequent operation of the CASA-1000 Transmission Project. The project preparation activities for the Project are led by dedicated working groups from each country, collectively known as the Joint Working Group (JWG.) The JWG meets regularly through monthly virtual meetings and quarterly face-to-face meetings to discuss overall progress and agree on the key decisions needed to advance project preparation.

A Project Structure Report was prepared by an IGC legal advisor and was reviewed by the JWG at its October 2012 and December 2012 meetings. Various options for the project structure were analysed, taking into consideration the importance of keeping it as simple as possible given the weak institutional capacity of the participating countries. It was agreed that complexity should be added only if strictly necessary and only to the extent it is really needed.

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Upon review of and discussions on the options for the project structure, the JWG agreed to adopt the option of a Contractual Joint Venture (also referred to as “Option A”), whereby the project would be financed entirely by IFIs/public finance and the countries would be responsible for implementation through their NTCs and relevant line ministries. Another option that was analysed was of a Corporate Joint Venture (also referred to as “Option B”), which requires the setting up of a separate legal entity (a Special Purpose Vehicle [SPV] or Project Company) that would be responsible for the contracting and management of the EPC and O&M contracts. This option was not preferred by the countries and was cited as requiring a lengthy process to setup. Furthermore, since major private financing for the project was considered unlikely—due primarily to the geopolitical situation of the region—setting up an SPV or Project Company was not deemed necessary. The agreed project structure, supplied directly (August 2013) from World Bank, is shown in Figure 2-2 below.

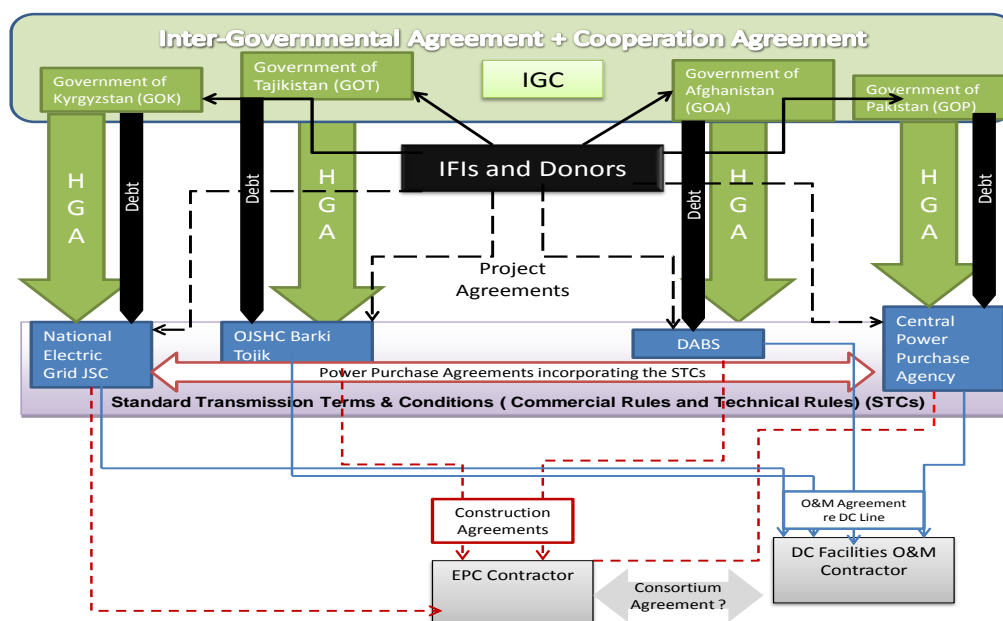


Figure 1: Option A- The Contractual Joint Venture

Figure 2-2 The Contractual Joint Venture

In subsequent discussions on the Project structure, the JWG concluded that a separate cooperation agreement may not be needed and would be replaced with a Master Agreement that would govern the complete commercial framework and other documents described in the Commercial Framework below. In evaluating its decisions on the Project implementation structure, the JWG considered the following benefits of the recommended option:

- Utilizes and builds upon the existing IGA framework;
- Minimizes delays that may well arise in the establishment of several special purpose companies;
- Verifies that as no project financing is involved, creating shielded cash flows for the benefit of the private sector investor or lender is not necessary, since the IFIs will treat this as a public sector project;
- Still allows for a commercially tight set of arm’s-length contracts to establish the relationships between stakeholders and to provide proper performance incentive mechanisms;
- Permits private sector participation through an O&M agreement with a reasonable degree of risk transfer commensurate with the level of the fee, a level that may be enhanced through a combination of greater risk transfer against a higher operator fee;
- Determines that as the debt service, operating costs, and O&M fees all sit within the national transmission companies, these are bundled with the price of electricity sold under the PPAs, except

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where the user is a separate entity, in which case Transmission Service Agreements (TSAs) would be used;

- Reduces potentially adverse public perceptions as the existing national transmission companies are the owners of the assets comprising the project in their respective countries.

The implementation structure during the construction phase would be discussed and agreed on with the countries during the contractor prequalification stage.

2.2 Description of Project Components

2.2.1 Transmission Line Route

As the Project is still in the feasibility stage, this section provides an overview of its route, whilst it is important to note that neither the final centreline, nor the final location of towers has been identified.

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

2.2.2 Description of 500 HVAC Transmission Line Route

The 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 450 km, out of which 425 km passes in the South-Western Kyrgyz Republic and the remaining 25 km lies in Tajikistan. Between Khudjand and Sangtuda, the electricity will be transmitted through the Tajik grid which will therefore be strengthened with a 500kV single circuit line from Regar to Sangtuda (115 km).

The Corridor of Impact (CoI) has been identified as approximately 2 km wide between Kyrgyzstan and Tajikistan for the 500 HVAC transmission line.

Detailed descriptions of the 500 HVAC transmission line route can be found in the ESIA's for the Kyrgyz Republic and Tajikistan. 6m resolution satellite imaging of the proposed route was included in the ESIA.

2.2.3 Description of 500 HVDC Transmission Line Route

The HVDC route begins at the Sangtuda Hydropower Plant (Figure 2-3) 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). The proposed RoW has difficult terrain for approximately 160 km with a maximum altitude of 3800 masl. Key population centers along the route include 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 (1000 MW). The route traverses 117 km in Tajikistan, 562 km across Afghanistan and finally 71 km in Pakistan.



Figure 2-3: Sangtuda Hydropower Station

The Corridor of Impact (CoI) has been defined as 2 km wide across Tajikistan, Afghanistan and Pakistan for the 500 HVDC transmission line; selected as a corridor of suitable width within which infrastructure could be located to avoid sensitive features.

Detailed descriptions of the 500 HVDC transmission line route can be found in the pESIAs for the Tajikistan, Afghanistan and Pakistan.

2.2.4 Right of Way

The RoW is the strip of land along either side of the centreline. Vegetation within the RoW is not allowed to grow to a height typically above 4 m and no permanent structures shall be constructed within the RoW. Proper clearance to ground and other structures has to be maintained. The total width of this RoW will be 50 to 60 m (25 to 30 m on both sides). The RoW is not to be used for public road access. Any maintenance road access should be on the edge of the RoW so as not to encroach on the design clearances required. Given the semi-arid nature of the general alignment, it is expected that manual cutting of trees and shrubs will be required and it is unlikely that vegetation clearance to ground level will be required. Thus large scale habitat loss or habitat fragmentation are not anticipated and neither is soil erosion, which may accompany any total vegetation clearance.

2.2.5 Proposed Converter Stations (HVDC Line Only)

At each end of the transmission line, converter stations will be built to transform alternative current (AC) used in the national networks into direct current (DC) for transmission at high voltage and vice versa. The converter stations will measure approximately 400 m x 400m and will be sited within city limits in a permanent fenced off facility.

The converter stations will require road or rail access for heavy components such as converter transformers (which can weigh 160 tons or more). The converter stations will likely have a permanent staff of 15 to 20 highly skilled and semi-skilled staff at each location. These staff will require permanent housing, likely in a local community. The converter station will be provided with oil containment and fire protection as required. Light and noise mitigation will be provided as required.

2.2.6 Proposed Electrode Line and Ground Electrode (HVDC Line Only)

A suitable location for a ground electrode close to the converter station, but at least 5 km away must be found. Usually it is found within a 20 to 30 km radius of the converter station. It must have low soil resistance in both

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the upper and lower soil layers and have an adequate supply of moisture. It must be buried below the frost line and may be required to be fenced by non-conductive fencing. An area around the electrode up to 5 km should be reviewed for possible corrosion of metallic underground structures.

A DC electrode line and RoW will be required from the converter station to the ground electrode. It will require two conductors and may be steel poles/towers. It is usually designed to a standard 25 kV or 35 kV distribution line, but will require studies to determine this. This section gives an overview of the Project design, construction, operation, and general safety procedures for both the 500 HVAC and 500 HVDC cross-border interconnection lines across all four countries. Both projects are currently in the feasibility stage.

2.2.7 Design Standards and Codes

Internationally accepted design standards/codes will be used for the Project TL. Internationally accepted standards, guides from IEEE, IEC or CIGRE and best industry practices are to be utilized in the design of the converter stations and ground electrodes. The designs are to use overall life cycle costing to provide the best overall solution and mitigate Operating and Maintenance costs.

2.2.8 Climatic Conditions

During design of the transmission line, the following climatic conditions are to be considered: maximum, minimum and average temperatures; maximum wind speed; maximum ice thickness on conductors; and combined ice thickness and wind speed. Severe weather events and period of re-occurrence/risk should be considered to determine practicality of implementation. Isochoric levels (lightning strikes) are to be considered in the design, as are the use of automatic restarts if allowed by the system.

2.2.9 Conductors and Line Configuration

A DC Transmission Line has two conductors, with each conductor called a “pole.” The proposed TL is a +/- 500 kV DC line with each pole consisting of a bundle of four ACSR “Falcon” conductors, as required to meet the Electro-Magnetic Interference (EMI), also called Radio Interference Voltage (RIV) and Electrical Fields. Sky wires may be employed for high isochoric levels. The Electrode line will also use conductors and may use steel poles instead of wood for reliability reasons. The electrode line conductors will likely be different than the main transmission line because of lesser field effects at lower voltages. Two poles are supported by insulators attached to cross-arms of the tower.

2.2.10 Towers

A minimum of five tower types are required for the line:

- Tangent Suspension Tower -used for no line angle/small line angle up to 2 deg.
- Small Angle Suspension Tower-used for line angles from 2 deg. to approx. 10 deg.
- Medium Angle Tension Tower-used for line angles from approx. 10 deg. to approx. 45 deg.
- Heavy Angle Tension Tower-used for line angles from 45 deg. to 90 deg.
- Terminal Tower-used at the line terminals and as anti-cascade towers at intervals along the line.

The distance between towers will be between 350 m and 400 m. The average height will be about 35 m. The average “foot print” of each tower will be 10 m x 10 m.

Higher towers and longer distances between towers may be required for rugged terrain and river crossings etc. The type of footing required will depend on the soil type (poor, average, good), the terrain and soil stability.

The approximate number of towers expected to be required in each country is as follows:

Kyrgyz Republic 1050 Towers

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Tajikistan 610 Towers (10 for the HVAC line, 300 for the grid strengthening, 300 for the HVDC line)

Afghanistan 1200 Towers

Pakistan 150 Towers

2.2.11 Access

There will be a need to access all sections of the route, some of which will be along the RoW, whilst others will be accessed by temporary roads from existing highways. The number, width and distance of these temporary roads are not yet established and will be determined by the EPC during the detailed design phase and pre-construction surveys. All temporary roads will be removed and the sites reinstated to their previous condition.

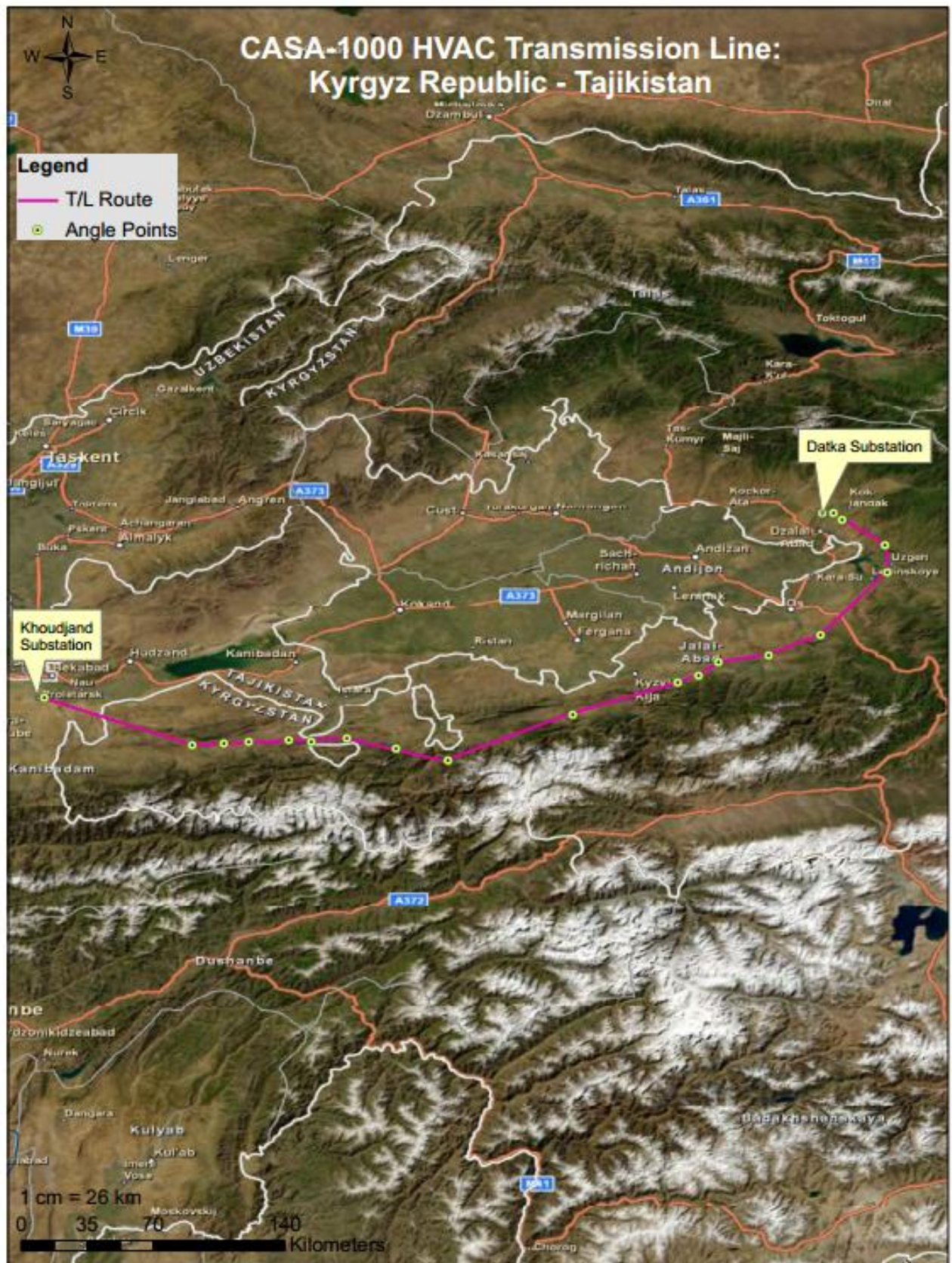


Figure 2-4 HV Transmission Line Kyrgyz Republic- Tajikistan

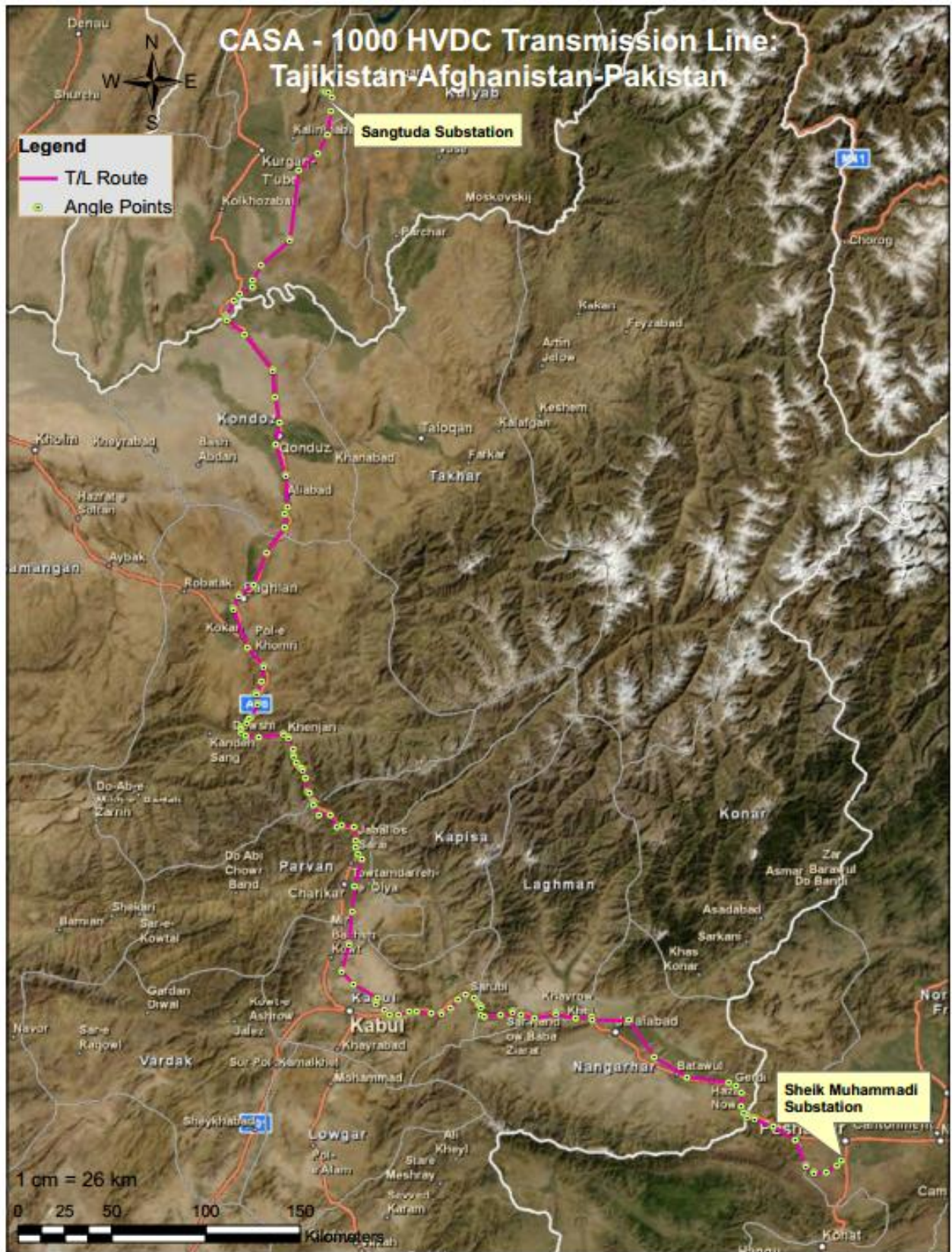


Figure 2-5 HVDC Transmission Line Tajikistan-Afghanistan-Pakistan

2.3 Safety Parameters

2.3.1 Safety System

The Contractors will adopt standard industry safety practices during construction including:

- Providing safety training for all employees;
- Supplying personal protective equipment;
- Employing Safety inspectors to monitor compliance;
- Regularly inspecting and maintaining equipment;
- Holding toolbox meetings on a periodic basis discussing risks and measures required to minimize them; and
- Considering the Contractor's safety records in the evaluation process.

2.3.2 Public Safety

The Contractors will be responsible for the safety of the public during construction. The Contractors will implement appropriate mitigation measures to ensure the public is not injured by construction equipment or activities.

The converter stations will be fenced to restrict public access. The electrode site may have to be fenced with non-metallic fencing depending on the design or other mitigated measures implemented..

2.4 Contractor Arrangements

Based on the analyses carried out in the feasibility study, the project would consist of:

- A 500 kV line from Datka to Khujand (477 km) to transfer the surplus power from the Kyrgyz Republic to Tajikistan, with the Tajikistan internal network transferring this power to Sangtuda;
- A 115 km 500 kV line between the Regar and Sangtuda substations;
- A 1,300 MW AC-DC convertor station at Sangtuda;
- A 750 km HVDC line from Sangtuda to Peshawar via the Salang Pass and Kabul;
- A 300 MW DC-AC convertor station at Kabul; and
- A 1,300 MW DC-AC convertor station at Peshawar.

The HVDC line has a length of 117 km in Tajikistan, 562 km in Afghanistan, and 71 km in Pakistan. During the bidding stage, the option to optimize the convertor stations' capacity would be explored, given the higher line conductor capacity.

2.4.1 Access to Construction Sites

The Contractors will require at least one storage yard in each nation for materials and for equipment deliveries. The storage yard locations will be decided by each Contractor with input from the Project environmental staff (e.g. Environmental Supervisor) during the final design phase, but they will likely be located near the RoW and an existing road.

Equipment and materials will be transported from the storage yards to each tower site by trucks using existing roads/tracks when possible. If temporary roads are needed along the RoW, the locations will be identified during the final design phase. In some cases, access may require use of agricultural tractor/trailers or in extreme cases it may be necessary to transport materials short distances manually.

For the converter stations, some of the equipment may need to be stored in-doors and thus a separate building is usually erected for this purpose. This building can then act as a storage and maintenance building once construction is completed. Permanent road access is required. Heavy road access or rail access is also required for the heavy equipment. 24 hour a day security is likely required during the construction process.

2.4.2 Clearing RoW

Clearing will occur before construction activities begin. Vegetation will be removed if it is/has potential to reach a hazardous height. Vegetation within the centreline will be cut, not controlled with chemicals. Vegetation near the edge of the RoW will be trimmed rather than cut. A 4 m wide track along the RoW will be cleared manually on the edge of the RoW for residents to salvage. Public vehicle access or growing of tall, woody crops will not be allowed in the RoW. The electrode line RoW should be similar.

2.4.3 Tower Foundations and Tower erection

Tower foundations will be constructed in reinforced concrete and the foundation will be “pad and chimney” foundations. The area of excavation will be approximately 2.5 m x 2.5 m x 2.5 m and will be filled with 15 to 20 m³ of concrete. Excavated soil will be backfilled within 2 days of the concrete pouring.

To ensure foundation stability, tower construction will only begin 14 days after the foundations are completed. “Gin pole” is the expected to be the method used for tower erection. This method is labour intensive but does not require large cranes. The working area around each tower site will be approximately 20 m x 20 m.

2.4.4 Stringing of Conductors and Overhead Ground Wire

Stringing of conductors and overhead ground wires will be done with the “tension” method. By using this method, the conductors are never in contact with the ground and damage and abrasion is avoided. Care must be taken not to drag the conductors on the ground which then produces corona discharges and EMI.

2.4.5 Operation and Maintenance Arrangements

The configuration of operation and maintenance activities have yet to be established, but typically the TL and all towers will be inspected annually to determine the maintenance needs. Common repairs needed on transmission lines include: vegetation overgrowth, cracked/broken insulators, minor washouts of foundation backfill and missing tower members. A repair schedule will be prepared once the inspection is complete. Emergency repairs may be required throughout operation of the TL due to accidents, violent storms, etc. They may require the placement of repair parts and towers in various locations along the TL to allow for rapid repairs. Emergency preparedness plans should be prepared to mitigate this.

Typical converter stations would have a permanent staff of 15 to 20 highly skilled and semi-skilled staff at each location. These staff will require permanent housing likely in a local community. Incentives to attract and maintain the highly skilled staff may be required. Reliability Centred Maintenance (RCM) could be employed to keep maintenance costs reasonable and maintain reliability. Root Cause Analysis would often be employed to maintain a high reliability. Some of the equipment, such as bucket trucks, may also be used for TL maintenance.

2.5 Funding Sources

From the approximate \$1 billion, the current indicative financing sources are anticipated to be predominantly World Bank and Islamic Development Bank as well as bilateral donors such as the members of the Arab Coordination Council, USAID and DfID.

2.6 Summary Description of Proposed Implementation Arrangements

2.6.1 Introduction

The sections below present the higher level EPC arrangements followed by the required implementation arrangements for the country-specific ESIA's and their subsequent management through into and during construction. The summary description of proposed implementation arrangements is presented here.

2.6.2 Project Implementation Schedule

This section presents the typical implementation schedule for the project on a monthly basis. Detailed and specific schedules should be developed in further phases of the project. Figure 2-6 below illustrates the typical sequence of key milestones up to completion of commissioning works and without including warranty period neither performance guarantee period which may vary from one to three years for such project.

The FS concluded that the project can be completed within a minimum of 58 months (five years). However, this completion period may be extended twelve (12) months depending on different factors such as:

- Availability and reliability of existing information and studies
- Countries' regulation especially for right-of way of transmission lines
- Stakeholders and utilities intervention during works implementation
- Interface among Owner, contractors, utilities and countries.

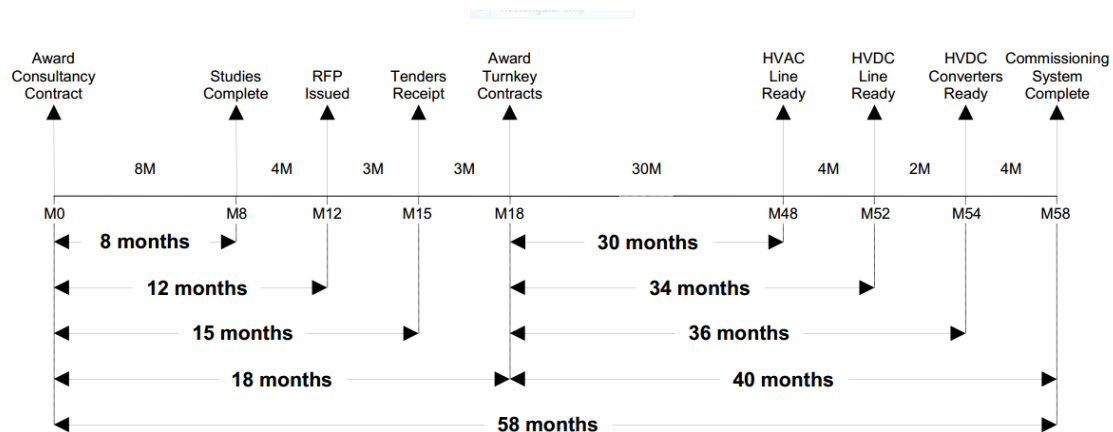


Figure 2-6 Typical Sequence of Milestones

The first eighteen (18) months are common to all the components of the project: Twelve (12) months to produce studies, specifications and tender documents; and six (6) months to evaluate tenders and to award EPC-turnkey Contracts.

Assuming that all EPC-Turnkey Contracts commence on the same date, the FS estimated that each component of the project can be completed as follows:

- 500kV HVDC Converter Stations and Control Centre 36 months
- 500kV HVDC Transmission Line Tajikistan-Afghanistan-Pakistan 34 months
- 500kV HVAC Transmission Line Kyrgyz-Tajikistan 32 months

The critical path is usually driven by the converter stations and in particular by the manufacturing and delivering of major equipment such as converter transformers and converter valves. However, different regulations in each country may divert the critical path to the transmission lines. Amongst other things the IGC will ensure that the decision-making process is streamlined to deal with any major issues that may arise during the construction and operation of the line.

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The implementing agencies are the four NTC¹³s 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. These companies are:

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

In addition, JSC Electric Power Plant (EPP) company of the Kyrgyz Republic and Pakistan's CPPA will also be parties to the PPAs for the purpose of export and import of power in their respective countries.

A financial management (FM) assessment of the entities covering budgeting, accounting, internal controls, funds flow, reporting, and auditing arrangements will be carried out to identify the weaknesses in their current FM systems and to agree on an action plan to address those weaknesses. Wherever possible, the assessment will build on the knowledge of the FM systems of the power utilities from on-going Bank projects in each of the respective countries.

Engineering Procurement Construction (EPC) Contractors will be engaged to advance the project, including finalisation of design, procurement of materials and construction. A number of contractors could be involved; one in each country for the TL and either one for the converter stations or multiple contractors. In parallel with the EPC Work will be the additional ESIA work to be conducted by ESIA Consultants at a country and project site level. 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 Contractors. 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.

The implementation of environmental procedures for the Project requires the involvement of several agencies and institutions within each of the four CASA-1000 countries, each fulfilling a different but vital role, to ensure effective environmental and management during the construction of the Project.

While the final decision for the structure of environmental and social management responsibilities will be made by the NTCs in each of the four countries, in discussion with the World Bank, the Section 8 of the REA presents as part of the REA a proposed tiered mechanism and implementation arrangements for environmental responsibility. Roles and responsibility of the following actors are described in the EMP:

- NTCs
- Project Environmental Officer
- Construction Supervision Engineer and Environmental Supervisor
- Construction's Site Environmental Officer (SEO)
- Independent Environmental Monitoring Consultant (IEMC)
- Construction Contractor and Sub-Contractors
- Project initiation and Staffing

¹³ The term NTC is used to identify the responsible organisation in each CASA-1000 country that distributes and manages the electricity infrastructure

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3

***APPLICABLE POLICY, LEGAL AND
ADMINISTRATIVE FRAMEWORK***

3 Applicable Policy, Legal and Administrative Framework

3.1 Introduction

3.1.1 Background

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 overall document. The overall ESIA also presented information on the World Bank guidelines and requirements.

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).

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 ESIA's 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.

The majority of the environmental legislation in the Former Soviet countries has its origins in Soviet Era Legislation, often with updates driven by interface with the International Financing Institutions (IFIs), such as WB. In that regard, the Kyrgyz Republic has a State Agency responsible for Environmental Protection and Forestry (SAEPF) while Tajikistan – State Committee for Environment. These key Government organisations constitute the key institutions for environmental policy and environmental safeguards.

Afghan's Environment Law (2011) is based on international standards that recognize Afghanistan's current physical and socio-political environment, whilst comprehensive legislation on the environment, in the form of an act of parliament is relatively new in Pakistan.

All of the participating countries are engaged in projects financed by IFIs, including WB and as compliance to the WB Safeguards policy is a pre-requisite to financing each project includes a system whereby an Integrated Safeguards Data Sheet (ISDS) is prepared for each project, to ensure compatibility with Bank procedures. The Project ISDS has been reviewed as part of the REA and a cross check made of the Operational Policies (OPs) described therein.

3.2 National laws and regulations

Information on the national laws and regulations of each of the four participating countries is presented in the ESIA and this section presents comments for each country.

3.2.1 Kyrgyz Republic:

Environmental Assessment requirements

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The two most significant pieces of legislation specifying the national EA rules and procedures is 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. The activities that require EIA include:

- Concepts, programs and plans for sectoral or territorial socio-economic development;
- Plans for the integrated use and/or protection of natural resources;
- Master plans for cities and settlements as well as other town-building; and
- Any new construction, reconstruction, expansion or re-equipment of operating economic entities or other entities which are likely to have impacts on the environment.

According to the Temporary Instruction for Procedure for Performance of Environmental

Impact Assessment of Planned Economic and Other Activities (Instruction 1 as approved by the Minister of Environmental Protection of the Kyrgyz Republic (June 27,1997)), the documentation prepared must reflect the full extent of the project and meet the specified requirements for EIA, while to ensure consistency of EIA reports, the Instruction on Procedure for Performance of Environmental Impact Assessment of Planned Activity should be fully consulted (Instruction 2 No. 386 as registered by the Ministry of Justice (July 04 1997)). According to Instructions 1 and 2 the EIA must include:

- Description of the project or planned activity;
- Possible alternatives for the project or planned activity;
- Description of the existing environment;
- Types and degree of impact on environment and population;
- Forecast any possible changes in environmental quality;
- Description of socio-economic and ecological consequences; and
- Actions to prevent environmental damage or mitigate the level of ecological risk.

Once prepared the EIA is reviewed by the authorized government body on environmental protection (Agency on Environment Protection and Forestry – Department of Ecological Expertise (see: http://www.nature.kg/index.php?option=com_content&view=article&id=51&Itemid=32&lang=en). It should be noted that Instruction 2 is developed in accordance with regulations of the *International Convention on Environmental Impact Assessment in a Trans-boundary Context* and also defines:

- Scope of the EIA application;
- Organization and procedure for the EIA performance;
- Responsibilities and liability of EIA participants;
- Registration of the EIA results; and
- Procedure for public hearing.

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.

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The supervision of EMP implementation is the responsibility of the State Inspection on environmental and technical safety of the KR (see: <http://www.geti.kg/index.php?lang=ru>). 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.

Environmental laws, regulations, and guidelines in Kyrgyzstan

The environmental regulatory framework of the Kyrgyz Republic consists of numerous different pieces of legislation which cover practically all environmental protection, natural resources management as well as various areas of economic activities with environmental and social impacts. The list of relevant to the current project regulatory documents is presented below:

SNIP¹⁴ II – 12 - 77 – Acoustic protection.

SNIP 1.01.01 – 82 – Construction climatology and geophysics.

SNIP 2.01.14 – 83 – Identification of the design hydrological characteristics.

SNIP 2.06.15 – 85 – Engineering protection of the territories against pounding.

SNIP 3.06.03 – 85- Highways (auto roads).

SNIP 1.02.01 – 85 – Instructions on formulation, development order, concordance and approval of the design documents for construction of buildings and structures.

ODN 1-86 – Guidelines for consideration and agreement of the decisions and design documents for construction of buildings and structures by the fishing control authority (1986).

Practical instructions for the bridge's estimation. 1987

SNIP 1.02.07 – 87 – Engineering survey for construction works.

National Environment Action Plan (NEAP) (1995)

Law of the KR on Peasant Farm

Law of the KR on State Registration of Rights to Immovable Property

Law of the KR of the Kyrgyz Republic on Licensing;

Law of the KR of the Kyrgyz Republic on Pastures

Law of the KR “about subsoil” (1997)

Instructions on Implementation Procedures of Environmental Impact Assessment of a Planned Activity (1997)

Conception of strengthening and development of the environmental protection activity for 1998 – 2001. KR Government Decree No. 416 dated 04.07.1998.

Law of the KR of 13.05.1999 – “Protection of the Environment”

Law on Ecological Examination (1999);

Law on Protection of Atmosphere (1999)

Law on Animal Life (1999);

Law on Biosphere Territories in Kyrgyz Republic (1999)

¹⁴ SNiP or SNIP refer to a set of construction codes and standards

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Land Code of the Kyrgyz Republic (1999)

Forestry Code of the Kyrgyz Republic (1999)

Law of the KR “about population radiation safety” (1999)

Law of the KR “about drinking water” (1999)

Law of the KR “about waste products and consumption” (2001)

Law of the KR “about tailing pits and dumps” (2001)

Law of the KR “about flora protection and use” (2001)

Law of the KR “about mountainous areas” (2003)

SNIP KR 0-02: 2004 – Anti-seismic construction. Design standards.

SNIP KR 32-01: 2004 – Road designing.

Water Code of the Kyrgyz Republic (2005)

Law of the KR “about ozonosphere protection” (2006)

Law of the KR “about government regulation of the policy on emission of greenhouse gases” (2007)

Conception of the ecological safety in KR. KR Government Decree No. 469 dated 16.10.2007.

3.2.2 Tajikistan:

EA requirements

There are two laws in the country that stipulate all aspects of the EA: (a) Law on Environment Protection; and (b) Law on Ecological Expertise. The Chapter V, Articles 35-39 of the Law on Environment Protection (2011), introduces the concept of 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. The mentioned laws stipulate 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. The following activities and projects subject to state ecological review: a) draft state programs, pre-planning, pre-project, and design documentation for economic development; b) regional and sectoral development programs; c) spatial and urban planning, development, and design; d) environmental programs and projects; e) construction and reconstruction of various types of facilities irrespective of their ownership; f) draft environmental quality standards and other normative, technology, and methodological documentation that regulates economic activities; g) existing enterprises and economic entities, etc. The laws stipulate that all types of economic and other activities shall be implemented in accordance with existing environmental standards and norms and shall have sufficient environmental protection and mitigation measures to prevent and avoid pollution and enhance environmental quality. The EA studies analysing the short- and long-term environmental, genetic, economic, and demographic impacts and consequences shall be evaluated prior to making decisions on the sitting, construction, or reconstruction of facilities, irrespective of their ownership. If these requirements are violated, construction will be terminated until necessary improvements are made, as prescribed by the Committee on Environment Protection under the Government of Tajikistan (CEP) and/or other duly authorized control bodies, such as sanitary, geological, and public safety agencies. An Environmental Impact Assessment (EIA) study is a component of the State Ecological Expertise, as set out in the 2011 amendments to the Environmental Protection Law and in the Law on the State Ecological Expertise (adopted on 15 April, 2012, N 818). The EIA is the responsibility of the project proponent. The State Ecological Expertise for all investment projects is the responsibility of the Committee for Environmental

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Protection under Government of Tajikistan (CEP) and its regional offices. Furthermore, according to the 2011 Law on the State Ecological Expertise, all civil works, including rehabilitation, should be assessed for their environmental impacts and the proposed mitigation measures reviewed and monitored by the CEP.

EA administrative framework. The Environmental Protection Law states that a SEE should be conducted by the State Committee for Environment, which is designated as a duly authorized state environmental protection body. A small unit in the ministry is entrusted with guiding and managing both EIA and SEE. EIA preparation is the responsibility of the proponents of public- and private-sector projects, who, in addition to complying with various environmental standards, procedures, and norms, shall meet the standards of other sectors and environmental media line agencies, such as sanitary-epidemiological, geological, water, etc

Public participation. Article 12 of the Environment Protection Law proclaims the right of citizens to live in a favourable environment and to be protected from negative environmental impacts. Citizens also have the right to environmental information (Article 13), as well as to participate in developing, adopting, and implementing decisions related to environmental impacts (Article 13). The latter is assured by public discussion of drafts of environmentally important decisions and public ecological reviews. Public representative bodies have an obligation to take into consideration citizens' comments and suggestions. The Law on the EE also provides the rights to the citizens to conduct a Public Environmental Expertise (art. 7). On 17 July 2001 Tajikistan acceded to the 1998 Aarhus Convention, the provisions of which have priority over domestic law that also stipulates the rights for Public EE.

It is important to mention per national regulations public participation is not mandatory but rather an opportunity for interested parties in EA decision making process and only in the case of projects with significant environmental impacts which require a full EIA study. In the case of small scale activities as it is the proposed project public participation is not required.

Implementation and compliance. A number of legal acts establish liability for violations of environmental laws, which can be enforced by several State bodies. In particular, the 1998 Code of Administrative Violations establishes administrative liability for organizations, their officers and individuals for a range of violations, from the careless treatment of land to violation of the rules for water use or water protection or failure to comply with a State ecological expertise. The most common administrative sanction is a fine of up to 10 minimal monthly salaries for individuals and up to 15 minimal salaries to officers of organizations. The 1998 Criminal Code covers crimes against ecological safety and the environment, such as violations of ecological safety at work, poaching, and spoiling land, violation of rules for the protection and use of underground resources. The maximum fine is up to 2,000 minimal monthly salaries and the maximum sentence is up to eight years in prison. The EA enforcement and compliance are the main responsibility of Environmental Inspectors of the State Committee for Environment.

National Environmental Regulatory Framework

Tajikistan has developed during last decade most of the needed environmental laws and regulations, and these laws along with the Regulations approved by the GoT create a favourable legal framework for environmental protection in the country as well as for usage and protection of its natural resources. The most important laws are the following:

Framework environment law. The “framework environment law” / Law on Environment Protection was adopted in 2011 (21 July, 2011, № 208). The previous Law on Nature protection was adopted in 1993 and amended in 1996, 2002. 2004 and expired in 2011. The Law stipulates that Tajikistan's environmental policy should give priority to environmental actions based on scientifically proven principles to combine economic and other activities that have an impact on the environment with nature preservation and the sustainable use of resources. The Law defines the applicable legal principles, the protected objects, the competencies and roles of the Government, the State Committee for Environment, the local authorities, public organizations and individuals. The Law stipulates also

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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. The Law also defines environmental emergencies and ecological disasters and prescribes the order of actions in such situations, defines the obligations of officials and enterprises to prevent and eliminate the consequences, as well as the liabilities of the persons or organizations that caused damage to the environment or otherwise violated the Law. The Law establishes several types of controls over compliance with environmental legislation: State control, ministerial control, enterprise control and public control. State control is affected by the State Committee for Environment, the Sanitary Inspectorate of the Ministry of Health, the Inspectorate for Industrial Safety and the Mining Inspectorate. Public control is carried out by public organizations or trade unions and can be exercised with respect to any governmental body, enterprise, entity or individual.

Water Code. Stipulates the policies on water management, permitting, dispute resolution, usage planning and cadastre. It promotes rational use and protection of water resources exercised by all beneficiaries and defines the types of water use rights, authority and roles of regional and local governments for water allocations among various users, collection of fees, water use planning, water use rights and dispute resolution. The Code delegates Water User Associations to operate and maintain on-farm irrigation and drainage infrastructure.

Land Code. The current Land Code (1992) defines the types of land use rights, the authority and the role of regional and local governments for land allocation, collection of land taxes, land use planning, land use right mortgaging and settlement of land disputes. It defines the rights of land users and lease holders, and also defines the use of a special land fund for the purpose of land privatization and farm restructuring. The Code regulates land relations and it is directed at the rational “use and protection of land and fertility of the soil...” The land may be used in a rational manner only and the Code allows local authorities to decide what constitutes “rational” land use. It includes also mechanisms that make it possible to take the land-use permit away from farmers, including in situations where land use causes land degradation.

Ratified international Conventions. Tajikistan is a party to 13 International environmental treaties. and in particular to:

- Rotterdam Convention on Prior Informed Consent (PIC) procedure on September 28, 1998, ratification pending;
- Stockholm Convention on Persistent Organic Pollutants on May 21, 2002, ratification pending;
- Convention on Biological Diversity on 29 October 1997 and to its Cartagena Protocol on Biosafety on 12 May 2004;
- Convention for the Protection of the World Cultural and Natural Heritage (1992);
- The United Nations Convention to Combat Desertification (1997);
- The United Nations Framework Convention on Climate Change (1998);
- The Ramsar Convention (2000); and
- The Convention on the Conservation of Migratory Species of Wild Animals (2001).

Taking into consideration international treaties have the superiority under the national legislation, mentioned above Conventions constitute also a legal basis in the relevant areas of environmental protection in the country.

3.2.3 Afghanistan

EA requirements

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)

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are also in development, aimed to guide project proponents through the Interim-EIA process. Key components of each document are highlighted below.

The Interim EIA regulation is currently applicable but National Environmental Protection Agency (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.

Environmental Law (2007). Legislation pertaining to Environmental Impact Assessments is contained in Chapter 3 of the Environmental Law, *Management of Activities Affecting the Environment*.

According to Articles 13-16 in the Environmental Law, any project, plan, policy, or activity (PPPA) “that is likely to have a significant adverse effect on the environment” must submit “accurate information to allow [NEPA] to determine the potential adverse effects and positive impacts of the [PPPA]”. If NEPA considers potential adverse environmental effects are likely to be significant, the PPPA proponent must then submit a “comprehensive mitigation plan” and an environmental impact assessment in order to obtain a permit to carry out the PPPA.

According to Article 15, a “comprehensive mitigation plan” includes:

a description of the mitigation measures that will be implemented in order to prevent, reduce or otherwise manage the environmental impacts of a project, plan, policy or activity; how these measures will be implemented; any other information prescribed by the NEPA

Article 21 describes “Interim Environmental Impact Assessment Measures” as the application of “international best environmental impact assessment practices”, and specifies the need to coordinate with NEPA. The Interim EIA Regulations described below correspond to Article 21.

Articles 16 and 20 describe the approval procedure for a permit for a PPPA. After receiving the mitigation plan and EIA documents, NEPA, advised by an EIA Board of Experts, can decide to either to grant or refuse a permit. A refused permit must be accompanied by written justification. The 8-member of the EIA Board of Experts are appointed by the NEPA Director General.

Article 19 describes public participation as an additional requirement for PPPA approval, in four separate sub-articles:

Proponent must demonstrate that “affected persons have had meaningful opportunities, through independent consultation and participation in public hearings, to express their opinions on these matters on a timely basis”.

If a proposed PPPA is likely to have “highly significant adverse effects on the environment”, affected persons must be allowed the opportunity to participate in each phase: the preliminary assessment, the environmental impact statement, the final record of opinion, and the comprehensive mitigation plan.

In order for NEPA to reach a decision regarding an application for a permit, the proponent must first distribute copies of the application, inform the public the application is available for review, display a copy for inspection, and convene and record the proceedings of a public hearing.

- (1) NEPA must inform the public of a decision and make relevant documentation available for public review.

*National EIA Policy (2007)*¹⁵. The National Environmental Impact Assessment Policy was a subsequent document made available after the passage of the Environmental Law that describes the Afghanistan EIA

¹⁵ National Environmental Impact Assessment Policy: An Integrated Approach to Environmental Impact Assessment in Afghanistan. Final (November 2007)

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background, the components of the system, the policy vision, and of particular importance, weaknesses and next steps in EIA system implementation. These challenges are outlined in detail in Section 4.

Interim Environmental Impact Assessment Regulations (March 2008). The next component of national environmental legislation is the Interim Environmental Impact Assessment Regulations document, which describes the following necessary requirements:

Regulation 3 refers to separate categories of activities likely to have a significant adverse effect on the environment and therefore “prohibited” and subject to a permit application. Category A corresponds to activities with the most adverse effects on the human environment or environmentally sensitive areas. Category B activities have less adverse effects, are site specific, and are likely reversible. NEPA also has the right to apply EIA Regulations to other activities likely to have a significant adverse effect on the environment. An activity that is both prohibited and likely to cause significant pollution will require separate authorization for the polluting activity in addition to a certificate of compliance corresponding to the EIA Regulations (Reg. 3.4).

Regulations 4-5 require a screening report be prepared by the proponent before the submission of an application for a certificate of compliance. The screening process is to follow international best practices listed by NEPA.

Regulation 6 requires:

- a notice of public disclosure to landowners, land occupiers, and elders of affected communities within 14 days of receiving an application and screening report.
- a decision regarding screening report sufficiency within 21 days

Regulation 7 outlines the EIA components required if an EIA is required by NEPA

Regulation 8 requires NEPA to respond to the EIA submission within 45 days with a review report. It also requires NEPA to either issue a Certificate of Compliance or refuse the Certificate within 45 days of the review report submission.

Regulation 9 indicates that the NEPA Executive Deputy¹⁶ can issue a certificate of compliance only if the applicant is in accordance with the procedural provisions of the Regulations.

Since 2008, Afghanistan has established legislation and guidance regarding EIA, such as “An Integrated Approach to Environmental Impact Assessment in Afghanistan” and “Administrative Guidelines for the Preparation of Environmental Impact Assessments”, which states: The vision for adoption of environmental impact assessment (EIA) has been established in the final policy of NEPA and states the following: The use of EIA shall be implemented by the Government to protect the environment and community well-being in Afghanistan thereby assisting the progress of sustainable development.

National environmental regulatory framework.

The government of Afghanistan has drafted/ passed other laws and regulations directly or indirectly relevant to environmental governance and management in Afghanistan:

1. Law on the Preservation of Afghanistan’s Historical and Cultural Heritages (2004)
2. Water Law, May 2009
3. Environmental Impact Assessment Regulations, March 2008.
4. Administrative Guidelines for the Preparation of Environmental Impact. Official Gazette No. 939, June 2008
5. Environment Law, January 2007
6. National Environmental Impact Assessment Policy, November 2007

¹⁶ The “Executive Deputy” is the most senior non-political official within NEPA

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7. Law on the Protection of Historical and Cultural Properties, Issue No. 828, May 2004
8. Minerals Law, February 2010, then rejected and now again revised and is in the Parliament
9. Hydrocarbon Law, January 2009
10. Draft Hydrocarbon Regulation, January 200
11. Natural Resources Law
12. Mining Regulations, will change as the law has been changing
13. Amendment to the Mineral Law, February 2011, this has changed but yet to be approved by the parliament with or without changes.
14. Hydrocarbon Law
15. Afghanistan National Standards Organization (ANSO), yet to establish any Environmental Standards for the country
16. Afghanistan has signed, but not ratified: Hazardous Wastes, Law of the Sea, Marine Life Conservation, 2011
17. Forest Law of Afghanistan.23.09.2011.V.0.1.SE.doc

Afghanistan's Environment Law (2011) is based on international standards that recognize Afghanistan's current physical and socio-political environment. The current security climate has made it difficult for government and the judicial system to operate properly. Afghanistan has signed, but not ratified, the Basel Convention regarding trans-boundary movement and disposal of hazardous waste, and is in the process of acceding to the Convention on Migratory Species (CMS) and the Ramsar Convention on Wetlands.

3.2.4 Pakistan

EA requirements

The Pakistan Environmental Protection Agency (Review of IEE & EIA) Regulations 2000 define the procedures for categorization, preparation, review and approval of environmental assessments reports of all developmental projects. Under these regulations projects have been categorized into Schedule I and Schedule II depending upon the nature and scale of environmental impacts. Projects included in Schedule-I require initial environmental examination, whereas those included in Schedule-II require full scale environmental impact assessment. This project falls under Schedule-II and would require conduction of a full scale environmental impact assessment as well as a public consultation after a mandatory 90 days (minimum) of disclosure of the EIA.

National Environmental Regulatory Framework

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 GoP 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 environmental impact assessment (EIA) system.

Pakistan Environmental Protection Act, 1997: The Pakistan Environmental Protection Act (PEPA), 1997 empower the government to frame regulations for environment protection and pollution control. Section 12 of this Act requires that every proponent of the project shall submit an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) before commencement of construction and operation of any new project which is likely to cause adverse environmental effects. Section 11 of Pakistan Environmental Protection (PEPA, 1997) prohibit the discharge or emission of any effluent or wastes to environment including hospital waste or air pollutant or noise in an amount, concentration or level which is in excess of the National

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Environmental Quality Standards (NEQS) of Pakistan. Other important sections in the Act dealing with various environmental protection issues are:

- Section 11: Prohibition of Certain Discharges & Emissions
- Section 12: Review of IEE & EIA
- Section 13: Prohibition of Import of Hazardous Waste
- Section 14: Handling of Hazardous Substances
- Section 15: Regulation of Motor Vehicles
- Section 16: Environmental Protection Order
- Section 17: Penalties
- Section 20: Environmental Tribunals

Other major policy and legal acts on Environmental Protection in the country are:

- National Environment Policy 2005 - approved
- National Energy Conservation Policy 2006 - approved
- National Sanitation Policy 2006 - approved
- National Drinking Water Policy 2009 – approved
- National Environmental Quality Standards (NEQS) for Municipal and Industrial Effluents, 2000
- NEQS for Industrial Gaseous Emission, 2000
- Certification of Environmental Laboratories Regulations, 2000
- Environmental Samples Rules, 2001
- Self-Monitoring & Reporting by Industry Rules, 2001
- Provincial Sustainable Development Fund Board (Procedure) Rules, 2001
- Provincial Sustainable Development Fund Board (Utilization) Rules, 2003
- Hospital Waste Management Rules, 2005
- Pakistan Biosafety Rules, 2005
- National Standards for Drinking Water Quality, 2010
- NEQS for Ambient Air, 2010
- NEQS for Noise, 2010
- NEQS for Motor Vehicle Exhaust & Noise (Amended), 2010

After passage of the 18th Amendment, this environmental management framework began to be replaced by institutions at the provincial level. Per the amended constitution, while devolution occurs, all environmental laws, regulations and other legal instruments having the force of law can “continue to remain in force until altered, repealed or amended by the competent authority.”

Until recently, the overarching responsibility for environmental priority-setting and policy formulation in Pakistan rested with Pakistan's Climate Change Division at the federal level and Environment Departments within each province. Pursuant to the 18th Amendment, in 2011 Ministry of Environment (MoE) was eliminated and many of its staff members and functions were transferred to a newly created Ministry of Disaster Management (MDM). On the other hand Pakistan EPA was moved to Capital Administration Division, which limited its geographical coverage from across Pakistan to the capital territory alone. In April 2012, yet again Ministry of NDM was renamed as Ministry of Climate Change (MoCC) and Pakistan EPA was transferred back to it. In the beginning of 2013 this Ministry has been further converted to Climate Change Division. Another aspect of devolution that was unclear concerned the status of the Pakistan Environmental Protection Council (PEPC), which was assigned responsibilities for overall leadership on environmental matters under PEPA, 1997. PEPC has now been placed with the Climate Change Division. The Council, which had included top-level officials from various segments of society, had major responsibilities for supervising implementation of national environmental policies.

Provinces have assumed their full responsibilities for environmental protection under the 18th Amendment, while the umbrella responsibility for regulatory enforcement rests with the Pak-EPA as before. Prior to the 18th

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Amendment, Pak-EPA had been responsible for overseeing the implementation of PEPA, 1997, an activity mainly carried out by the EPAs in each of the provinces. In addition to overseeing PEPA, 1997 implementation, Pak-EPA had functions that included environmental monitoring and the preparation of an annual national environmental report.

Decentralizing environmental management responsibilities to the provinces offers a number of benefits, including the capacity to respond more effectively to local priorities, but it also poses significant risks. For example, inconsistent interpretation and enforcement of environmental standards across provinces could lead to highly uneven levels of environmental degradation in different parts of the country.

Even before passage of the 18th Amendment, each provincial EPA was responsible for undertaking environmental management tasks in its province (e.g., implementing rules and regulations of PEPA, 1997). Their responsibilities included regulatory and monitoring functions, such as enforcing environmental regulations, handling environmentally-related complaints, and operating laboratories for monitoring environmental parameters.

Comprehensive legislation on social development, in the form of an act of parliament is relatively new in Pakistan. For instance, Pakistan's National Resettlement Ordinance (NRO) (2002), specifies that lacking legal title will not be a bar to compensation entitlement, whereas in the LAA (1894) it is not specified as either barring or not. In Federally Administered Tribal Areas (FATA) regions, the LAA (1894) or any other Government of Pakistan law does not apply. Normally land acquisition for development projects is through consultation with the Political Agents, Maliks and Tribal Elders. The NRO ultimately is meant to complement the LAA when it comes to communal property rights and meaningful consultation between the project proponent and the project affected.

The proposed transmission line in Pakistan falls within the FATA regions and Khyber Pakhtunkhwa province. With recent amendments to the Frontier Crimes Regulations in August 2011, it is not known how it will affect tribal autonomy apart from the approval by tribal stakeholders to allow the presence of political parties to campaign in these areas. It is reasonable to assume that respecting local customs and traditions will still be the norm when negotiating land acquisition. The new amendment brings with it redress for grievances outside of customary rule for FATA vulnerable populations (women, children and the elderly).

3.3 Summary Requirements of the Applicable World Bank Policies (BP)

It is a pre-requisite of the World Bank that Governments seeking financial assistance for development projects should carry out an EIA and prepare environmental management and resettlement plans (OP 4.01). It is also required that the environmental and resettlement planning meet the requirements of the Bank's operational directives and policies. The operational directives and policies that apply to the CASA-1000 Project are described below¹⁷.

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

¹⁷ For complete information on World Bank OP:

<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,menuPK:64142516~pagePK:64141681~piPK:64141745~theSitePK:502184,00.html>

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general information for the whole project area and a guidance framework for preparing country-specific ESIA 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 ESIA 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 ESIA and on the ESIA 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 ESIA and site-specific EMPs, including disclosure both in-country and in Infoshop. All requirements for preparation, disclosure and consultation on ESIA/EMP will be met prior to commencement of construction works to which they relate.

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 ESIA 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 ESIA 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.

Pest Management OP/BP 4.09

The OP 4.09 is not triggered as the project will neither finance the procurement of fertilizers/pesticides nor create conditions which may lead to increased use of pesticides. 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.

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

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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 LARF or RPFs have been prepared as a condition of World Bank appraisal to guide the land acquisition/resettlement planning process. Based on the LARF/RPFs 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.

3.3.3 Other Policies

Physical Cultural Resources OP/BP 4.11

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 ESIA's 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 (see above) with specific mitigation measures and provisions for the use of chance find procedures, if encountered.

Safety of Dams OP/BP 4.37

The project will not be financing any new dam construction or making any modifications to existing dams. The assets financed under the project are not expected to be at risk for extensive damage in case of dam failure.

Projects on International Waterways OP/BP 7.50

Only existing summer surplus will be utilized under the CASA-1000 project. No additional generation capacity will be required or built for the project. The existing operation modes of the hydropower plants and/or quantity of water being released are not expected to change from the current practices. The legal documents to be agreed upon with the clients may incorporate covenants to address this aspect as appropriate.

Projects in Disputed Areas OP/BP 7.60

None of the project components will be located in a disputed area.

4

BASELINE DATA

4 Baseline Data

4.1 Introduction

The baseline data comprises that presented in the Feasibility Study; ESIA, the Avian Risk Assessment, and preliminary SIA investigations, supplemented by web-based searches during the REA. The majority of the baseline data are contained within the pESIAs, the avian risk study (Annex 2) and also the preliminary SIA investigations and are all referenced in Annex 4 to this REA. The robustness or completeness of baseline data for an REA is somewhat subjective, as this REA is by definition at a higher level (regional) than an individual country-specific ESIA and will also be followed (and supplemented) by additional ESIA work by Consultants and EPC Contractors at a country and project site level. 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 Contractors. The existing ESIA already contains country-specific ESIAs, 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.

As part of the REA the environmental features of the Alignment Sheets, which the ESIA used as part of baseline data collection and analysis, were re-visited and re-evaluated to verify the information that had been extracted. Considerable attempts were made to strengthen the assessment information (as specified in the ToR for the REA), however this was not possible, due to the image resolution and also transcribed errors indicating infrastructure on the pdf files provided. The original analysis of the imagery was conducted by IEL using a Geographical Information System (GIS), which allows aspects such as different spectral colour imagery to be analysed along with other data to identify broad land use categorisation, infrastructure features and topographic aspects. Thus, these data were obtained and IEL superimposed infrastructure, such as roads and rail onto the imagery in the GIS to create maps, i.e. a combination of satellite imagery and mapped features. For the purposes of reporting for the ESIA, these maps were exported from GIS format into pdf files, to allow size file reductions and printing. It is these pdf image files that were supplied by World Bank to the REA Consultant, who reported the errors in data transcription, such that for example the presentation overlay of infrastructure such as a railway is indicated as running through steep terrain, when in reality it is routed at the valley bottom.

IEL were subsequently contacted by the REA Consultant and some native data files (jpeg) were obtained, however these did not cover the full alignment (only Afghanistan and Kyrgyz Republic) and were found to be at the same resolution (and hence pixilation) as the pdf imagery, but without any mapped features. In the absence of GIS software it is also not possible to identify or evaluate aspects such as natural habitat from the image resolution and such requirements necessitate ground-truthing and on site survey – the role of the forthcoming ESIAs in each country.

Further to the above, some more accurate satellite based data was obtained by the Consultant from Bing.com and reviewed as part of the impact assessment process. However the imagery only covered a very small part of the route and would also have required considerable mapping efforts to superimpose the CoI and therefore proved of little use to strengthen the existing assessments that have been made or identify further ‘hot spots’ of interest or importance.

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Subsequent to the pESIAs and ESIA, a Social Impact Assessment (SIA) is being prepared by the Client organisations to supplement the existing work completed under separate studies and will be further refined during the country-specific ESIA. 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, independent Consultants will conduct individual ESIA, and other aspects working alongside the EPC Contractors, and it will be possible to close any gaps in information during the subsequent ESIA.

4.2 Project Wide

In view of the long length of the Project it is not particularly easy to generalise over the E&S characteristics, as they cover four countries, each with their national identity and suite of political, developmental, economic and security issues. The four participating countries are approaching this project from very different perspectives.

The Kyrgyz Republic and Tajikistan, inherited the well-developed infrastructure of the former Soviet Union, but are still recovering from the far-reaching impacts of the breakup of established trade and broader relations with other parts of the Soviet Union, including a rapid decline in living standards, social conflicts (such as the protracted civil war in Tajikistan in the early 1990s, and violence in the Kyrgyz Republic in 1990 and again in 2010). Both are also small, landlocked countries vulnerable to natural disasters and the influence of external economic conditions.

Unfortunate commonalities between Afghanistan and Pakistan are security, militarisation, conflict and massive economic under-development. In general, the land across these two countries 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 typified by being very remote and very sparsely populated, whereas there are areas in Pakistan that are more densely populated, particularly around areas which are also 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 (see Annex 2) 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 conceptually 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.

Within the entire buffer zone along the transmission line which has a 64km width (40 miles) 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 ESIA.

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 ESIA.

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. The breeding range of some species, including the critically endangered Siberian Crane (*Grus leucogeranus*), Slender-billed Curlew (*Numenius tenuirostris*), endangered Spoon-billed Sandpiper (*Eurynorhynchus pygmaeus*), vulnerable Spot-billed Pelican (*Pelecanus philippensis*) and Relict Gull (*Larus relictus*), and the near-threatened Black-winged Pratincole (*Glareola nordmanni*), Caspian Plover (*Charadrius asiaticus*), and Asian Dowitcher (*Limnodromus semipalmatus*) are largely restricted to the region, although the nonbreeding ranges overlap with adjoining flyways.

East Asian–East African Flyway

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 ecosystems (i.e., wetlands).



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

These types of habitats are valued as breeding sites and as foraging habitats during migration (sometimes called “stopover” habitats)

For this analysis, IBA and Ramsar sites were plotted along the CASA-1000 route. The current projection of the transmission line is not precise. Therefore, a buffer zone of 64 km (40 mi), i.e 32 km (20 miles) on each side of the centreline, was designated for habitats and IBA and Ramsar sites. (Figure 4-2 and Figure 4-3 below).



Figure 4-2 Important Bird Areas and Ramsar sites within 64 km (40 miles) of the Corridor of Impact in the Kyrgyz Republic and northern Tajikistan.



Figure 4-3 Important Bird Areas and Ramsar sites within 64 km (40 miles) of the Corridor of Impact in southern Tajikistan, Afghanistan, and small area of Pakistan.

4.2.2 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 enclaves, which will be avoided by the Project routing.

Affected Regions

The Project design includes a 450 km 500 kV line from the Kyrgyz Republic south to Tajikistan. Of this total, 425 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.

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The assessment below is based on the findings of a study on community benefit sharing arrangements in Tajikistan and the Kyrgyz Republic, conducted in 2012 by the Foundation to Support Civil Initiatives. In the Kyrgyz Republic the study surveyed 3 settlements in Jalal-Abad oblast, 11 in Osh oblast, and 11 in Batken oblast. The total number of households in these settlements was 7,543 with 8,454 families and a total of 42,685 people. Figures for the total population of the affected areas in Kyrgyz Republic are not available.

Population

In the 25 settlements/communities surveyed in the three *oblasts*, the total population was 42,685. In villages in Osh and Batken the population was mostly Kyrgyzs (90 and 96 percent respectively), but in Jalal-Abad the majority (66.7 percent) were Uzbeks with Kyrgyzs forming 26.7 percent. The proportion of men and women was approximately equal: 51 percent women, 49 percent men – the slight difference can be accounted for by the greater number of male workers going abroad. Family sizes were generally large among the surveyed population: 35.3 percent of households had 5-6 members and a further 28.2 percent had 6-7 members, while 13.9 percent had 8 or more members. Most households comprised single families, but a small number comprised two or three families.



Education levels among those surveyed were generally up to secondary level: only 11.5 percent of respondents had completed higher education, while 68.3 percent had completed general secondary education. Disaggregated by gender, a greater proportion of women (76.1 percent) had general secondary education than men (64.0 percent), but more men than women had higher education (14.0 percent and 6.8 percent respectively).



General Features

As noted above, the Project design includes a 450 km 500 kV line from the Kyrgyz Republic south to Tajikistan. Of this total, 425 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. The proposed transmission line route through the Kyrgyz Republic largely passes through areas of very sparse population. Across the 425 km route, it passes by less than two dozen towns/villages. The major long-

term impact may 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 etc.

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.

4.2.3 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 8.1 million population is mostly ethnic Tajiks (<http://www.stat.tj/eng/>).



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Following independence from the Soviet Union in 1991, it suffered a devastating civil war for five years. Political stability since then and external assistance have contributed to improved economic growth.

There is one IBA and a Ramsar site that occur within the Tajikistan portion of the CoI.

IBA site—Tigrovaya Balka Nature Reserve ($68^{\circ} 26.52' E 37^{\circ} 19.16' N$) spans 49786 ha.

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 (see below).

Ramsar site—1084, Lower part of Pyandj River ($68^{\circ} 30' 8.107 E 37^{\circ} 10' 30.436 N$)

This has no associated species information but is considered for its value as a wetland site. The transmission line crosses the Pyandj River c10km 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 (

).

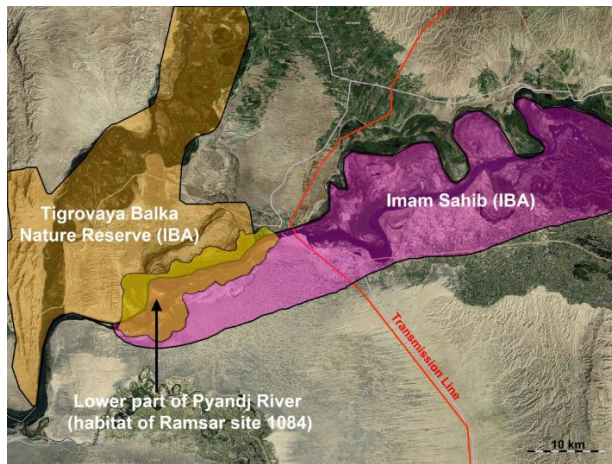


Figure 4-4 IBAs, Ramsar site Tajikistan, Afghanistan border region

Affected Regions

The Project design includes a 450 km 500 kV HVAC line from the Kyrgyz Republic south to Tajikistan. Of this total, 25 km runs through Tajikistan to Sangtuda. A further 115 km HVDC line runs from Sangtuda to Afghanistan. The route traverses two provinces, Sughd and Khatlon. The socio-economic profile of the project

affected areas is based on two surveys: a community benefit sharing survey, and a previous environmental and social impact assessment which covered 5 settlements in Sughd *oblast* and 8 in Khatlon *oblast*.



Population

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In the 13 settlements/communities surveyed the total population was 35,089 people. In villages visited in Sughd province, the population was mostly Uzbek (96.7 percent) with very few Tajiks (2 percent) and other ethnic groups. In Khatlon Tajiks formed a small majority (60.9 percent) with the remainder (39.1 percent) Uzbeks. The proportion of men and women was 49:51 – the slight difference can be attributed to the greater number of male workers going abroad. Family sizes were generally large among the surveyed population: 30.3 percent had 5-6 members, 27.3 percent had 6-7 members, while 29.5 percent had 8 or more members. Some households comprised two or three families.

Education levels among those surveyed were quite high: 48 percent had completed general secondary education and 23.2 percent higher education. Disaggregated by gender, a greater proportion of women had completed general secondary education (76.1 percent compared to 64 percent men) but a smaller proportion of women had completed higher education (6.8 percent compared to 14.0 percent men).

General Features

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, and hence the potential social impact is extremely low.

4.2.4 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.



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Figure 4-5 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

above.) The site is known to have breeding Marbled Teal (*Marmaronetta angustirostris*). This species is listed as vulnerable. Other large numbers of unspecified waterfowl utilize the area during migration. The habitat inter-connectivity of this site and the two sites mentioned above on the border with Tajikistan suggests that this portion of the transmission line could expose large numbers of duck, geese and cranes to collision. Some specific habitat ground-truthing 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. Common Cranes are known to be susceptible to collision with power line. This IBA lies directly within the CoI, and is home to a large variety of bird species. 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 and part of a global cooperation project to protect current populations and reintroduce populations through captive breeding projects.

and

Figure 4-6 The relationship of Salang Kotal IBA and the proposed transmission line.

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, which would explain the possibly high numbers of migrating cranes seen in the area in the past. Ground truthing in this area is necessary for tower and line sighting and for appropriate suggestion for mitigation. 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. One of the passage duck species, White-headed Duck (*Oxyura leucocephala*), is considered Endangered and potentially susceptible to collisions. Black-necked Grebe (*Podiceps nigricollis*) has a breeding population of over 100 pairs in the IBA. 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. Birdlife International also highlights that Duronta Lake supports small numbers of wintering and passage wildfowl (up to 500 birds) and that the fields around Sarobi Lake attract finches and buntings in winter. They believe that it is likely that other lowland Indo-Malayan species, new to the Afghan avifauna, will be discovered in future. Given the proximity of Kole Hashmat Khan, the other lakes within the Jalalabad valley, and the route of the river along this valley, it seems likely that this portion of the transmission line could expose large numbers of duck, geese and cranes to collision, and also affect the falcon and vulture species identified as using the area. 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 EPC Contractor will work closely with national ESIA Consultant during the development of the

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detail design and the finalization of the TL alignment and of the tower location to avoid/mitigate identified avian risk. The NTC will make sure that identified mitigation measures are adequately reflected in the final project design by EPC contractors. The proximity of the line to this river valley is drawn in Figure 4-7. The valley is represented in orange.

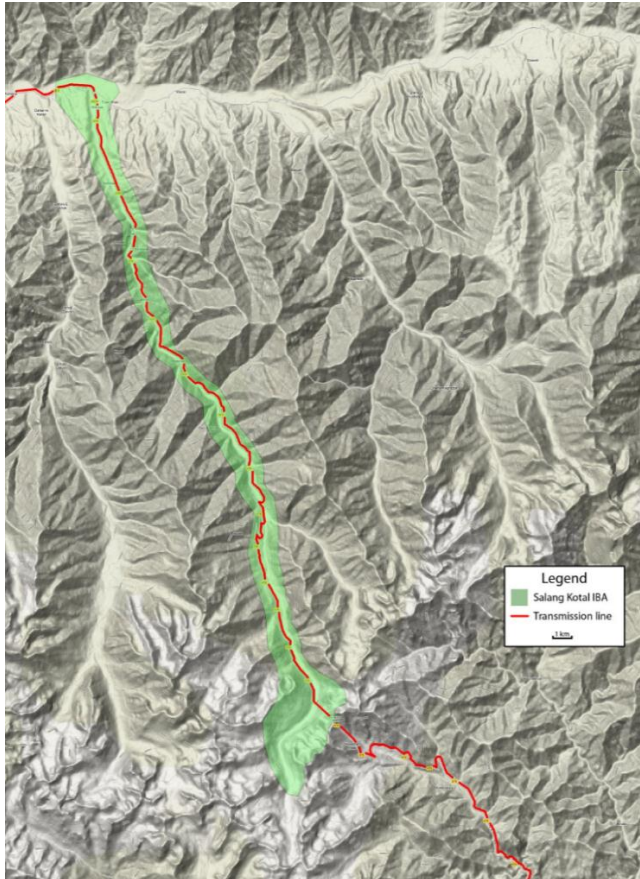


Figure 4-6 The relationship of Salang Kotal IBA and the proposed transmission line.



Figure 4-7 Relationship of the CASA-1000 Transmission Line to Jalalabad Valley IBA

Affected Regions

As part of the Project, a 500 kV HVDC transmission line will pass through Afghanistan for a total of 562 km. The line will provide power (300 MW) to Afghanistan, as well as carry this to Pakistan.

In 2012 UN-HABITAT Afghanistan conducted a research study on ‘Assessment of Options for Community Benefit Sharing for CASA-1000’. The study relied extensively on focus group discussions with communities in project affected areas of the country and entailed development of a socio-economic profile of these areas, as well as assessment of likely social impacts of the project, community concerns and views, and identification of options for community benefit sharing.



Population

The transmission line was found to pass through 616 communities of 23 districts in 6 provinces, with a total of 151,947 families. Table 3 details the provinces and districts affected. Numbers of families belonging to different vulnerable groups were as follows: a) returnees – 16,034 families (11 percent of total); b) IDPs – 8,237 families (6 percent); c) differently able (disabled) – 5,786 families (4 percent); and d) female-headed – 7,426 families (5 percent).

General Features

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 impact of the project will therefore not be massive, but not insignificant either.

4.2.5 Pakistan

Pakistan, officially called the Islamic Republic of Pakistan, is neighbored 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. The nearest Ramsar site 98, Tanda Dam Ramsar site (71° 21'22.499E 33° 35'5.452N) is 40 km away from the CoI. Therefore there is unlikely to be any interaction between the waterfowl passing through the site during spring and autumn migration, or the roughly 500 waterfowl which stays in winter and the CASA-1000 transmission line. No other wetland areas are located near the CoI in Pakistan.

Affected Regions

The final stretch of the Project is a 71 km HVDC transmission line coming from Torkham on the Afghanistan border and going through Pakistan to the Sheikh Mohammadi Grid Station on the outskirts of Peshawar. The proposed transmission line route traverses Khyber Agency in the FATA and an area outside Peshawar falling under the Peshawar District Administration.

The socio-economic profile given below of the affected areas is based on a community benefit sharing study conducted by SABAWON in 2012. The study aimed at developing a menu of options for community benefit sharing interventions along the route. It surveyed 13 villages along the route (out of a total of 27 settlements): in each a sample household survey (covering an average 31 percent of households) was carried out followed by focus group discussions and key informant interviews. The community benefit sharing study divided the transmission line route in Pakistan into three sections on geographic and tribal lines:

Section A – Sheikh Muhammadi Grid Station (outside Peshawar) to Karkhano Bazaar;

Section B – Jamrud to Haji Ayub Kaley (dominated by Afridi tribe);

Section C – Sheikwal to Torkham (dominated by Shinwari tribe).

Population

The total estimated population in the study area (13 villages) was 0.114 million, living in 17,315 households. Of this total population, Section A with 5 villages had 61 percent and average HH size 6.97 persons, Section B



had 17.5 percent with average HH size 6.16 persons, and Section C had 21.5 percent with average HH size 5.9 persons. The joint family system is prevalent that makes the household size as high as 20 to 26 persons in one compound. However, household data was collected on the basis of standard definition of household¹⁸. The overall average household size was thus 6.6 persons. The gender ratio in the surveyed population was 51 percent males and 49 percent females.

The villages all along the transmission line were settled on a tribal basis. Three main tribes Mohmand, Afridis and Shinwaris were settled in each section. The villages

¹⁸ All persons living under one roof or occupying a separate housing unit having a separate cooking facility, where the members are related by blood or law they constitute a house.

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in each section were further inhibited by sub-tribes/branches locally called Khel or Zai. The size of the villages varied from 200 to over 1,000 households.

4.3 Need for Additional Work

This REA has been prepared based on secondary data from previous assessments and studies... During the course of the REA some new information has been incorporated, such as updated legislative descriptions; information from World Bank Project documents and information on Project organisation and likely contracting and other facts and figures supplied from the World Bank team and some environmental data from internet searches and databases, but no new field investigation or primary data collection was conducted in any the four countries for the preparation of the REA. Since the alignment is not finalized, previous assessment and studies had limitations in terms of extensiveness of the relevant data that could be gathered, therefore subsequent country-specific ESIA's will collect additional relevant data to fill the existing data gaps. Section 8 of this REA provides guidance on additional data collection for the preparation of the ToRs of the country-specific ESIA's.

5

ANALYSIS OF ALTERNATIVES

5 Analysis of Alternatives

5.1 Background

The engineering Feasibility Study (FS) considered the whole project concept, including:

- Electricity export and import potential, economics and costs;
- Project section and transmission line requirements and alignment in an approximately 2km wide corridor, referred to as a corridor of interest, or right of way (RoW); and
- Project risks, functional specification, implementation and operation and maintenance planning.

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. As referenced earlier, the FS routing assessed and selected existing linear development corridors for its basic route, to avoid as much undeveloped land as practical, by adopting a (feasible, viable) 2km wide corridor of interest (CoI) within which the TL should be routed. This allows flexibility within the 2km width to avoid sensitive features and such like to minimise potential adverse effects. The subsequent IEL ESIA didn't evaluate new route options and its scope was limited to assessment of the identified routing and layout developed in the FS.

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 ESIA's that are required. Thus adjustments, possibly outside the identified corridor, can be expected to be made, which should interface with the ESIA, such that sensitive features can be taken into account during route finalisation to avoid any unmanageable or unmitigable significant E&S impacts.

5.2 Analysis of Alternatives

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. In this regard, there are a number of 'project drivers', which affect potential alternative options and following scenarios:

- 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.

The ESIA quickly appraised the No Project option and Alternative Project scenarios as unfeasible for various technical, economic and financial reasons (see below 5.3 and 5.4).

The REA has reviewed the issue of alternatives and their impacts and generally supports the preceding assessment work. However, it has come to light during the REA work that one or more Clients may propose

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alternative alignments through some sections, particularly Afghanistan, where there are sensitive military areas, which might also be raised in Kyrgyz Republic and in Pakistan during further advancement of the project. These possible changes need to be incorporated into the forthcoming relevant national/country specific ESIA. 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.

In view of the need to avoid potential tensions in the area, the Uzbek enclaves in Kyrgyz Republic will be avoided by the Project routing.

5.3 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 capacity¹⁹. 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 region as a whole. The selection of the No Project option has therefore been discounted in this analysis.

¹⁹ See also Section 1 for a full explanation of the Project concept and consequences

5.4 Alternative Projects

5.4.1 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.

5.4.2 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.

5.4.3 Alternative Routing

The Feasibility Study (FS) led 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 (eg rail or telecoms which could be adversely affected) and environmental and social factors. When determining possible routes for the transmission line, the following criteria was considered: total length; difficult terrain and high altitudes; routes near existing roads; routes near load centres; and environmental and social impacts.

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 that the routing followed existing linear infrastructure as far as possible and maintains the flexibility (within the 2km wide corridor) to adjust infrastructure siting and align the TL to avoid sensitive features. Two different corridors were considered for the TL route selection, an eastern corridor and a western corridor. The western route was chosen due to its proximity to existing roads between Torkham and Jamrod and from Jamrod to the sub-station at Peshawar. The main disadvantage of the eastern corridor is that it is not being close to any existing or planned load centres in Afghanistan, significantly reducing the potential benefits of the Project to that nation. 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 within both alternative routing options 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 the CoI is 2km wide and the centreline has yet to be established, therefore during the

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Detailed Design stage and associated national/country specific ESIA the majority of sensitive features should be able to be avoided as the TL can be moved up to 2km away from the feature. 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 reduced by design aspects, such as relevant diverters and the requisite spacing between electrified components on the towers.

The previous EA work done within FS and ESIA also took note of hot spots from published literature and web-based data and therefore identified the key avifauna sites, such as the IBAs taking them into account in the assessment work. The ESIA addressed these important bird areas by developing mitigation, which they presented as part of a wide ranging Environmental Management Plan (EMP). A special Avian Risks Diagnostic Study done by “Normandeau Associates” presented the same sites and made its own evaluation, whilst recommending a range of further assessments, management plans and monitoring. Neither of these assessments concluded that the presence of these bird areas represented show-stoppers, which should halt the Project or force its current alignment well away from these bird habitats.

5.4.4 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 ESIA's of the preferred project option, such as altering heights of the line or routing sections underground and so on..

Constructing a 500 kV HVAC for the southern route from 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.

5.5 Alternative Construction Methods

Detailed engineering designs, including evaluation and selection of construction methods, timings and other construction-related modifications will be carried out during project implementation by the EPC contractors. The section 8 on ESIA Guidance includes the role of ESIA consultants and EPC contractors in choosing the construction methods that have the least environmental and social impacts.

6

ASSESSMENT OF POTENTIAL IMPACTS

6 Assessment of Potential 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 a REA. However, in view of the amount of country and therefore 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 ESIA for each of the countries, conducted by the Consultants.

As stated elsewhere, a Regional EIA such as this would aim to address project-wide E&S issues to identify:

- Key potential adverse effects or significant obstacles to project advancement, i.e. ‘show stoppers’, whereby major changes to project design, routing or other such major modifications are required before the project concept that had been developed to date was acceptable;
- From a certain level of baseline information it should also be possible to identify ‘hot spots’ where E or S issues were potentially sensitive and which should be avoided and/or required detailed evaluation during subsequent site-specific EIAs;
- This level of progressive screening and analysis would aim to guide the design and implementation of the project to, inter alia, avoid potentially damaging aspects and prepare the way for a more detailed evaluation to arrive at an acceptable scheme. In this context, an additional analysis was conducted to understand any potential hydrological issues, see section 6.4 below.

The work undertaken to date follows this general approach, whereby 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. The broad conclusions from this ESIA work were that the potential impacts were generally of low significance and they could be mitigated by successful implementation of the project ESMP.

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 and which can be adequately dealt with through proposed mitigation measures. 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. This avifauna work presented the following main issues:

- Potential adverse effects associated with power line projects such as CASA-1000, such as bird strike from ‘aerial’ objects (wires and towers) and the risk of electrocution from contact with energised components;
- There are a range of typical mitigation measures for these generic impacts, such as marking the TL in high bird-use areas; adherence to design elements whereby energised components are spaced sufficiently to reduce contact by birds; and measures to deter or prevent birds from perching or nesting on project infrastructure. While these measures help to reduce bird mortality—often significantly, they

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are not 100% effective and this issue needs to be taken into account when evaluating potential impacts on critically endangered species, where even a small number of fatalities can have a significant impact on population and species survival.

- There are several sites along the project routing that are of particular importance to birds, such as an IBA and a Ramsar site in Tajikistan and four IBAs in Afghanistan.

In view of the above it is considered that further field study and subsequent appropriate mitigation are necessary. Consequently, this work can be undertaken as part of the individual, country-specific ESIA that are scheduled to be undertaken by the ESIA Consultants with the EPC Contractors and accordingly, the EMP presents details on this aspect. The avifauna study revealed the presence of and presented information on the IBAs and Ramsar site, such as general habitat information and the species and approximate numbers for which the sites are listed. The study also presents design aspects which inherently reduce the potential impact on birds, such as the reduction in electrocution risks and mechanisms to reduce bird strikes. The bird study does not state that the presence of the Project represents a 'show stopper', but recommends that further field survey work is undertaken to assess the potential impacts, design and implement specific mitigation and develop monitoring and feedback mechanisms. There have been several studies (e.g. refer to http://renewables-grid.eu/fileadmin/user_upload/Files_RGI/RGIEnvironmentWS-16Jun2011-Nipkow_NABU.pdf) of the impact of power lines on bird species and populations, with the general conclusions being that potential impacts are significantly reduced or alleviated by:

- Designs which significantly reduce the risk of electrocution to birds, specifically the larger species such as cranes, bustard and large raptors
- Designs and markings that maximise the visibility of power lines through paintwork and deflectors to minimise bird strike potential

Therefore the presence of areas of importance for birds is not considered an obstacle to the Project, but all aspects are required to be studied in detail during the forthcoming ESIA, incorporating specialist advice and expertise on the subject, as required. This approach is considered more manageable than developing another project-wide avifauna study, which would have to undertake the requisite fieldwork and surveys and work alongside the design engineers in the EPC and then pass the findings on to the ESIA consultants for incorporation into each ESIA.

An important element in ESIA is that engineers and consultants need to work closely together to iterate designs as they are developed; little is achieved by completing a project design and then passing it over to consultants for ESIA, as this is a time consuming and ineffective procedure. A truly iterative process optimises integration of E&S aspects into a project design, whilst maintaining and demonstrating that a truly independent assessment has been undertaken; and it is important to distinguish this.

The later sections of this Chapter summarise the findings of assessment work within each of the participating countries, taking into account the analysis presented in the ESIA, the subsequent Avian Risk Study and further analysis undertaken during the preparation of this REA.

It is important to appreciate the limitations that dictate the level of assessment that is possible at this stage in the project evolution. Information on this aspect is presented below.

6.2 Overall Project Construction Related Impacts

6.2.1 Introduction

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.

The potential impact types are presented below in Table 6-1. Construction impacts are not individually identified from the type of activity, as this is a REA, therefore impacts during construction are not for example

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divided into those associated with ground clearance, casting of concrete tower footings, tower erection and stringing of the TL, but are grouped.

Impact	Construction	Operation
Soil resources	✓	
Waste	✓	
Surface water	✓	
Hydrogeology	✓	
Ecology and habitats	✓	✓
Avifauna	✓	✓
Noise	✓	
Traffic and transport	✓	
Air and dust	✓	
Socio-economics (excluding resettlement ²⁰)	✓	
Land use	✓	✓
Electromagnetic fields		✓
Hazards due to natural disasters		✓
Major accident risks	✓	

Table 6-1 Potential Impact Types

Whilst the FS identified broadly a 2km CoI for Project construction, as the access arrangements have not been identified to date and neither have the camp locations or other laydown areas, the potential Project study area *per se* cannot be established, as potential impacts occur outside of the CoI. It has also yet to be established if access at the end of a section of TL will be sufficient for the EPC, or whether several accesses are required

²⁰ These aspects are to be addressed in the separate initiatives on LARF/RPFs, SIA and RAP

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along the length of sections of TL, due to topographic, soil or other constraints. Furthermore, as the CoI or RoW will not be cleared of vegetation, the bulldozing of a roadway may cause additional impacts. All these issues will be addressed during the detailed design stage and information on such issues to date is not available.

In view of the above, and considering this is a strategic REA study, there is little merit in attempting to speculate on and present and assess an exhaustive list of potential impacts, the majority of which will be associated with any typical construction phase of a project. Many of the above potential impacts will vary in accordance with location, soil type, climatic conditions and many other factors and an exhaustive scoping of such issues is not considered useful here. The standard approach to this is to recognise that there are a range of potential issues associated with large scale construction, all of which will be evaluated in the forthcoming ESIA's, and to present the management approach in the EMPs to address such issues (see Annex 3).

The main environmental issues associated with the Project implementation are presented in Table 6-2, which assumes appropriate assessment, iterative design and mitigation where appropriate. The vast majority of issues will be common to each of the countries crossed by the Project and are associated with large scale construction involving land access; establishment of camps and lay down areas; topsoil stripping; tower foundation installation; tower erection; transmission line stringing and installation; temporary land use and land take; employment during construction and also operations; community interface, safety and relations; and standard construction noise, traffic and potential nuisance.

There will be some specific issues based on site conditions, such as wetlands, steep terrain, infrastructure aspects, particular land use, social or cultural heritage features and for the IBAs there will be specific bird issues that require to be individually evaluated. It is not considered practical or useful herein to present a 'walk through' of the entire route of in excess of 1,000 km to identify and discuss the specific features that will be encountered and require assessment. The overall picture is presented in detail in the ESIA descriptions in each country-specific pESIA therein and accompanied by the 105 alignment sheets that depict the route. The guidance given in this REA and its Annexes 1 and 3 should be quite sufficient and serve to explain the assessment work that is required to be undertaken as part of each subsequent ESIA by national consultants on behalf of the NTCs.

Aspect/Impact – Construction	Potential impact + (positive), (negative) or = (neutral)	Comments
Job creation	+	
Electricity connection to national grid		See Operation Table
Reduced power outages/better capacity		See Operation Table
Improved living standard/ reduce poverty		See Operation Table
Improved income generating activities	+	Opportunity for induced development during construction; employment multiplier effect etc. See Operation Table for Ops.
Industry growth	+	Opportunity for induced development during construction; employment multiplier effect etc.

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Aspect/Impact – Construction	Potential impact + (positive), – (negative) or = (neutral)	Comments
		See Operation Table for Ops.
Terrestrial Habitat Alteration	-	Limited negative effects
Aquatic habitat alteration	-	Limited negative effects
Wildlife: - avifauna injury, mortality	-	Limited negative effects, pending full assessment in ESIA and design and delivery of appropriate mitigation (bird strike and electrocution)
Soil erosion	-	Limited negative effects
Air pollution (dust, exhaust emissions)	-	Limited negative effects
Hazardous substances	-	Limited negative effects
Generation of Solid Waste	-	Limited negative effects
Noise pollution	-	Limited negative effects
Aircraft navigation safety	=	Will be factored into the design, so as to have no negative affect
EMF exposure	=	Scientific research indicates no discernible deleterious effects to people or livestock, given design standards
Maintenance of Rights-of-Way	-	Some limitations to buildings and limits to tree height, otherwise minor issues
Risk of electrocution from live power lines	=	Design standards and industry practice should avoid issues
Risk from working at heights	=	Should be covered in EPC standard HSE operating procedures (SOPs)
Physical hazards	-	Limited negative effects
Visual intrusion	-	Limited negative effects, pending appropriate assessment and mitigation where required
Spread of diseases	-	Limited negative effects
Sites of cultural heritage	-	Limited negative effects, pending appropriate assessment and mitigation where required
Land Acquisition	-	Limited negative effects, pending appropriate assessment and mitigation where required
Project Affected People (PAP) Resettlement	-	To be determined in the SIA work separate to this REA. Potentially limited, given CoI width and flexibility in design.

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Table 6-2 Potential Impact Matrix During Construction

Aspect/Impact - Operations	Potential impact + (positive), - (negative) or = (neutral)	Comments
Job creation	+	Limited number but employment will be created
Electricity connection to national grid	=	No direct connections to national grid anticipated
Reduced power outages/better capacity	+	Will only occur in recipient countries over time
Improved living standard/ reduce poverty	+	Will only occur in recipient countries over time
Improved income generating activities	+	Will only occur in recipient countries over time
Industry growth	+	Will only occur in recipient countries over time
Terrestrial Habitat Alteration	=	
Aquatic habitat alteration	=	
Wildlife: - avifauna injury, mortality	=	
Soil erosion	=	
Air pollution (dust, exhaust emissions)	=	
Hazardous substances	=	Standard operational procedures should ensure no risk
Generation of Solid Waste	=	Standard operational procedures should ensure no risk
Noise pollution	-	Expected to be limited, given flexibility in design and corridor width
Aircraft navigation safety	=	Will be factored into the design, so as to have no negative affect
EMF exposure	=	Scientific research indicates no discernible deleterious effects to people or livestock, given design standards
Maintenance of Rights-of-Way	-	Some limitations to buildings and limits to tree height, otherwise minor issues
Risk of electrocution from live power lines	=	Design standards and industry practice should avoid issues

Aspect/Impact - Operations	Potential impact + (positive), - (negative) or = (neutral)	Comments
Risk from working at heights	-	Design standards and industry practice should avoid issues
Physical hazards	=	
Visual intrusion	-	Anticipated to be minimised by iterative ESIA and flexibility in design and locations
Spread of diseases	=	
Sites of cultural heritage	=	
Land Acquisition	=	Effects seen during construction
PAP Resettlement	=	Effects seen during construction

Table 6-3 Potential Impact Matrix During Operation

6.2.2 Construction issues

The common construction elements across all participating countries are associated with:

- Location, establishment and operation of the construction camps to house the workforce and all the plant and machinery required;
- Clearance, foundation installation and erection of the approximate 2600 towers required to support the transmission line and likewise for substations and related infrastructure;
- Vegetation control and any clearance required to string, raise and tension 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 due to the majority of the route being hilly or mountainous terrain, often with poorly developed vegetation and in semi-arid climatic conditions;
- Potentially sensitive cultural social aspects in many places due to factors which include religious practices, tribal societies and communities living in remote locations, often with limited outside interactions
- 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 location, width and length of either temporary or permanent access roads, work sites, camps, laydown yards and many other construction related aspects are not identified in the FS nor the IEL ESIA and can therefore not be specifically assessed in this REA, as the Project status is at the feasibility level only. All such items will be determined by the EPC Contractors during the detailed design stage and following pre-construction and walk over surveys, during which time the EPCs will evaluate access difficulties and other logistics and develop a traffic and access plan. It is at this stage that the ESIA Consultants need to evaluate such issues, or if the EPCs conduct a look-ahead and develop access options, these can be assessed; however it is the norm that Contractors are only able to identify their requirements following site familiarisation, taking into consideration ground conditions, social factors and other environmental issues. The ESIA's can and should identify any hot spot or no go areas in the vicinity of

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Project infrastructure as early as possible, so that Contractors are informed to avoid these during their pre-construction assessments.

6.2.3 Social Impacts

Information relevant to social aspects of the CASA-1000 project is contained in a number of previously prepared reports: IEL ESIA, community benefit sharing studies in all four countries and, to a lesser extent, a risk assessment conducted for Afghanistan and Pakistan. 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. As part of the ESIA a certain amount of background information was presented on aspects such as percentage literacy, broader economic activities, such as say rice farming and the general development status. 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 during which time, potential significant social impacts could either be avoided or mitigated in consultation with affected communities.

In view of the above, a standalone Social Impact Assessment (SIA) report, which collates all relevant information into one document, filling gaps where possible using secondary sources and with no additional primary research. The SIA report provides more details of country specific potential social impacts and a brief summary of potential key impacts in each country is given below. This SIA work will be further refined during the country-specific ESIA's.

6.2.4 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 re-alignment is also a possibility by the Client independently of the above assessment.

6.2.5 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 habitat will also require particular study in the ESIA.

6.2.6 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 evaluating in the ESIA to assess if re-routing is required or other mitigation and management measures. Later in the route

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there are community infrastructures, such as radio station equipment and also military training and conflict sites and the Client and the ESIA 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, will yield detailed plans for such areas.

Additional issues arise from potential unexploded ordnance (UXO), land mines, and specific security situations, along with working through tribal regions otherwise mitigated through further specific ESIA and associated assessment and management.

6.2.7 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. Additional issues may arise from potential unexploded ordnance (UXO), 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 before project implementation.

6.3 Overall Project Operational Impacts

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

As regards the operation of the Project, including its TL and sub stations and converters, scientific consensus is that no known health impacts can be linked to the electromagnetic exposure that is expected to stem from the Project²¹. Internationally recognized radiation protection agencies and national health agencies have also reviewed the scientific evidence available on the subject and have concluded that it is insufficient to establish a

²¹ Extensive epidemiological and laboratory research has been conducted over the last 15 years on the biological and health consequences of exposure to Extremely Low Frequency (ELF) EMFs. Some epidemiological studies have found weak associations between exposure to power-frequency EMFs and some forms of cancer, such as leukemia; while other studies have failed to find such associations. The primary limitation with most epidemiological studies has been with the methods of exposure assessment. Rigorous methods of exposure assessment that can be associated with biological effects are clearly needed. Epidemiological studies also continue to suffer from significant methodological difficulties associated with the effects of confounding factors. These difficulties hinder interpretation and acceptance of epidemiological findings. Laboratory studies have noted a wide variety of interesting biological effects resulting from exposure to power-frequency EMFs. The most significant and replicated findings are an apparent change in ion efflux at cell membranes in response to limited ranges and intensities of ELF electric fields, an effect of ELF magnetic fields on melatonin production, and effects on enzyme activity. Several concerns exist with regard to the laboratory findings. One concern is that the field strengths used are often orders of magnitude greater than commonly encountered in the home or office. Another concern is that much of the laboratory evidence remains to be independently confirmed. Lastly, a credible mechanism by which commonly encountered (milligauss) power-frequency EMFs could produce human health effects such as cancer still needs to be developed. Thus, the significance of the laboratory findings to human health is questionable. (Engineering in Medicine and Biology Magazine, IEEE, Jul/Aug 1995, Author(s): Bren, S.P.A., Volume: 14, Issue: 4, Page(s): 370-374).

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definitive causal relationship between low frequency magnetic field exposure and increased incidences of cancer and other illnesses. The electromagnetic radiation that can be expected from the substations, as from any electrical supply line, are expected to be well within internationally accepted exposure limits that have been adopted by most countries in the Organization for Economic Cooperation and Development (OECD), including the European Union (EU).

The main operational aspects include:

- Inspection of the TL and all towers annually to determine any maintenance needs. Common repairs needed on transmission lines include: vegetation overgrowth, cracked/broken insulators, minor washouts of foundation backfill and missing tower members.
- A repair schedule will be prepared once the inspection is complete. Emergency repairs may be required throughout operation of the TL due to accidents, violent storms, etc. They may require the placement of repair parts and towers in various locations along the TL to allow for rapid repairs.
- Maintenance of the TL will require six to ten employees, one bucket truck, one or two 4 WD vehicles and miscellaneous line tools (in some areas full time presence of security forces might be required)
- Access roads must be controlled so they cannot be used by the public and maintenance roads must be located on the edge of the RoW as to not impact line to ground clearances.
- The converter stations will likely have a permanent staff of 15 to 20 highly skilled and semi-skilled staff at each location. These staff will require permanent housing likely in a local community. Incentives to attract and maintain the highly skilled staff may be required. Reliability Centred Maintenance (RCM) should be employed to keep maintenance costs reasonable and maintain reliability. Root Cause Analysis should be employed to maintain a high reliability. Some of the equipment, such as bucket trucks, may also be used for TL maintenance.
- The electrode line and electrode are to be inspected on a regular basis (usually monthly) and before each pole maintenance outage. Advanced protection schemes may allow this level of inspection to be relaxed.
- Outside of the inspections, maintenance and repairs, very little noticeable activities occur along a transmission line.
- Safety and security are important elements of a power project such as this, involving aspects such as preventing unauthorised access to infrastructure like towers, substations and the line itself. Typical measures include secure fencing of infrastructure, appropriate signage showing the dangers of unauthorised access, regular inspections and general public notification in the vicinity of infrastructure, including any prohibited actions such as construction or other 'risk-generating' activities within the right of way (RoW).
- RoW management is not likely to result in significant operational impacts, and typically comprises routine inspections and maintenance of any woody vegetation to below the height where it may cause interference with the TL. During the REA, each NTC was contacted and each confirmed that they do not and do not intend to use herbicides or other chemicals for RoW management. Routine agricultural and other land use practices should be able to continue, in line with standard power industry practice.

The main conclusions relevant to the operational phase are presented in the box below.

Within the northern 450 km corridor CoI in the Kyrgyz Republic and Tajikistan the overall environmental and social impacts of the CASA-1000 Project are considered to be generically minimal for the following reasons:

- There appear to be no protected areas, natural habitats or areas of important biodiversity that are likely to be adversely affected, given the remaining flexibility in ESIA study and iterative design;
- There are a limited number of identified important bird areas and migratory routes, but overall mitigation is anticipated to be successful, given the existing known techniques to avoid electrocution and minimise bird strike. In the case of endangered species that might be identified during the detailed ESIA's additional mitigation measures will need to be designed and implemented. ;

- 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; and
- No resettlement is expected in Tajikistan or the Kyrgyz Republic, however this aspect requires additional investigation work during the ESIA's.

Similar conditions exist in the southern 750 km HVDC corridor, with some exceptions:

- 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 (Imam Sahib) in Tajikistan. There are four important bird areas (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 has been established;
- Two species, the Egyptian Vulture (endangered) and Laggar Falcon (Near Threatened) are found in the Jalalabad Valley IBA and routing through this area should be carefully considered during the ESIA;

There are two impacts of the CASA-1000 Project that deserve special attention.

- In Afghanistan, worker and community safety issues relate to the proliferation of mines and unexploded ordnance.
- Although the transmission line crosses several important bird areas (IBA) in Afghanistan (Imam Sahib, Salang Kotal, Kole Hashmat Khan and Jalalabad Valley) and the potential for conflicts with migratory species can be avoided through the implementation of avian protection plans or selective line reroutes, it will be necessary to further investigate in detail all the sites and species presented in the Avifauna study, as part of the supplementary ESIA's.

. More details are provided in the EMP, Aesthetics and Ecological Management Plan and all will be evaluated in detail during the ESIA.

6.4 Analysis of hydrological aspects

The CASA-1000 project, as currently designed, is not expected to have a downstream impact. 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

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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 as detailed below.

Current state. Water inflow pattern for both the Vaksh and Naryn river cascades are similar, with lower volumes of water inflow in winters and substantially higher volumes of inflows in summers. The summer water releases are made in consideration of the electricity demand and needs for irrigation within the countries and from the downstream countries. The main difference is related to the size of reservoirs, with Toktogul being substantially larger and, hence, being required to spill less water, contrary to Nurek, which experiences large volumes of water releases with no generated electricity (i.e. spillage).

CASA exportable surplus. In this context, the following points are noteworthy:

- No change is visualized in the manner the water is released from the Nurek reservoir. The modeling of the Nurek reservoir was based on the actual operating mode wherein the reservoir is fully filled during end of summer and fully drawn down in winter to utilize all the available storage to reduce the winter energy deficits to a minimum. The only expected change is that the currently spilled (i.e. wasted) water releases would generate electricity for export.
- The Toktogul HPP operation will continue to follow the existing annual agreements reached by the Kyrgyz Republic with riparian countries, according to which the flow of the Toktogul HPP was limited to 600 m³ per second in the winter months (October-March). In addition, with the summer and winter operation of the reservoir, the reservoir level is considered to be maintained above the suggested minimum value of 10 bcm at the beginning of the next summer (April 1st). Under CASA-1000, the part of the currently available Kyrgyz electricity surplus is expected to be directed to Pakistan (where there is a need for summer electricity) instead of neighboring Central Asia countries (where demand for summer electricity is low and/or diminishing).
- The current export levels and the spilled water quantum are much higher than the anticipated exports and, hence, corresponding water releases for CASA-1000 project.

CASA in historic water release context. As mentioned above, the storage capacity of the Nurek reservoir is much smaller, with the live storage of 4.5 bcm, comparing to the average annual water flow of 21 bcm in the Vaksh River²². In absence of export markets, substantial amount of water is spilled and wasted. The typical annual water flow curves of the Nurek reservoir is shown in the Figure 6-2 below. With CASA exports, no change is expected in the release patterns of the Nurek reservoir in Tajikistan.

In contrast, the Toktogul reservoir is significantly larger with live storage of 14 bcm and has much large regulating capacity. Therefore, given its size, the below analysis is focused on the Toktogul reservoir.

The Figure 6-1 and Figure 6-2 below with the maximum and minimum historical summer releases from the Toktogul and Nurek reservoirs combined with the expected CASA-1000 related releases show that the CASA-1000 project related expected releases would be well within the Maximum Historic and Minimum Historic range of both reservoirs. It therefore confirms that the CASA-1000 related amount of export and corresponding water releases will not deviate from the historic patterns of releases.

²² Vaksh river contribution to Amu Darya is about 26 % of total inflows.

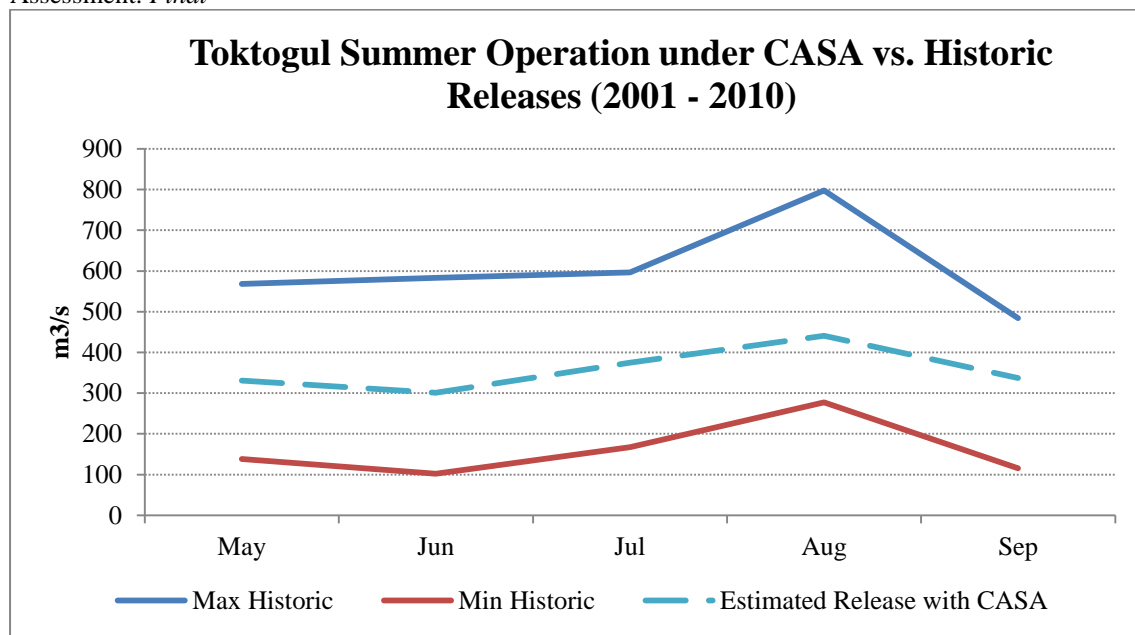


Figure 6-1: Toktogul reservoir summer releases (m3/sec) (Electric Power Plants, EPP)

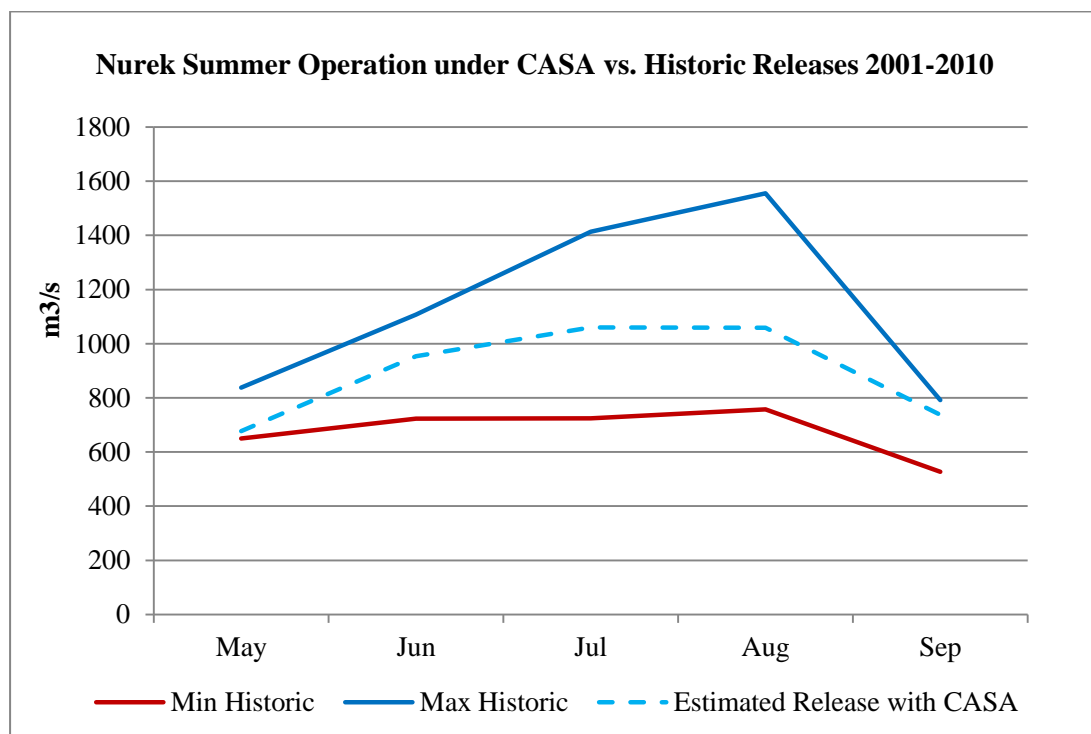


Figure 6-2: Nurek reservoir summer releases (m3/sec) (Barki Tojik)

CASA in historic electricity export context.

The Figure 6-3 and Figure 6-4 below compare the annual historic average volumes of power export from the Kyrgyz Republic and Tajikistan with the expected annual volumes of the power export under the CASA-1000 project. They confirm that the annual export volumes for the CASA-1000 project would be lower than the annual historical export volumes and, therefore, only a portion of the existing summer surplus potential will be rerouted to South Asia. The CASA-1000 related exports will not be additional to the historical exports, but will

be out of the total exportable surplus. That is why relevant environmental water discharges (outflows) will be the same and no additional impact on flora and fauna expected from this point of view.

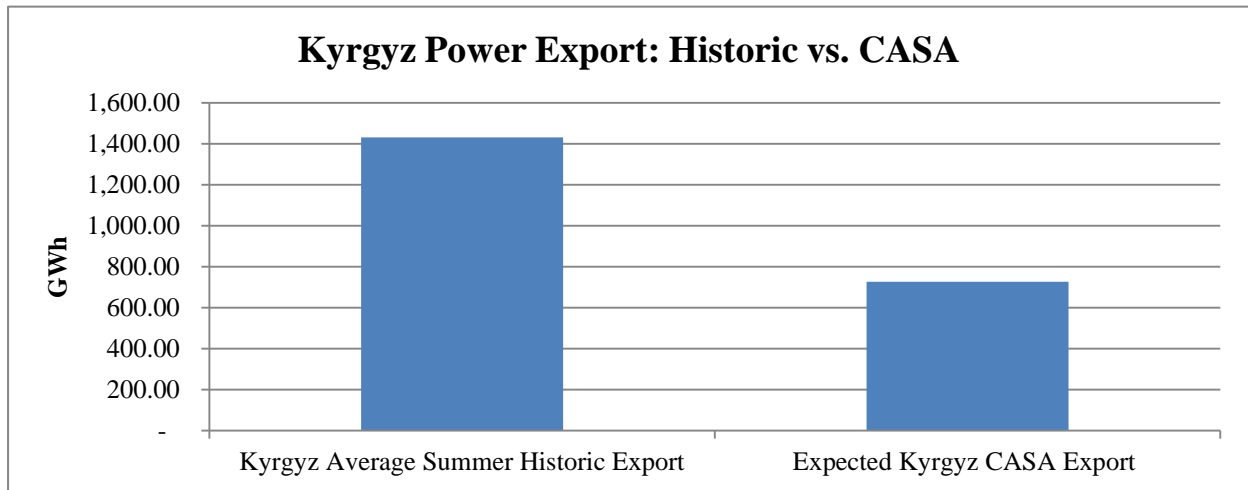


Figure 6-3: Comparison of the Kyrgyz average historic power export volume for 200-2012 with the expected Kyrgyz export volumes under CASA-1000 (SNC Lavalin, 2011 & data from the EPP)

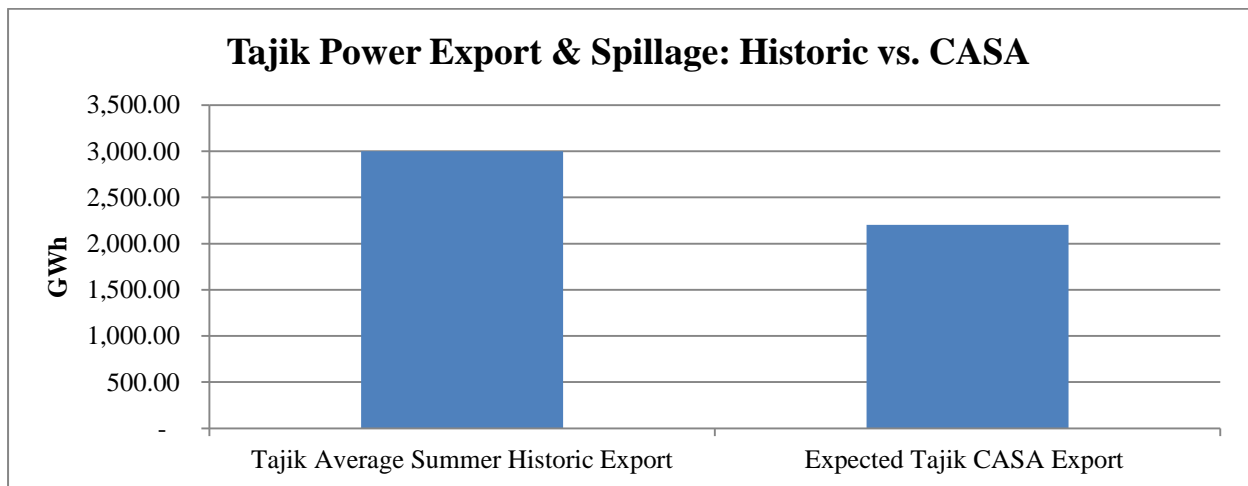


Figure 6-4: Comparison of the Tajik average historic power export volumes for 2007-2011 (including with estimated spillage) with the expected Tajik export volumes under CASA. Include mentioning of spillage (SNC Lavalin, 2011 & data from the Barki Tajik)

7

PUBLIC CONSULTATIONS

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 PAP form a vital component in the overall ESIA process. This aspect is therefore enshrined in World Bank Safeguard policies and increasingly in the legislation of the CASA Region. Therefore improved legislation in the participating countries has seen the consultation aspect included in the EIA laws and standards.

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 who exactly one engages with and at what stage in the EIA process. It can readily be understood that at a Strategic stage in EA the relevant regulatory, Governmental and sector bodies need to be canvassed, but if actual locations for infrastructure have yet to be established then local PAP cannot often be identified or engaged with. In some instances it is preferable not to assume certain PAP and engage them as locations for infrastructure may change and detailed consultation can raise expectation amongst PAP and lead to stress and concerns over potential impacts. Consultation is therefore a balance between obtaining representativeness and minimising potential adverse issues.

There are distinct issues that arise with public consultation which include methods, approaches and techniques for obtaining the 'real' issues on the ground, taking into account the nature of the participants and their ability and willingness to supply information. Important factors include aspects like how free are certain groups able to provide information and under what circumstances can an 'outsider' meet them for iterative discussions.

7.2 Consultations to Date

Several rounds of consultations have occurred to date, commencing at the project identification stage and through into the Feasibility Studies, which included preliminary environmental studies (see Figure 7-1). Consultations were subsequently conducted for the ToRs of the ESIA and as part of the benefit-sharing studies to gather information about the needs of representative communities along the route.

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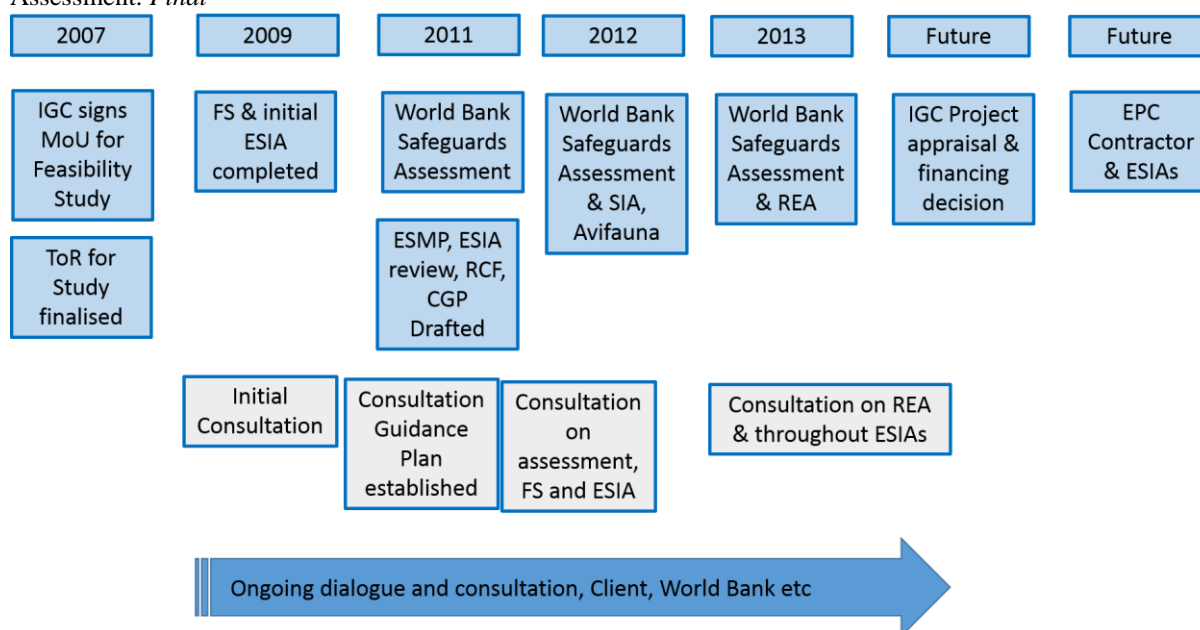


Figure 7-1 Overview of Consultation Process

A round of consultations was conducted when IEL was commissioned to undertake the ESIA. Client organisations in each of the four countries were invited and assisted to conduct consultations on the ToR for the ESIA. The country Clients organised invitations to the range of stakeholders, including Governmental organisations, line Ministries, local and regional authorities through which the TL was due to pass and the Non-Governmental Organization (NGO) network; notices were also placed on the Client web sites. The Clients provided documentary evidence to show the procedure and sent this to the offices of the World Bank in each country. Based on the results of the consultations conducted so far, it is possible to conclude overall that consultations have been sufficiently representative and involved all interested parties, including all the institutions mentioned. The feedback (see also

	Consultation	Date	Participants	C
	<i>Afghanistan</i>			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - Afghanistan Civil Society Foundation (ACSF) - ACTED - GRSP 	08 Dec 2010 At World Bank office in Kabul.	<ul style="list-style-type: none"> - Majority of concerned FPs present - Representative from MEW - Representative from CSOs 	<ul style="list-style-type: none"> - I - ex - I - E

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	Consultation	Date	Participants	C
	<ul style="list-style-type: none"> - AKDN - UN-Habitat - DACCAR - SDO - ACTION AID - MADERA - BRAC - IRC 			
3	Benefit-Sharing Consultations and Key Informant Interviews (KII) conducted by UN Habitat	Dec 2012	<p>FGD with at least 10% representation of communities were conducted in:</p> <ul style="list-style-type: none"> - 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 Ghorl 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 re in di m et pu ar A g co 1 ro pu in fu
4	REA Consultations	<p>January 7th, 2014: Ministry of Energy and Water (MEW), Kabul</p> <p>January 8th, 2014: the Provincial Governor Office in Jalalabad city the provincial capital of Nangarhar Province</p> <p>January 11, 2014 in the office of the Da Afghanistan Breshna Sherkat (DABS: Afghanistan Transmission Entity) in Kundoz city</p>	<p>Deputy Minister of MEW and was attended by the Operation Director of the Afghanistan Breshna Sherkat as well as representatives of other relevant ministries, NEPA, NGOs , academia, representatives of communities along the route etc</p> <p>The consultation was advertised in the local press and invitation letters were sent to 79 persons two weeks prior to the date of consultation. Invitations had also been sent to NGOs working on women empowerment and women's rights in rural areas, Asian Development Bank, USAID, Kabul Municipality and Ministry of Justice.</p>	Th A Tr pu
	<i>Kyrgyz Republic</i>			
1	Initial Consultation (SCN)	2007	Limited information available on these consultations	

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	Consultation	Date	Participants	C
2	Consultation on draft TORs of ESIA.	14 Oct 2010	<ul style="list-style-type: none"> - 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 Alattoo Public Fund - Ms. N. Iosipenko, Public Information Assistant, World Bank 	C it pr of
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	<p>CSOs: A number of Kyrgyz CSOs attended</p> <p>WB: Alex Kremer, WB Country Manager</p>	
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	<p>CSOs: Rita Karasartova (Alliance for Transparent Budget, Kyrgyz Republic), Sergey Belov (Active Youth NKA, Kazakhstan), Aynabay Yaylymova (BIC), and Sarah Bedy (BIC)</p> <p>WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Elena Karaban</p>	
5	CASA-1000 public hearings	June 28, 2011 Bishkek, Kyrgyz Republic. Ministry of Energy of the Kyrgyz Republic	<p>Government:</p> <ul style="list-style-type: none"> - 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, 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). <p>Donor organizations:</p> <ul style="list-style-type: none"> - Asian Development Bank - A. Berdybekova - Japanese International Cooperation Agency - G. Suyunaliyeva - USAID, RESET Project - O. Terentiyeva, Z. Charginov - World Bank - Zhanetta Baidolotova, Natalya Iosipenko <p>Embassies</p> <ul style="list-style-type: none"> - Russian Federation Embassy - K. Verkholtantseva - Embassy of the Islamic Republic of Pakistan - Tanvir Ahtar Haskeli, M. Kalina - Embassy of the Islamic Republic of Afganistan - Khamidullo Gani <p>Civil society organizations and Supervisory Board of the Ministry of Energy</p> <ul style="list-style-type: none"> - N. Kravtsov, Chairman, USTIN Public Association of Consumers’ Rights Protection 	

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	Consultation	Date	Participants	C
			<ul style="list-style-type: none"> - 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 <p>Mass Media</p> <ul style="list-style-type: none"> - 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 the CSO	<p>CSOs: Toleskan 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 Abdirasulova.</p> <p>Government: Deputy Minister of Energy of the KR Kairat Djumaliev.</p> <p>WB: Alex Kremer (Country Manager), Jyldyz Djakypova and Natalya Iosipenko (EXT).</p>	
7	Meeting with the Kyrgyz CSOs on CASA-1000	September 20, 2011 Bishkek, Kyrgyz Republic. Office of the CSO	<p>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</p> <p>WB: Theodore Ahlers (ECA Director, Strategy and Operations), Jyldyz Djakypova (EXT)</p>	
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	<p>CSOs: Toleskan Ismailova (Citizens Against Corruption, Kyrgyz Republic), Aynabat Yaylymova (BIC)</p> <p>WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Alex Kremer, Elena Karaban</p>	
9	REA Consultations	December 18, 2013	Public notification of the consultation workshops was accomplished through display of notices by the NTC, however no specific details were included in the consultation report by NTC, which contained details of attendees, presentations and feedback.	A M R K o r d A R B
	Pakistan			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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 	

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	Consultation	Date	Participants	C
			<ul style="list-style-type: none"> - 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 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	<p>FGD were conducted in:</p> <ul style="list-style-type: none"> - 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 	D h p 13
7	REA Consultations	<p>December 23, 2013: Peshawar at the PESCO Guest House</p> <p>December 24, 2013: Islamabad at IESCO Bara Kahu Grid Station</p>	<p>The NTDC organized two consultation workshops.</p> <p>Invitation letters were sent to 92 invitees for the Peshawar workshop and 102 invitees for the Islamabad workshop through courier service and emails, and representatives of communities residing along the routes were also invited through telephone calls. 56 invitees participated in the Peshawar workshop and 88 invitees participated in the Islamabad workshop. The list of invitees and the sign in sheets of attendees, along with representative photographs is all contained in the workshop reports produced by NTDC.</p>	T m N P in
	Tajikistan			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - M. G. Gulmatov, Chairman of the Khatlon Oblast - Mr Abdurahmanov, Deputy Chairman (water supply and dekhon farm) of the Khatlon Oblast 	

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	Consultation	Date	Participants	C
			<ul style="list-style-type: none"> - 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 - Nazhmiddinov mukim Pirovich, First Deputy Chairman, Rumi - Hamroev Olimbhudzha, Statistics Department - Hallov, Mahmadsarif, 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 Toshrobd - 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	<ul style="list-style-type: none"> - 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 	L - - 1 - 2

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	Consultation	Date	Participants	C
			<p>Energy and Industry of the Republic of Tajikistan</p> <ul style="list-style-type: none"> - 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 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. 	

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	Consultation	Date	Participants	C
3	Meeting with CSO to discuss CASA-1000	26 April 2013	<ul style="list-style-type: none"> - Michael Petrushkov, Coalition “Transparency for Development” - Rashid Gulov, Chief Engineer, Barki Tojik - Furkat Kadyrov, Tajik and Norwegian Centre - Rafika Musaeva and B. Sirojev, Association of Energetics of Tajikistan - M.A. Olimov, Information Centre “Sharq” - T. Sokhibov and E. V. Zasyppin, 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 	
4	REA Consultations	<p>December 4, 2013: Ministry of Industry and New Technologies of Tajikistan, Dushanbe</p> <p>December 6, 2013: Khujand. conference hall of the Environment Protection Department in Sugd oblast</p> <p>December 9, 2013: conference hall of the Department of Land Reclamation and Amelioration of Water Resources. Kurgan-Tyube</p>	The participants included representatives of the interested ministries and agencies (Ministry of Justice, Committee on Environment Protection, Ministry of Industry and New Technologies, State Department on Hydrometeorology, Ministry of Health, State Committee on Land Management et.), embassy of the Russian Federation, academia and public organizations, mass media and business community. The list of participants is contained in the workshop report, along with signed sheets and representative photographs of participants and procedures.	

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Table 7-1) from this process is summarised as:

Afghanistan: no feedback on the ToR was received by the Client;

Kyrgyz republic: comments were received on potential bird strikes (Chairman, Ecological Movement of Kyrgyzstan noted that impact assessment will be made considering seasonal (April-June) migration of birds flying along electric lines as collision of birds with high-voltage electric lines is most likely to be one of the main ecological problems.); and on potential issues of residents in proximity to the TL the Specialist from Camp Alatoo Public Fund proposed to organize a round table to discuss environmental and social impact of the project on people living nearby the electric lines during the Consultant’s assessment works.

Pakistan: feedback comments were received from NTDC of Pakistan on the actual ESIA report by IEL, commenting on:

- The lack of an Environmental Assessment and Review Framework; missing ESIA Team information; missing checklists; missing matrix and absence of a noise survey;
- No specific impacts associated with electromagnetic issues; and

Tajikistan: comments were received from Government departments and NGOs (such as the Public Information Centre on Law and Human Rights), regarding a range of issues such as:

- the need to form country committees,
- the relationship of CASA-1000 to national power projects, in particular Rogun HEP (but the meetings clarified that CASA-1000 is not dependent on Rogun, but is designed to transmit the existing surplus energy in summer from Nurek and Sangtuda without requiring additional generation capacity;
- the benefits of the project and consideration of domestic power availability;
- the need to foster relations with Afghanistan and Pakistan, not forgetting the closest neighbour (Uzbekistan);
- cost and payback issues for the Project; and
- the unpredictable security situation in Afghanistan, meaning that these risks need to be taken into account.

There has evolved a range of methodologies for community engagement, which include aspects like Focus Group Discussions (FGD), which seek to target sectors like female headed households, youth groups or other vulnerable sectors of society for example. Such FGDs will be further conducted during the country-specific ESIA for all participating countries. This is particularly important in these four countries, due to religious and tribal factors and the limitations of women in certain communities to openly participate in public discussions.

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.

Nonetheless, up to the point of the REA, the public consultation aspects have been naturally limited, due to the high level of the assessment and also the fact that the TL alignment is liable to change in Afghanistan and possibly Kyrgyz Republic.

	Consultation	Date	Participants	C
	<i>Afghanistan</i>			

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	Consultation	Date	Participants	C
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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	<p>Consultation of the TORs for the ESIA.</p> <p>Invitation sent to:</p> <ul style="list-style-type: none"> - Afghanistan Civil Society Foundation (ACSF) - ACTED - GRSP - AKDN - UN-Habitat - DACCAR - SDO - ACTION AID - MADERA - BRAC - IRC 	<p>08 Dec 2010</p> <p>At World Bank office in Kabul.</p>	<ul style="list-style-type: none"> - Majority of concerned FPs present - Representative from MEW - Representative from CSOs 	<ul style="list-style-type: none"> - I ex - I E
3	Benefit-Sharing Consultations and Key Informant Interviews (KII) conducted by UN Habitat	Dec 2012	<p>FGD with at least 10% representation of communities were conducted in:</p> <ul style="list-style-type: none"> - 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 Ghorl 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 	<ul style="list-style-type: none"> In re in di m et pr an A ga co 1 ro pr in fu
4	REA Consultations	<p>January 7th, 2014: Ministry of Energy and Water (MEW), Kabul</p> <p>January 8th, 2014: the Provincial Governor Office in Jalalabad city the provincial capital of Nangarhar</p>	<p>Deputy Minister of MEW and was attended by the Operation Director of the Afghanistan Breshna Sherkat as well as representatives of other relevant ministries, NEPA, NGOs , academia, representatives of communities along the route etc</p> <p>The consultation was advertised in the local press and invitation letters were sent to 79 persons two weeks prior to the date of consultation. Invitations had also been sent to NGOs working on women empowerment and women's rights in rural areas, Asian Development Bank, USAID, Kabul Municipality and Ministry of Justice.</p>	<ul style="list-style-type: none"> T A T P

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	Consultation	Date	Participants	C
		Province January 11, 2014 in the office of the Da Afghanistan Breshna Sherkat (DABS: Afghanistan Transmission Entity) in Kundoz city		
	Kyrgyz Republic			
1	Initial Consultation (SCN)	2007	Limited information available on these consultations	
2	Consultation on draft TORs of ESIA.	14 Oct 2010	<ul style="list-style-type: none"> - 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 	C it pr of
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	<p>CSOs: A number of Kyrgyz CSOs attended</p> <p>WB: Alex Kremer, WB Country Manager</p>	
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	<p>CSOs: Rita Karasartova (Alliance for Transparent Budget, Kyrgyz Republic), Sergey Belov (Active Youth NKA, Kazakhstan), Aynabay Yaylymova (BIC), and Sarah Bedy (BIC)</p> <p>WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Elena Karaban</p>	
5	CASA-1000 public hearings	June 28, 2011 Bishkek, Kyrgyz Republic. Ministry of Energy of the Kyrgyz Republic	<p>Government:</p> <ul style="list-style-type: none"> - 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, 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). <p>Donor organizations:</p>	

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	Consultation	Date	Participants	C
			<ul style="list-style-type: none"> - Asian Development Bank - A. Berdybekova - Japanese International Cooperation Agency - G. Suyunaliyeva - USAID, RESET Project - O. Terentiyeva, Z. Chargynov - World Bank - Zhanetta Baidolotova, Natalya Iosipenko <p>Embassies</p> <ul style="list-style-type: none"> - Russian Federation Embassy - K. Verkholtantseva - Embassy of the Islamic Republic of Pakistan - Tanvir Ahtar Haskeli, M. Kalina - Embassy of the Islamic Republic of Afghanistan - Khamidullo Gani <p>Civil society organizations and Supervisory Board of the Ministry of Energy</p> <ul style="list-style-type: none"> - 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 <p>Mass Media</p> <ul style="list-style-type: none"> - 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 the CSO	<p>CSOs: Toleskan 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 Abdirasulova.</p> <p>Government: Deputy Minister of Energy of the KR Kairat Djumaliyev.</p> <p>WB: Alex Kremer (Country Manager), Jyldyz Djakypova and Natalya Iosipenko (EXT).</p>	
7	Meeting with the Kyrgyz CSOs on CASA-1000	September 20, 2011 Bishkek, Kyrgyz Republic. Office of the CSO	<p>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</p> <p>WB: Theodore Ahlers (ECA Director, Strategy and Operations), Jyldyz Djakypova (EXT)</p>	
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	<p>CSOs: Toleskan Ismailova (Citizens Against Corruption, Kyrgyz Republic), Aynabat Yaylymova (BIC)</p> <p>WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Alex Kremer, Elena Karaban</p>	
9	REA Consultations	December 18, 2013	Public notification of the consultation workshops was accomplished through display of notices by the NTC, however no specific details were included in the consultation report by NTC, which contained details of attendees, presentations and feedback.	A M R K o r d A R

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	Consultation	Date	Participants	C
				B
	<i>Pakistan</i>			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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 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	<p>FGD were conducted in:</p> <ul style="list-style-type: none"> - 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 	D he pg 13
7	REA Consultations	December 23, 2013: Peshawar at the	The NTDC organized two consultation workshops.	T m

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	Consultation	Date	Participants	C
		PESCO Guest House December 24, 2013: Islamabad at IESCO Bara Kahu Grid Station	Invitation letters were sent to 92 invitees for the Peshawar workshop and 102 invitees for the Islamabad workshop through courier service and emails, and representatives of communities residing along the routes were also invited through telephone calls. 56 invitees participated in the Peshawar workshop and 88 invitees participated in the Islamabad workshop. The list of invitees and the sign in sheets of attendees, along with representative photographs is all contained in the workshop reports produced by NTDC.	N P in
	Tajikistan			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - M. G. Gulmatov, Chairman of the Khatlon Oblast - Mr Abdurahmanov, Deputy Chairman (water supply and dekhon 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 - Nazhmiddinov mukim Pirovich, First Deputy Chairman, Rumi - Hamroev Olimbhudza, Statistics Department - Hallov, Mahmasharif, 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 - Umrattulloev Ajnullo, head of Administration, Kumsangir - Burhanov Murtazo, Chairman of the Jamoat, Pyanj 	

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	Consultation	Date	Participants	C
			<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 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. 	

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	Consultation	Date	Participants	C
3	Meeting with CSO to discuss CASA-1000	26 April 2013	<ul style="list-style-type: none"> - Michael Petrushkov, Coalition “Transparency for Development” - Rashid Gulov, Chief Engineer, Barki Tojik - Furkat Kadyrov, Tajik and Norwegian Centre - Rafika Musaeva and B. Sirojev, Association of Energetics of Tajikistan - M.A. Olimov, Information Centre “Sharq” - T. Sokhibov and E. V. Zasytkin, 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 	
4	REA Consultations	<p>December 4, 2013: Ministry of Industry and New Technologies of Tajikistan, Dushanbe</p> <p>December 6, 2013: Khujand. conference</p>	<p>The participants included representatives of the interested ministries and agencies (Ministry of Justice, Committee on Environment Protection, Ministry of Industry and New Technologies, State Department on Hydrometeorology, Ministry of Health, State Committee on Land Management et.), embassy of the Russian Federation, academia and public organizations, mass media and business community. The list of participants is contained in the workshop report, along with signed sheets and representative photographs of participants and procedures.</p>	

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	Consultation	Date	Participants	C
		hall of the Environment Protection Department in Sugd oblast December 9, 2013: conference hall of the Department of Land Reclamation and Amelioration of Water Resources. Kurgan-Tyube		

Table 7-1 summarises consultations to date in the Project countries (data provided by World Bank, August 2013 and unaltered). As one moves forward into the country-specific ESIA's, the NTC in each country will have to undertake a full and relevant engagement with the civil society and all relevant stakeholders.

In Q4 of 2013 consultations were held in each of the four participating countries and the summary of their modality and feedback is presented in Section 7.4.

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	Consultation	Date	Participants	Comments
	<i>Afghanistan</i>			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - Afghanistan Civil Society Foundation (ACSF) - ACTED - GRSP - AKDN - UN-Habitat - DACCAR - SDO - ACTION AID - MADERA - BRAC - IRC 	08 Dec 2010 At World Bank office in Kabul.	<ul style="list-style-type: none"> - Majority of concerned FPs present - Representative from MEW - Representative from CSOs 	<ul style="list-style-type: none"> - High level of interest for CASA and comments expected to be sent to MEW - No feedback were received on the ToRs for the ESIA

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	Consultation	Date	Participants	Comments
3	Benefit-Sharing Consultations and Key Informant Interviews (KII) conducted by UN Habitat	Dec 2012	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 Ghorl 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.
4	REA Consultations	January 7th, 2014: Ministry of Energy and Water (MEW), Kabul January 8th, 2014: the Provincial Governor Office in Jalalabad city the provincial capital of Nangarhar Province January 11, 2014 in the office of the Da Afghanistan Breshna Sherkat (DABS: Afghanistan Transmission Entity) in Kundoz city	Deputy Minister of MEW and was attended by the Operation Director of the Afghanistan Breshna Sherkat as well as representatives of other relevant ministries, NEPA, NGOs , academia, representatives of communities along the route etc The consultation was advertised in the local press and invitation letters were sent to 79 persons two weeks prior to the date of consultation. Invitations had also been sent to NGOs working on women empowerment and women's rights in rural areas, Asian Development Bank, USAID, Kabul Municipality and Ministry of Justice.	The Ministry of Energy and Water and Da Afghanistan Breshna Sherkat (DABS: Afghanistan Transmission Entity) jointly organized the three public consultations.
	Kyrgyz Republic			

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	Consultation	Date	Participants	Comments
1	Initial Consultation (SCN)	2007	Limited information available on these consultations	
2	Consultation on draft TORs of ESIA.	14 Oct 2010	<ul style="list-style-type: none"> - 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	<p>CSOs: A number of Kyrgyz CSOs attended</p> <p>WB: Alex Kremer, WB Country Manager</p>	
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	<p>CSOs: Rita Karasartova (Alliance for Transparent Budget, Kyrgyz Republic), Sergey Belov (Active Youth NKA, Kazakhstan), Aynabay Yaylymova (BIC), and Sarah Bedy (BIC)</p> <p>WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Elena Karaban</p>	
5	CASA-1000 public hearings	June 28, 2011 Bishkek, Kyrgyz Republic. Ministry of Energy of the Kyrgyz Republic	<p>Government:</p> <ul style="list-style-type: none"> - 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 	

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	Consultation	Date	Participants	Comments
			<p>Relations Unit), R. Orozaliev (Head of Project Implementation Unit), and specialists Batyrkanov and Doolotov;</p> <ul style="list-style-type: none"> - Ministry of Foreign Affairs of the Kyrgyz Republic - Meder Soorbekov, 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). <p>Donor organizations:</p> <ul style="list-style-type: none"> - Asian Development Bank - A. Berdybekova - Japanese International Cooperation Agency - G. Suyunaliyeva - USAID, RESET Project - O. Terentiyeva, Z. Charynov - World Bank - Zhanetta Baidolotova, Natalya Iosipenko <p>Embassies</p> <ul style="list-style-type: none"> - Russian Federation Embassy - K. Verkholtantseva - Embassy of the Islamic Republic of Pakistan - Tanvir Ahtar Haskeli, M. Kalina - Embassy of the Islamic Republic of Afganistan - Khamidullo Gani <p>Civil society organizations and Supervisory Board of the Ministry of Energy</p> <ul style="list-style-type: none"> - 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 <p>Mass Media</p> <ul style="list-style-type: none"> - S. Akhmetshina, Akipress - Y. Kostenko, 24kg - Amankulova, 5-th Channel 	

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	Consultation	Date	Participants	Comments
6	Meeting with the Kyrgyz CSOs on CASA-1000	September 7, 2011 Bishkek, Kyrgyz Republic. Office of the CSO	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 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	
9	REA Consultations	December 18, 2013	Public notification of the consultation workshops was accomplished through display of notices by the NTC, however no specific details were included in the consultation report by NTC, which contained details of attendees, presentations and feedback.	As part of the CASA-1000-related activities, the Ministry of Energy and Industry of the Kyrgyz Republic, OJSC "National Electric Grid of Kyrgyzstan", and OJSC "Electric Power Plants" organized and held public workshops to discuss the draft reports on the Regional Environmental Assessment, Social Impact Assessment, and Resettlement Policy Framework in the cities of Bishkek
	Pakistan			

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	Consultation	Date	Participants	Comments
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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 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	Feb 2012	<p>FGD were conducted in:</p> <ul style="list-style-type: none"> - Mushtarzai (male group): 7 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,

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	Consultation	Date	Participants	Comments
	Interviews (KII) conducted by SABAWON		<ul style="list-style-type: none"> - 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 	13 KII and 15 NGOs.
7	REA Consultations	<p>December 23, 2013: Peshawar at the PESCO Guest House</p> <p>December 24, 2013: Islamabad at IESCO Bara Kahu Grid Station</p>	<p>The NTDC organized two consultation workshops.</p> <p>Invitation letters were sent to 92 invitees for the Peshawar workshop and 102 invitees for the Islamabad workshop through courier service and emails, and representatives of communities residing along the routes were also invited through telephone calls. 56 invitees participated in the Peshawar workshop and 88 invitees participated in the Islamabad workshop. The list of invitees and the sign in sheets of attendees, along with representative photographs is all contained in the workshop reports produced by NTDC.</p>	The participation, particularly from bilateral and multilateral agencies and national/international NGOs was affected due to a demonstration in Peshawar and by a procession in Islamabad, it also impacted participation by women.
	<i>Tajikistan</i>			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - M. G. Gulmatov, Chairman of the Khatlon Oblast - Mr Abdurahmanov, Deputy Chairman (water supply and dekhon 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 	

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	Consultation	Date	Participants	Comments
			<ul style="list-style-type: none"> - 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 - Nazhmiddinov mukim Pirovich, First Deputy Chairman, Rumi - Hamroev Olimbhudzha, Statistics Department - Hallov, Mahmadsarif, 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 - Umratuloev Ajnullo, head of Administration, Kumsangir 	

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	Consultation	Date	Participants	Comments
			<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 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 	<p>List of invitees:</p> <ul style="list-style-type: none"> - Community Information Center - Renascence - Zumrad - Avrora - Association of Internet providers - Zdorove <p>Associations of Banks of Tajikistan</p> <ul style="list-style-type: none"> - Giplariya - Partnership for Development - Shahrvand - Surkhob - Bakhtovar - Special Olympics of Tajikistan - Orzu - Youth of XX Centaury - Imon - Global Initiative of Psychologists - Civil Society Development Center

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	Consultation	Date	Participants	Comments
			<p>Tajikistan.</p> <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - 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 - Tajik Social-and-Ecological Union - Institute of Economy - Navnihol - Kuhiston Foundation - Chashma - Women with Higher Education - Asti - Guli Umed - Association of Political Scientist - Samo

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	Consultation	Date	Participants	Comments
				<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Michael Petrushkov, Coalition “Transparency for Development” - Rashid Gulov, Chief Engineer, Barki Tojik - Furkat Kadyrov, Tajik and Norwegian Centre - Rafika Musaeva and B. Sirojev, Association of Energetics of Tajikistan - M.A. Olimov, Information Centre “Sharq” - T. Sokhibov and E. V. Zasytkin, 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 	

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	Consultation	Date	Participants	Comments
4	REA Consultations	<p>December 4, 2013: Ministry of Industry and New Technologies of Tajikistan, Dushanbe</p> <p>December 6, 2013: Khujand. conference hall of the Environment Protection Department in Sugd oblast</p> <p>December 9, 2013: conference hall of the Department of Land Reclamation and Amelioration of Water Resources. Kurgan-Tyube</p>	<p>The participants included representatives of the interested ministries and agencies (Ministry of Justice, Committee on Environment Protection, Ministry of Industry and New Technologies, State Department on Hydrometeorology, Ministry of Health, State Committee on Land Management et.), embassy of the Russian Federation, academia and public organizations, mass media and business community. The list of participants is contained in the workshop report, along with signed sheets and representative photographs of participants and procedures.</p>	

Table 7-1 Consultation Summary (Source: World Bank, August 2013)

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Nonetheless, up to the point of the REA, the public consultation aspects have been naturally limited, due to the high level of the assessment and also the fact that the TL alignment is liable to change in Afghanistan and possibly Kyrgyz Republic.

	Consultation	Date	Participants	C
	<i>Afghanistan</i>			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - Afghanistan Civil Society Foundation (ACSF) - ACTED - GRSP - AKDN - UN-Habitat - DACCAR - SDO - ACTION AID - MADERA - BRAC - IRC 	08 Dec 2010 At World Bank office in Kabul.	<ul style="list-style-type: none"> - Majority of concerned FPs present - Representative from MEW - Representative from CSOs 	<ul style="list-style-type: none"> - 1 ex - 1 E
3	Benefit-Sharing Consultations and Key Informant Interviews (KII) conducted by UN Habitat	Dec 2012	FGD with at least 10% representation of communities were conducted in: <ul style="list-style-type: none"> - 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 Ghorl 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 	<ul style="list-style-type: none"> In re in di m et pr ar A g co 1 ro pr in fu
4	REA Consultations	January 7th, 2014: Ministry of Energy and Water (MEW),	Deputy Minister of MEW and was attended by the Operation Director of the Afghanistan Breshna Sherkat as well as representatives of other relevant ministries,	<ul style="list-style-type: none"> T A T

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	Consultation	Date	Participants	C
		<p>Kabul</p> <p>January 8th, 2014: the Provincial Governor Office in Jalalabad city the provincial capital of Nangarhar Province</p> <p>January 11, 2014 in the office of the Da Afghanistan Breshna Sherkat (DABS: Afghanistan Transmission Entity) in Kundoz city</p>	<p>NEPA, NGOs , academia, representatives of communities along the route etc</p> <p>The consultation was advertised in the local press and invitation letters were sent to 79 persons two weeks prior to the date of consultation. Invitations had also been sent to NGOs working on women empowerment and women’s rights in rural areas, Asian Development Bank, USAID, Kabul Municipality and Ministry of Justice.</p>	pu
	Kyrgyz Republic			
1	Initial Consultation (SCN)	2007	Limited information available on these consultations	
2	Consultation on draft TORs of ESIA.	14 Oct 2010	<ul style="list-style-type: none"> - 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 Alattoo Public Fund - Ms. N. Iosipenko, Public Information Assistant, World Bank 	C it pr of
3	Public discussions on “Energy Security of Kyrgyzstan: Advantages and Disadvantages of CASA-1000”	<p>March 16, 2011.</p> <p>Bishkek, Kyrgyz Republic: organized by Taza Tabigat and Human Rights Bureau</p>	<p>CSOs: A number of Kyrgyz CSOs attended</p> <p>WB: Alex Kremer, WB Country Manager</p>	
4	Meeting with BIC Energy Fellows from Kazakhstan and Kyrgyzstan (on CAEWDP, CASA-1000)	<p>May 2, 2011</p> <p>Washington, D.C., Office of the World Bank</p>	<p>CSOs: Rita Karasartova (Alliance for Transparent Budget, Kyrgyz Republic), Sergey Belov (Active Youth NKA, Kazakhstan), Aynabay Yaylymova (BIC), and Sarah Bedy (BIC)</p> <p>WB: Daryl Fields, Ranjit Lamech, Mehrnaz Teymourian, Elena Karaban</p>	
5	CASA-1000 public hearings	<p>June 28, 2011</p> <p>Bishkek, Kyrgyz Republic. Ministry of Energy of the Kyrgyz Republic</p>	<p>Government:</p> <ul style="list-style-type: none"> - 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, Azamat Almakunov - OJSC Power Plants - Ch. Dokbaev, External Relations and Project 	

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	Consultation	Date	Participants	C
			<p>Implementation Unit</p> <ul style="list-style-type: none"> - OJSC National Electricity Grid of Kyrgyzstan - M. Aitkulov (Director General), K. Ismailov (Deputy Director General), L. Popov (Head, Capital Construction and Perspective Development Unit). <p>Donor organizations:</p> <ul style="list-style-type: none"> - Asian Development Bank - A. Berdybekova - Japanese International Cooperation Agency - G. Suyunalieva - USAID, RESET Project - O. Terentieva, Z. Charyginov - World Bank - Zhanetta Baidolotova, Natalya Iosipenko <p>Embassies</p> <ul style="list-style-type: none"> - Russian Federation Embassy - K. Verkholtantseva - Embassy of the Islamic Republic of Pakistan - Tanvir Ahtar Haskeli, M. Kalina - Embassy of the Islamic Republic of Afganistan - Khamidullo Gani <p>Civil society organizations and Supervisory Board of the Ministry of Energy</p> <ul style="list-style-type: none"> - 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 <p>Mass Media</p> <ul style="list-style-type: none"> - 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 the CSO	<p>CSOs: Toleskan Ismailova (Citizens Against Corruption), Farida Abdylbaeva (Citizens Against Corruption), and members of the Public Supervisory Council of the Ministry of Energy of the Kyrgyz Republic -- Nikolai Kravtsov, Nurzat Abdirasulova.</p> <p>Government: Deputy Minister of Energy of the KR Kairat Djumaliev.</p> <p>WB: Alex Kremer (Country Manager), Jyldyz Djakypova and Natalya Iosipenko (EXT).</p>	
7	Meeting with the Kyrgyz CSOs on CASA-1000	September 20, 2011 Bishkek, Kyrgyz Republic. Office of the CSO	<p>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</p> <p>WB: Theodore Ahlers (ECA Director, Strategy and Operations), Jyldyz Djakypova (EXT)</p>	
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	<p>CSOs: Toleskan Ismailova (Citizens Against Corruption, Kyrgyz Republic), Aynabat Yaylymova (BIC)</p> <p>WB: Daryl Fields, Ranjit Lamech, Mehrmaz Teymourian, Alex Kremer, Elena Karaban</p>	
9	REA Consultations	December 18, 2013	Public notification of the consultation workshops was accomplished through display of notices by the NTC, however no specific details were included in the consultation report by NTC, which contained details of attendees, presentations and feedback.	A M R K

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	Consultation	Date	Participants	C
				or dr A R B
	Pakistan			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - 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 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	<p>FGD were conducted in:</p> <ul style="list-style-type: none"> - 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 	D he pe 13

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	Consultation	Date	Participants	C
			<ul style="list-style-type: none"> - Torkham: 9 participants - Gagra: 9 participants 	
7	REA Consultations	<p>December 23, 2013: Peshawar at the PESCO Guest House</p> <p>December 24, 2013: Islamabad at IESCO Bara Kahu Grid Station</p>	<p>The NTDC organized two consultation workshops.</p> <p>Invitation letters were sent to 92 invitees for the Peshawar workshop and 102 invitees for the Islamabad workshop through courier service and emails, and representatives of communities residing along the routes were also invited through telephone calls. 56 invitees participated in the Peshawar workshop and 88 invitees participated in the Islamabad workshop. The list of invitees and the sign in sheets of attendees, along with representative photographs is all contained in the workshop reports produced by NTDC.</p>	T m N P in
	<i>Tajikistan</i>			
1	Initial consultation by SNC	2007	<ul style="list-style-type: none"> - M. G. Gulmatov, Chairman of the Khatlon Oblast - Mr Abdurahmanov, Deputy Chairman (water supply and dekhon 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 - Nazhmiddinov mukim Pirovich, First Deputy Chairman, Rumi - Hamroev Olimbhudzha, Statistics Department - Hallov, Mahmadsarif, Land Management Committee - Mahmudov Saidali, Deputy Chairman, Department of State Supervision of natural Resources Disposal - Samadov Abdurahmon, Deputy Chairman of J. Guliston 	

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	Consultation	Date	Participants	C
			<ul style="list-style-type: none"> - Mirzoev Szhavharsho, Secretary, Kishlak Toshrobo - 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	<ul style="list-style-type: none"> - 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 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. 	

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	Consultation	Date	Participants	C
3	Meeting with CSO to discuss CASA-1000	26 April 2013	<ul style="list-style-type: none"> - Michael Petrushkov, Coalition “Transparency for Development” - Rashid Gulov, Chief Engineer, Barki Tojik - Furkat Kadyrov, Tajik and Norwegian Centre - Rafika Musaeva and B. Sirojev, Association of Energetics of Tajikistan - M.A. Olimov, Information Centre “Sharq” - T. Sokhibov and E. V. Zasytkin, 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 	

	Consultation	Date	Participants	C
4	REA Consultations	<p>December 4, 2013: Ministry of Industry and New Technologies of Tajikistan, Dushanbe</p> <p>December 6, 2013: Khujand. conference hall of the Environment Protection Department in Sugd oblast</p> <p>December 9, 2013: conference hall of the Department of Land Reclamation and Amelioration of Water Resources. Kurgan-Tyube</p>	The participants included representatives of the interested ministries and agencies (Ministry of Justice, Committee on Environment Protection, Ministry of Industry and New Technologies, State Department on Hydrometeorology, Ministry of Health, State Committee on Land Management et.), embassy of the Russian Federation, academia and public organizations, mass media and business community. The list of participants is contained in the workshop report, along with signed sheets and representative photographs of participants and procedures.	

Table 7-1 summarises consultations to date in the Project countries (data provided by World Bank, August 2013 and unaltered). As one moves forward into the country-specific ESIAs, the NTC in each country will have to undertake a full and relevant engagement with the civil society and all relevant stakeholders.

Consultations on the draft REA Summary and main report were organized in Q4 2013 within each of the Project country capital city and the feedback was reported on as part of the REA final report. Consultations in each country were also held on the LARF/RPFs and will be held on the Resettlement Action Plan (RAP), as well as in preparation of the ToRs for the country-specific ESIAs and for the country-specific ESIAs themselves.

Consequently, guidance on these aspects are presented in Annex 1.

It is probably fair to say that public consultation for infrastructure and development projects is not without its challenges in the CASA participating countries, due to issues like:

- The historic role of communities in the Former Soviet Union (with the State often determining policy and decision making);
- The cultural factors related to tribal and religious practices, that sometimes see decision making and representativeness vested in tribal leaders, often with women per se poorly represented in 'open society' and in local or regional governance
- Instability in several areas due to on-going military activities and related militarisation and fundamentalist activities

The challenge therefore is to attempt to deliver access of information on the Project to as wide a representative audience as is relevant, to enable the views and inputs of PAC and PAP for consideration into the overall evaluation and decision making. To date the ESIA has engaged with a range of organisations and the SIA elements have engaged with representatives from PAC and PAP in certain places along the routing of the TL.

7.3 Social Impact Assessment

7.3.1 Introduction

Subsequent to the IEL ESIA/EMP of the project the World Bank commissioned studies on community benefit sharing options for the four countries involved in the Project. These were carried out in the Kyrgyz Republic

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and Tajikistan by the Foundation to Support Civil Initiatives, in Afghanistan by UNICEF, and in Pakistan by the SABAWON. These reports were submitted in October 2012 (Foundation to Support Civil Initiatives) and December 2012 (UNICEF Afghanistan and SABAWON).

7.3.2 Aims and Methodology

An SIA report is under preparation, based on existing information from the original ESIA and three community-benefit sharing studies conducted in the four countries, which asked questions during focus group discussions (reaching up towards 10% of communities overall). Compiling secondary data, no additional field investigations were conducted for the SIA. Extracts are presented in the earlier baseline data section of this REA.

The previous SIA report is divided into four main chapters on each of the countries involved in the Project: Kyrgyz Republic, Tajikistan, Afghanistan and Pakistan. Each chapter is divided into three broad sections: the first gives a brief country context followed by a description of the socioeconomic profile of affected regions; the second looks at the likely social impact of the Project; and the third suggests social impact mitigation measures, including options for community benefit sharing interventions.

This preliminary SIA work will be further refined during the country-specific ESIA.

7.4 Consultations on REA of Q4 2013

7.4.1 Introduction

The draft safeguard instruments have been disclosed in all four countries in English and in Russian (in Tajikistan and in Kyrgyz Republic) and local languages in Afghanistan and Pakistan. The instruments have also been made available in hard copies in public locations in relevant capital cities, regional/provincial/district headquarters in the proposed project area. Table 7-2 below summarizes the disclosure for each document per country and appropriate language. The documents have also been disclosed in the World Bank InfoShop at the time they have been disclosed in-country. In December 2013 to early January 2014, consultations have been undertaken in capital cities and in regional centres in the proposed project areas (see Table 7-2). The objective was to undertake inclusive consultations and engage with the relevant Government Ministries and Departments, local and regional authorities, the NGO sector, PACs and PAPs and interested parties. Overall the safeguards documents have been accepted by participants.

Following the consultations on the draft REA and Fs, the documents have been revised, including this REA and the Summary of the REA. The lessons learned and recommendations made will be incorporated into the individual ESIA and LARF/RPFs, such that the country-specific ESIA Consultants will benefit from the preceding engagement and build on it to address the site specific aspects, including land take, proximity to residences, potential resettlement, socio-economic impacts, access to work sites, employment aspects and the like. The final documents will be disclosed in the WB Infoshop.

Country	Language	Date of disclosure	Date and location of consultations	Place of disclosure
Afghanistan	English, Dari, Pashtu	11/25/2013	January 7, 2014, Kabul	Ministry of Energy and Water website < http://mew.gov.af/en >
Pakistan	English, Urdu	11/11/2013	December 23, Peshawar; December 24, Islamabad	NTDC website < http://www.ntdc.com.pk/CASA_1000.php > and Ministry of Water and Power website < www.mowp.gov.pk >

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Kyrgyz Republic	Kyrgyz, Russian	11/15/2013	Bishkek, December 18; Batken, December 20	Ministry of Energy and Industry website < http://www.energo.gov.kg/site/index.php?act=view_cat&id=28 >
Tajikistan	English, Russian, Tajik	11/13/2013	December 4, Dushanbe; December 6, Khudjand; December 9, Kurgan Tyube	Ministry of Energy and Industry website http://www.minenergoprom.tj/view_postt.php?id=401

Table 7-2 Safeguard document disclosure

As referenced above, the NTCs in each of the four participating countries organized public consultations on the REA, so as to elicit views and feedback comments, for incorporation into the final version of the REA, as is World Bank procedure and best international practice. The following sections describe the consultation process that was undertaken and the findings.

The purpose of the consultation workshops in each country was to facilitate a two way structured, open dialogue regarding the social and environment impacts of the proposed CASA-1000 Project, to present progress to date and seek input, feedback/comments and advice on:

- Proposed works within the CASA – 1000 Project;
- Potential environmental and social impacts and their mitigation;
- The proposed institutional and implementation arrangements for ESMPs and RAPs; and
- Plan for future consultations

Full details of the individual country specific consultation reports are available in the project files, which contain for example a list of participants and other such information.

7.5 Kyrgyz Republic

7.5.1 Workshop organization

As part of the CASA-1000-related activities, the Ministry of Energy and Industry of the Kyrgyz Republic, OJSC "National Electric Grid of Kyrgyzstan", and OJSC "Electric Power Plants" organized and held public workshops to discuss the draft reports on the Regional Environmental Assessment, Social Impact Assessment, and Resettlement Policy Framework in the cities of Bishkek (December 18, 2013) and Batken (December 20, 2013). The first part of the workshop on the draft documents was conducted on December 18, 2013, in the conference hall of the OJSC "National Electric Grid of Kyrgyzstan" (326, Jibek Jolu Street, Bishkek).

Public notification of the consultation workshops was accomplished through display of notices by the NTC, however no specific details were included in the consultation report by NTC, which contained details of attendees, presentations and feedback. A summary of this report is presented below.

7.5.2 The Technical Session

The Deputy Minister of Energy and Industry of the KR, started by emphasized that the public hearings are intended to ensure an open bilateral discussion of the proposed CASA-1000 Project. Following this the First Director General's Deputy, the OJSC "National Electric Grid of Kyrgyzstan" led the main discussion sessions.

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The technical session of the workshops contained a presentation, which provided an overview of the project, its preparation and progress to-date; and details of the ESIA, SIA, REA and LARF/RPF; community support projects to benefit communities; consultation process to-date; and mechanisms for continued consultations.

7.5.3 Discussions

In both of the workshops, the issues raised were listed in the consultation report produced and submitted to World Bank by National Electric Grid of Kyrgyzstan, and OJSC Electric Power Plants. In addition, the participants were informed about an option to provide all their questions verbally by telephone or in a written form via e-mail and contact data were provided to all participants of public hearings. Since the date of the workshops until mid-January, no written or email responses were received by the NTC.

After the presentation, the session was opened for discussion and participants were invited to share their concerns and views. Many environmental and social issues were raised which are summarized below and reported on fully in the NTC consultation report. NTC found the views and concerns very valuable and helpful for the future country-specific ESIA.

Issue	NTC response
What are the benefits of the Project for the Kyrgyz Republic?	The benefits were explained, including a new alternative market for exporting its surplus electricity to cover real demand for electricity in summer seasons.
Is Kazakhstan participating in the project?	Two sellers participate in the Project: Kyrgyz Republic and the Republic of Tajikistan; and two buyers: Afghanistan and Pakistan. Participation of the Republic of Kazakhstan was not considered.
What would be the impact of the Project implementation for power deficit in the winter in the Kyrgyz Republic?	Kyrgyzstan and Tajikistan face power deficit in winter, when several factors coincide: higher load resulting from higher power consumption, which is used for heating purposes, reduced daylight hours, low water inflow for generation, - and the generation cannot be increased because of the commitments to the downstream countries. At the same time, both countries have summer surpluses and CASA-1000 is aimed at this summer surplus only. Export revenues in summer, - when domestically, in Kyrgyzstan, the need is reduced and revenues could be used to purchase power when required.
Provide more detailed information about alternative sources of energy – what would be their use for mitigation of the social impact of the Project	Based on consultations with local communities, some projects were proposed for ensuring community participation in sharing project-related benefits, including provision of solar electricity batteries and solar heating batteries for key community facilities, such as schools and rural health care facilities, for the estimated value of USD 1.1 million.
What is the Project implementation timeframe?	According to the estimates, the construction phase, into operation may take about 3 years. Preliminary, commencement of construction is planned for 2014, however, this would depend on how quickly agreements were made regarding commercial conditions and final financing arrangements.
Project costs were requested	Details were provided.

Please provide more detailed information about resettlement of people	As it was already mentioned, in the Kyrgyz Republic, the proposed route of the power line will go through sparsely populated areas. There are less than 30 villages and settlements along the power line route. General social impact of the Project is likely to be insignificant from the point of view of resettlement of citizens or even large-scale land acquisition.
Are there any plans to construct a new 500 kV line during implementation of the Project, or the existing one is going to be used?	This is an issue regarding the line from Datka to Khujand under CASA-1000 Project, which is an entirely new line; no use of the existing power lines is envisaged by the Project.
Border-related issues with regard to Tajik enclave	There were some problems related to Tajik lands during the construction of Aigultash Samat conversion station. As a result, the route was modified.
Potential corruption issues during contracting were raised.	A Contractor will be selected under the rules of the World Bank based on international bidding and in the most transparent manner.
What meters will be used for the Project?	As to metering, 7 documents are being drafted now, including the Master Agreement and the Technical Code. An automated metering from a coordination center,- which has to be created, will be introduced to ensure transparency.
Details of compensation payments to citizens were requested.	Details of the compensation calculation method is already available, within the resettlement policy. The JSC "National Electric Grid of Kyrgyzstan" will be responsible for construction of the power line, and all specific activities related to that will be implemented by them.
Translation errors were cited	These will be corrected.

Table 7-3 Issues raised and NTC response

Overall, no outstanding objections or insurmountable issues were raised and the workshops a reported a favourable conclusion towards the project.

7.6 Tajikistan

7.6.1 Workshop organization

The NTC, OJSC Barki Tojik, engaged the services of the NGO “Kuhiston” in November 2013 in organising the consultation workshops and compiling the report that followed, which was very detailed and comprehensive; containing all support information from arrangement details through to lists and contact details of all participants across the three workshops. Dissemination of invitation letters accompanied by draft REA, SIA and other reports to interested parties (including ministries and agencies, public organizations, mass media, local authorities), personally and by e-mails. The list of invitees was very diverse and included a wide spectrum of stakeholders, including all relevant line ministries, mass media, NGOs, research centres, business initiatives, agricultural enterprises, human rights associations, and other human development programmes.

As scheduled, on December 4, 2013 the first public consultations took place in Dushanbe, at the Ministry of Industry and New Technologies of Tajikistan (Rudaki Ave., 22). The participants included representatives of the interested ministries and agencies (Ministry of Justice, Committee on Environment Protection, Ministry of Industry and New Technologies, State Department on Hydrometeorology, Ministry of Health, State Committee on Land Management et.), embassy of the Russian Federation, academia and public organizations, mass media and business community. The list of participants is contained in the workshop report, along with signed sheets and representative photographs of participants and procedures.

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In Khujand (Sugd oblast) the public consultations took place on December 6, 2013, in the conference hall of the Environment Protection Department in Sugd oblast (Rakhmon Nabiev ave., 211).

In Kurgan-Tyube (Khatlon oblast) the consultative meeting took place on the 9th December in the conference hall of the Department of Land Reclamation and Amelioration of Water Resources. In the meeting representatives of the Aarhus Center also actively participated, along with NGOs and the Embassy of the Russian Federation.

7.6.2 The Technical Session

According to the prepared agenda experts of NGO “Kuhiston” in a clear and friendly format presented information on the materials available on the assessment studies, aspects of the planned further assessments including social, economic and environmental impacts, planned mitigation activities, and WB safeguard policies reviews.

The issues raised are briefly presented below, arranged for each of the three workshops, with notes on commonality of issues raised.

4th December

Issue	NTC response
Sanitary norms with respect to proximity of high voltage lines.	These will be addressed in the specific ESIA for Tajikistan accordingly.
Nomenclature of organisations.	Will be corrected in the documents.
Issues of terminology.	Will be corrected in the documents.
Issues of power supply to communities.	Project distribution explained, as regional transit.
Community benefit queries.	Explained and will be explored more fully going forward.
Queries raised regarding policies for compensation and comparison to existing procedures.	Explained the development of such mechanisms for this project and the principles and procedures of WB Safeguard Policies and Standards.
Issues of terminology and also energy efficiency for the project.	Will be further investigated during specific ESIA.
Issues of SEE and associated permitting raised.	Explained that this is regional assessment and will be followed by country-specific ESIA.

Table 7-4 Issues raised and NTC response

Overall conclusions were a support for the well-prepared documents, which represented a good lead-in and basis for the subsequent ESIA.

6th December

Issue	NTC response
Issues raised about economic issues to Tajikistan, compensation payments and eligibility and also whether international consultants will be involved in compensation payment etc.	Issues responded to with reference to feasibility study and safeguard mechanisms, plus forthcoming ESIA and its adherence to national procedures.
Routing discussed and the general rural nature of the routing.	Compensation mechanisms were explained and land ownership, within resettlement action planning and the role of

	EMPs.
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Table 7-5 Issues raised and NTC response

Overall conclusions positive, as per December 4th workshop.

9th December

Issue	NTC response
Issues of power, availability and quantity.	Reference to feasibility study and other reports.
Issues of procedure for consultation in other CASA-1000 countries.	Procedures confirmed.
Land erosion issues.	Reference to REA, country-specific ESIA and EMPs and also grievance procedures to address such aspects.
Issues of local power supply along the TL.	Explained the regional transit nature of the project and also reference to community benefit sharing initiatives.
Engagement of assessment services.	Procedures to follow WB protocols and national legislation.

Table 7-6 Issues raised and NTC response

Overall conclusions were positive, as per December 4th workshop.

As a result of the consultations across the three workshops, the participants:

- Indicated the importance and the need for consultations regarding the results of the assessment studies;
- Indicated that REA is also a national experience for the application of the instrument on strategic environmental assessment in the country;
- Highlighted that such projects as CASA-1000 shall, in the course of the future detailed assessments for environmental and social impacts in the country, comply with various norms and standards, and shall be of benefit to the local population.

7.7 Afghanistan

7.7.1 Workshop organization

The purpose of the consultation workshops was to facilitate a two way structured, open dialogue regarding the social and environment impacts of the proposed CASA-1000 Project and to present progress to date and seek input, feedback/comments and advice on:

- Interventions planned under the proposed CASA – 1000 Project
- Potential environmental and social impacts and their proposed mitigation
- The proposed institutional and implementation arrangements for ESMPs and RAPs
- Plan for future consultations

The NTC organized three consultation workshops, the first workshop was held in Kabul on January 7, 2014 in the premises of the MEW and the second workshop was held on January 8, 2014 at the Provincial Governor Office in Jalalabad city the provincial capital of Nangarhar Province at the eastern part of the country as well as the third consultation was held on January 11, 2014 in the office of the DABS in Kundoz city, the provincial capital of Kundoz Province in the north of the country.

The first consultation meeting at the MEW Headquarter was facilitated by the Deputy Minister of MEW and was attended by the Operation Director of DABS as well as representatives of other relevant ministries, NEPA, NGOs and etc. The workshop started by a presentation by the CASA-1000 project coordinator in the MEW and was followed by general discussion.

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The consultation was advertised in the local press and invitation letters were sent to 79 persons two weeks prior to the date of consultation.

The report of these consultation workshops was produced by the MEW with support of the DABS and was submitted to the World Bank. The report was delayed as the relevant person were in Almaty for a CASA-1000 meeting. The report was annexed by the invitation letter, list of invitees, press releases in English and the local language, list of participants, snap shots, news clips and etc. A summary of the report is presented below.

The MEW and DABS jointly organized three public consultations; In Kabul on January 7, 2014 at the Ministry of Energy and Water Headquarters, in Jalalabad on 8 of January 2014 in the office of the provincial governor during the Provincial Development Council Meeting, and in Konduz City in DABS building on 11 January 2014; to take stakeholder views on recently prepared environment and social safeguard documents for CASA-1000. These workshops were attended by about 50 people in Kabul, over 75 people in Jalalabad and about 50 people in Konduz.

The workshops were represented by MEW, DABS, NEPA, Ministry of Foreign Affairs, the World Bank, National and International NGO, academia, representatives of communities along the route etc. Invitations had also been sent to NGOs working on women empowerment and women’s rights in rural areas, ADB, USAID, Kabul Municipality and Ministry of Justice.

Participants raised a number of environment and social issues to be addressed in designing, pre- construction and construction phases of CASA-1000. Following the workshop, a press release was drafted in Farsi and English languages and distributed through Media section of the MEW to significant number of electronic and print media.

7.7.2 The Technical Session

The technical session of the workshops contained a presentation, which provided an overview of the project (context and description); project preparation progress to-date; timeline for the project preparation and implementation; environment and social assessments to-date; key features of ESIA, SIA, REA and RPF; key potential environment and social impacts on physical environment, hydrology and water use; birds, lands, communities residing along the route, management of environment and social impacts during design and implementation of CASA-1000 in line with the provincial and national government laws and the World Bank environment and social safeguard policies; intuitional arrangement for implementation of country specific ESMPs and RAPs; introduction of community support projects to benefit communities along the TL route; consultation process to-date; and mechanisms for continued consultations.

After the presentation, in all the three sessions time was given for open discussion and participants were invited to share their concerns and views. Discussions were conducted in the local languages to enable each and every one to understand the deliberations. At the beginning it was a bit hard to concentrate on the agenda that was the environmental and social issues and concerns. Participants were informed of the reasons why their views and comments are important and the need for them to raise any issues or questions that in their opinions were important with regards to environment and social safeguards, and the project. It was emphasized that NTC and the MEW were interested to listen to the views of stakeholders, particularly community representatives so as to incorporate them in the project safeguard documents. Many environmental and social issues were raised which are summarized below and reported on fully in the NTC consultation report. At the end the NTC and MEW found the views and concerns very valuable and more importantly, the overall discussions were very helpful in defining the future environmental and social safeguards planning work and subsequent country-specific ESIA.

<i>Kabul Consultation</i>	
<i>Question and concern raised, and comments made by participants</i>	<i>Answer and responses by the Ministry of Energy and Water</i>
What will you do or the project do with the	The impact will be categorized in three groups; 1) Potential

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<p>potentially affected people?</p>	<p>irreversible impacts; these include impact on archeological things and protected areas. These places and items will be avoided in any case. 2) Other avoidable impacts which include all the possible impacts that can be avoided by change in the actual implementation practices or changes in design or route of the line or can be impacted temporarily. 3) Unavoidable impacts which includes mostly the social impact that can be compensated in kind or cash.</p>
<p>What is the legal status of the potential impacts?</p>	<p>The project implementation development and implementation teams will follow the RPF and relevant laws and regulations including environment protection and regulation to plan and implement any of the project activities. Essential details were shared in copies.</p>
<p>How will this be coordinated with NEPA as the lead and advocate organization in relation to the environmental protection?</p>	<p>A copy of all these documents has been shared. When country specific Environment and Social Impact studies are done, they will be shared with NEPA and other relevant government organizations for approval.</p>
<p>What will be special benefits to the population along the line corridor?</p>	<p>Community support program has been designed to share benefits with them. This program will be implemented in two stages, a) During construction stage: In this stage the government estimates a cost of more than 30 million dollars to be spend in different areas of public services, but with the primary attention to ensuring access to power for communities within the Corridor of Impact. b) Operations phase: 0.1 cent dollar per kwh has been decided in JWG meetings in Almaty to be allocated for community support program; this will probably be divided equally among all member countries. The government intends to provide electricity to people along the corridor from sources other than the project.</p>
<p>How can you make sure everybody of the AP is getting the compensation at the replacement cost?</p>	<p>When the final alignment of the transmission line is determined, a Household census of all affected families will take place and compensation for losses and negative livelihood as per the RPF and Afghan legal framework will take place. . A committee from government with a representation from the people is intended to be set up to monitor the process. The mechanism is not been finalized.</p>
<p>Why is community benefit the same for every country while there is a difference in the number of affected people and the impacts type? Security support will be given by people so the benefits should be proportionate to people's contribution in terms of security support.</p>	<p>The community support project during construction is specific for each country and is separate from the CASA-1000 project. The benefit sharing during operational phase was agreed in mutual discussions based on different reasons. In the coming meetings we will insist that a bigger share of the tariff for community support should be given to Afghanistan for obvious reason that the longest stretch of line is in Afghanistan and largest number of people and communities will be affected. Distribution of community support programs will be made in consideration of fairness and balanced approach.</p>
<p>These measures are recommended to improve community satisfaction, and sense of protection against negative impact of the project. 1. Electricity poles should be installed not in the middle of agricultural lands, but in a corner. 2. The contractor should either dig water wells for its use or utilize springs, and streams. 3. Construction should preferably begin after</p>	<p>The comments are noted, and the country specific ESIA will recommend how to minimize negative impacts on communities within CoI.</p>

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<p>the agricultural harvesting period.</p> <p>4. Investments that the contractor make such as water wells, water pump machines and things similar to these should preferably be handed over to communities at the decommissioning stages.</p>	
<p>On what levels employment creations initiatives will be undertaken, because the concerns is that only a limited number of people may obtain access to employment?</p>	<p>The Community Support Program as discussed earlier will take into account the needs of people of communities. These programs will include the areas of public utility services as explained in the presentation, but will not be limited to them. As other needs and requirements are identified, community support will take them into account. It is not a static initiative but a flexible needs oriented responsive program in both construction and operation stages of the project.</p>
<p>In FDGs or group discussions only 10 per cent of people in 53 communities have been interviewed to identify their needs, can these opinions reflect the requirements of 616 villages, 23 districts and six provinces? Our opinion is that if public opinions are not gathered in an inclusive and encompassing manner taking into account the cultural and behavioral characteristics of people of Afghanistan before the launch of the project, this might cause challenges for the project in later stages.</p>	<p>A country specific ESIA will be conducted, which will involve further consultations and closer discussions with greater number of localities will be conducted because needs of localities may vary from time to time. However, the idea at this stage is that Community Support Program shall be conducted through the already existing mechanism which is called National Solidarity Program. Since this program has several years of community development experience, the NSP (Ministry of Rural Rehabilitation) participation is expected to greatly improve the allocation of and identification of need based projects for communities within the corridor of the line.</p>
<p>The total cost of 18 micro hydro and solar power projects and 40 other production projects have been estimated at 4.5 million dollars. The total cost of 616 communities has been estimated at 47.86 million dollars. Which of these two figures is correct?</p>	<p>The minimum cost for community support program at this stage has been estimated at 30million dollars during the construction stage. We are targeting at obtaining funds of double than that figure.</p> <p>During the operation phase though, the community support fund will come from the tariff on kwh. This is currently under discussions as to whether it should be 0.1 or 0.2 cent dollars per kwh. The mechanism for distribution of this fund is also under discussion. Other countries argue that it should be distributed equally among each country. Our position is that it should be distributed 50 per cent for Afghanistan and 50 per cent equally among the other three countries, because of the obvious reason that Afghanistan has the longest stretch of line (562km) and the largest number of communities along the corridor the line.</p>
<p>In the report, these towns have been mentioned as areas that will come within the corridor of influence of the project: Bamian, Omarkheil, Top Dara, Qarabagh, Chashma-e Dogh, Qala-e Morad Beg, Mahipar, and Markobazar. However, a deeper look into the map of the line would reveal that the number of towns that will come within the corridor of influence are far greater in numbers in Parwan and Kabul provinces.</p>	<p>Country specific ESIA will be conducted, which will recommend the precise alignment with a view to minimize negative impact, and where these are unavoidable, recommend how to mitigate these.</p>
<p>The IEL report of 2011 on Environment and Social Impact Assessment of CASA-1000 says that about 50 per cent of communities in the corridor of the project have access to electricity. This estimation is not correct for 2011, because only a limited number of those</p>	<p>Thank you very much for pointing out this matter. This issue will be revised and if needed, necessary corrections will be made</p>

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communities had access to electricity.	
Article 4.2.3 of the Social Impact Assessment report on land acquisition says: Under this project, no land acquisition will be required. It is worth noting that at least in areas where poles are installed, privately owned lands will have to be acquired.	Land acquisition may be required on the corridor of influence of the line. We will check the section of the document you have made reference to and make correction.
In the mean time, in article 4.3.1 of the Social Impact Assessment under section Measures to Reduce Negative Impacts of the project, it is said that some permanent and temporary land acquisition will be required. This shows a contradiction.	Thank you very much, this issue is taken note off, and will be redressed.
Konoz Consultation	
If the line is supposed to be taken through Andarab District in Baghlan and Panjsher Province, it is important to make a fresh Social and Environmental Impact Assessment for these areas. This might cause an increase in the Community Support cost for Afghanistan.	There will in any case be conducted a country specific ESIA to determine final alignment. If the line takes a different route than that which is in the social safeguard studies, necessary steps to fill the gap in the documents will be taken. As per the RPF, a Household census will be conducted covering all families who have been negatively impacted , to make sure that people along the corridor of the line will be compensated for any loss that they incur,
The participants raised concerns about mines risks on the path of the project. They suggested that the routes of the project must be identified clearly to ensure mine clearance operations prior to construction.	The ESMF has clear guidelines to ensure adequate mine clearance will be undertaken along the transmission corridor
To what extent employment creation has been taken into consideration, our concern is that only to a limited degree and for a few number of people where electricity poles are established employment will be created?	As we said, the community support program has been planned in two stages; during construction and during operation of the project, separate arrangement in terms of allocation of total resources has been taken into consideration as explained in the presentation. However, it is a particular focus of the community support policies to ensure fair and balanced implementation of this program.
Konoz has around 1million population, 973 villages, and six districts on the route of the line (these districts are: Dasht-e Archi, Hazrat Emam Sahib, Khanabad, Qala-e Zal, Chardara, and Aliabad). Greater attention should be paid to identify needs of people along this route.	A country specific ESIA will take place, and subsequently a Household census will be conducted to as per the RPF to calculate the negative impact and develop compensation measures. The Community Support Project during construction period will address community needs in a participatory manner through the CDCs.
Jalalabad Consultation Report	
<i>Jalalabad Consultation was had a larger audience, but lesser concentration on the report itself. The reason that there was Provincial Development Council meeting on the same day with several other items on the agenda, and we had to do the presentation in that meeting.</i>	
Deputy Governor Asked of Nangarhar asked about the budget of the project.	MeW explained that the budget for Afghanistan was around 300 million dollars that will be funded by the World Bank as a grant. But that the government may incur some cost for security, land acquisition and resettlement issues.
Participants asked if electricity will be provided for people on the line of the corridor	It was explained that the DC line is designed for long distance transfer of electricity because the losses are very little, however, you can only take electricity into the national grid by establishing converter station and a proper network of getting the electricity from DC line for local or national use. The project is designed in such a way that at the moment Afghanistan will use only 300 MW of electricity from CASA line. This electricity is expected to be used in Kabul, it is not

	final though. However, electrification of communities along the line will be considered through other sources and mechanism.
The Deputy Governor asked when the project will be completed.	The project is estimated to be completed approximately in mid-2017
What benefits have been taken into consideration for communities if electricity is not supplied to them?	The World Bank has considered a funding of 30million dollars in the construction phase for community support programs, our estimates are that this program cost more than that. The government will find other sources of funding as well from donors. The support will include programs of school building, access roads, clinic, irrigation canals, potable water supply etc. And this is exactly what we are here for, that if you have any ideas regarding the needs of communities, please let us know now, or send us your feedback later on.

Table 7-7 Issues raised and NTC response

Participants were requested at the end to fill in an evaluation form to give their feedback on the safeguards documents, and the way the consultation was handled. Overall, no outstanding objections or insurmountable issues were raised and the workshops reported a favourable conclusion towards the project.

7.8 Pakistan

7.8.1 Workshop organization

The NTDC organized two consultation workshops, the first workshop was held in Peshawar on December 23, 2013 at the PESCO Guest House and the second workshop was held in Islamabad on December 24, 2013 at IESCO Bara Kahu Grid Station. The Environment and Social Impact Cell of NTDC facilitated the workshops and were attended by representatives of federal Ministry of Water and Power, KPK Planning and Development Department, FATA Secretariat, line agencies of FATA and KPK, national and international NGOs, academia, research institutions and representatives of communities along the route. The workshops featured a presentation in the main session followed by, facilitated, open discussion.

Public notification of the consultation workshops was accomplished through display of notices on the NTDC website and display of open invitation to public through paid advertisements in two national newspapers by announcing time, date, and location of public consultation workshops, 15 days prior to the workshops. The details of the newspapers notification was: Daily Dawn, English language and the Daily Express, Urdu language, both with national coverage.

A report of the workshops was produced after the events by NTDC and supplied to World Bank, and contained details of invitation letters, attendees, presentations, media coverage and feedback. A summary of this report is presented below.

Invitation letters were sent to 92 invitees for the Peshawar workshop and 102 invitees for the Islamabad workshop through courier service and emails, but representatives of communities residing along the routes were also invited through telephone calls. 56 invitees participated in the Peshawar workshop and 88 invitees participated in the Islamabad workshop. The list of invitees and the sign in sheets of attendees, along with representative photographs is all contained in the workshop reports produced by NTDC.

There were, unfortunately, some unforeseen issues that affected participation in the Peshawar workshop. The participation, particularly from bilateral and multilateral agencies and national/international NGOs was affected due to a demonstration in Peshawar and by a procession in Islamabad, it also impacted participation by women. In Peshawar, the roads were blocked for over three hours due to a demonstration. In Islamabad, containers were set up in different parts of Rawalpindi and Islamabad by the security forces in preparation for a procession. As a result roads were blocked, staff of bi/multi-lateral institutions and national/international NGOs were advised to

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work from home. This also prevented participation of women in the workshops from communities along the route due to strict socio-cultural norms to participate in a mixed gathering.

7.8.2 The Technical Session

The technical session of the workshops contained a presentation, which provided an overview of the project (context and description); project preparation progress to-date; timeline for the project preparation and implementation; environment and social assessments to-date; key features of ESIA, SIA, REA and LARF; key potential environment and social impacts on physical environment, hydrology and water use; birds, lands, communities residing along the route, management of environment and social impacts during design and implementation of CASA-1000 in line with the provincial and national government laws and the World Bank environment and social safeguard policies; intuitional arrangement for implementation of country specific ESMPs and RAPs; introduction of community support projects to benefit communities along the TL route; consultation process to-date; and mechanisms for continued consultations.

7.8.3 Discussions

After the presentation, the session was opened for discussion and participants were invited to share their concerns and views. Discussions were conducted in the national language to enable each and every one to understand the deliberations. Participants were informed of the reasons why their views and comments are important and the need for them to raise any issues or questions that in their opinions were important with regards to environment and social safeguards, and the project. It was emphasized that NTDC was keen to listen to the opinions of stakeholders, particularly community representatives so as to incorporate them in the project safeguard documents. Many environmental and social issues were raised which are summarized below and reported on fully in the NTDC consultation report. NTDC found the views and concerns very valuable and more importantly, the overall discussions were very helpful in defining the future environmental and social safeguards planning work and subsequent country-specific ESIA.

Issue	NTDC response
Limited consultations were conducted during earlier studies of the project.	This was due to the regional, project-wide nature of the studies to date, with full opportunities being available for participation in the forthcoming country-specific ESIA.
The land to be used for the TL route may conflict with other land use practices particularly by farmers and pastoralists	Although most of the route will pass through barren land, all possible efforts will be made to avoid loss of land use by farmers and pastoralists or any other purpose.
The high voltage TL should not transverse residential or commercial areas to avoid impacts on human lives.	NTDC will make all efforts not to transverse residential/commercial or populated areas.
The estimated environment and social costs may not be appropriate as exact route of TL to be determined and detailed design of TL has yet to be made.	The costs estimates are merely indicative of what mitigation measures might cost. More accurate cost estimates will be prepared to mitigate site specific environment and social impacts, by developing country specific Environment Management Plans and Resettlement Action Plans based on site specific environment and social assessments.

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Constructing towers in hilly terrain should be avoided to avoid environment degradation.	NTDC will take measures to avoid or minimize impacts.
Why is the proposed route via Kabul and Afghanistan? Passing TL through such a long route in Afghanistan will pose severe security threats. Pakistan may bear a high cost of damages due to terrorism.	Discussions were held at the preliminary stage of CASA-1000 and it was agreed between all countries that this is the best possible route. Each country will be responsible for protection of its part of the TL.
The community representatives were optimistic that they would be connected to power once the project is complete.	The proposed project is purely associated with transmission and not distribution. Community awareness will be enhanced to address community expectations.
Various comments were made about routing to avoid specific features.	NTDC replied they will explore alternate routes for the TL to avoid/minimize social and environment impacts; all of this will be covered in the forthcoming ESIA.
Issues were raised regarding communities' awareness of health and safety effects of this high voltage TL.	Community members will be sensitized on the risks that TL and Grid Station sites can pose to them, their livestock, plants and birds or other activities/living things, to enable them to protect themselves.
Community representatives indicated that they were not opposed to the development, as it is for the nation's good.	NTDC appreciated communities' good will for CASA 1000.
As the ROW has not determined yet, is it not early to conduct consultations, what will be the practical use of these studies.	These studies will provide input to country specific and site specific environment and social studies.
In Pakistan, what is the experience of NTDC in managing social and environment impacts of 500 KV-TL, where 500 KV-TLs have been constructed?	NTDC operates and maintains twelve 500 KV Grid Stations and 5077 km of 500 KV transmission line in Pakistan. NTDC always fulfil the requirements of the Pakistan Environment Protection Act, and conduct Environment and Social Assessments.
Community Support Project will be in lieu of damages to compensate potential direct damages to private property/assets	Community Support Project will be independent of compensation payments. Compensation will be paid directly to affected persons while the Community Support Project will benefit the communities living along the TL route.
CASA 1000 is a high risk project due to security situation. Security issues may impact on implementation progress of the project and also its operations, actions should be taken to mitigate this risk.	The idea of Community Guard Force, to be formed by each country, has been discussed in the Inter-Governmental Committee (IGC) meeting of CASA-1000. NTDC will follow up on this in Pakistan as well, in case of final decision/agreement of IGC.
The provision of electricity will be only for Summer, non-utilization of TL in winter will increase cost. And what is the guarantee that of regular electricity supply.	Cost benefit analysis shows that getting electricity in Summer only is cost effective. NTDC will make special arrangements to avoid disruption in power supply during Summers by carefully laying down

	terms and conditions in the Power Purchase Agreement. It was agreed between countries that if the power supply will be interrupted by the supplying countries to the client countries, a penalty will be charged from them and if Afghanistan or Pakistan will not buy the power, both countries will pay a penalty to the supplying countries.
EPA representatives were unclear of the role of REA in relation to national development.	It was clarified that the present environment and social studies are regional studies and will be followed by country specific ESIA.
Would this TL cause noise pollution and how would it be mitigated?	TL will not make much noise but all efforts will be made to minimize noise pollution.
What would be the strategy for compensatory tree plantation in the area along the route?	It was confirmed that there will be no large-scale tree cutting involved but in case of loss of trees, NTDC is fully committed to do the compensatory tree planation at the ratio of 1 to 5.
Why does the government need loan money, as options for mobilization of internal resources should be explored?	Government of Pakistan is sharing the cost but it is beyond the financial capacity of government to fully fund the project.
The demand for energy is increasing in Kyrgyzstan and Tajikistan, so how would these countries provide electricity in the longer term. Is it sustainable to continue importing electricity?	Pakistan will ensure provision of electricity for a longer period of time under a Power Purchase Agreement to ensure sustainability of CASA-1000.
When will Pakistan be able to get electricity from this project?	It is expected that Pakistan will be able to get electricity after 5 years, by 2019 or 2020.
Duration of the project is lengthy; it should be completed in three years.	It is not possible to complete this project in three years as it is a complex project involving four countries. It will take a minimum five years to complete the construction of this project.
A range of issues were raised regarding renewable energy; coal reserves for power generation; and routing through security-prone neighbours.	Responses covered ongoing initiatives on renewable energy; the long lead time for fossil fuel power generation and security in the region.

Table 7-8 Issues raised and NTC response

Overall, no outstanding objections or insurmountable issues were raised and the workshops a reported a favourable conclusion towards the project.

7.9 Consultation Status & Way Forward

As stated earlier, Project consultations to date have included those for the ESIA ToR; limited consultation on the ESIA; and engagement with some selected stakeholders during the benefit sharing initiative, and consultations on this REA report and the LARF/RPFs. Going forward with the upcoming consultations for the RAPs, the ToRs of the country-specific ESIAs and the country-specific ESIAs, there needs to be a comprehensive approach to appropriate consultation and stakeholder engagement and guidance on these aspects is presented in Annex 1.

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The objective is to undertake inclusive consultation and engage with the relevant Government Ministries and Departments, local and regional authorities, the NGO sector, PACs and PAPs and interested parties. At this stage of Regional EIA, beyond the statutory authorities, it is very much a balance between including PAC and PAP, whilst not raising expectations or concerns amongst these groups, if subsequent route changes lead to such groups not being affected by the Project. A further situation to avoid is 'Consultee fatigue', whereby PAPs are consulted with repetitively at each stage of the consultation process. In certain cultures it is necessary to ask PAP to 'take time out' of their daily lives to form and attend a FGD, for example, as this may be the most effective and representative manner of engagement, eg perhaps female headed household, young, old or vulnerable group. Each time this occurs, members are taken out of their daily routine and this may lead to adverse effects, if their daily duties are not attended to by participating in the FGD.

Taking these factors into account it is considered that the countries should discuss the approach and representativeness of consultees with the IFIs, 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 ESIA's, such that the Consultants can benefit from the preceding engagement and build on it to address the site specific aspects, including things like land take, potential resettlement, socio-economic impacts, access to work sites, employment aspects and the like.

8

ENVIRONMENTAL MANAGEMENT PLANS

8 Environmental Management Plans

8.1 Introduction

This section of the report addresses Environmental Management Plans (EMPs) to manage the implementation of E&S aspects for the Project. The IEL ESIA included a very detailed EMP, with component sections covering subject-specific management plans, such as waste, water, worker arrangement etc. Due to the strategic nature of this REA, the EMP section focusses on the provision of guidance for the forthcoming country-specific ESIA's and their requisite EMPs. It therefore contains details on the scope and methodology for the ESIA's, along with organisational elements for environmental management and some elements that can be useful in the consultant engagement process.

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 in to the form of contract, otherwise many of the mechanisms specified in this EMP will not be allowed to operate; this document addresses those aspects.

The EMP involves multiple layers and responsibilities shared between the NTCs, the Project Environmental Officer (PEO) the Construction Supervision Engineer (of the EPC), the Construction Contractor/EPC, the Independent Environmental Monitoring Consultant (IEMC) and local authorities.

The EMP provides a framework approach to future develop of specific EMP²³ plans and sub-plans by the ESIA Consultant, the Construction Contractor and other EMP organizations. A key component of project performance is to include specific aspects of this EMP as indicated in the EMP Annexes into construction contract provisions. Initial budget costs of the EMP are estimated at US \$4,400,000²⁴. 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.

8.2 EMP Context

This Environmental Management Plan (EMP) for the Project 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 Environmental and Social impact Assessments (ESIA's) 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

²³ This REA has been restricted to environmental aspects, as there is a separate SIA initiative underway, which will yield some form of Social Management Plan; ideally these should be merged to form one ESMP for implementation. 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.

²⁴ There are a great many unknowns that would influence the final budget, such as institutional capacity and contract arrangements none of which are known to the REA Consultant at this stage, therefore this is an estimate solely for budget allocation purposes.

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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.

This EMP is also a companion document to the LARF/RPFs work that the NTCs prepared, with guidance from World Bank specialists. The LARF/RPF is a framework to address land acquisition and resettlement aspects, such that they will be compliant to both national legislation in each of the countries, as well as adhering to World Bank and other IFI safeguard policies and practices.

This framework-type EMP is to be used to guide development of country-specific EMPs for each of the four Project countries, as part of the ESIA process. The intent of the EMP is to ensure the following:

- Apply consistent environmental and social standards across all four Project countries, consistent with international lender environmental and social standards and best practice;
- Provide guidance on the EMP aspects of the forthcoming ESIA, specifically for use by (probably) national ESIA consultants in each of the four countries, whilst also assisting the Client organisations appreciate and embrace the importance of E&S safeguard issues in Project development;
- Assist with contractor specifications to minimize environmental and social impacts during project construction;
- Assist with guidance on environmental and social provisions and standards to be included in construction bid documents;
- Identify roles and responsibilities for environmental and social management;
- Provide guidance on monitoring of environmental and social performance throughout the Project;
- Assist with maintenance of an ongoing commitment to informing, engaging and involving local stakeholders throughout all phases of the project.

8.3 Organisation and Structure of the EMP

- Guidance for the country-specific ESIA
- Guidance for assessment of alignment changes
- Key environmental impacts and their management
- Guidance on EMP preparation
- Organisational arrangements
- Environmental Monitoring

8.4 Guidance for country-specific ESIA

8.4.1 Introduction

Following on from the REA, it is essential that individual ESIA are conducted for each of the participating countries, to comply with national policies and legislation and World Bank (and potentially other IFIs) Safeguard Policies and standards. In accordance with WB practices, it is customary for the Client to be responsible for conducting the ESIA for projects that are being financed. It is therefore likely that independent ESIA Consultants will be engaged to undertake the ESIA. This section of the EMP provides guidance to those Consultants, so that the work will be carried out in compliance to the required standards, and also that the scope of work considers the amount and extent of E&S investigations that have preceded it.

As part of the REA the Integrated Biodiversity Assessment Tool (IBAT), designed by IUCN, UNEP-World Conservation Monitoring Centre, Conservation International, and BirdLife International was used to check if any of the important Biodiversity areas are located in the vicinity or under the proposed transmission line (TL). The TL doesn't cross such areas in the Kyrgyz and Tajikistan territories. While in Kyrgyzstan there are no internationally recognized areas even in the vicinity of the TL, in Tajikistan the line passes along (at the distance of about 5-10 km) the Tigrovaia Balka natural reserve and will cross the Piandj river. These sites have already

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been identified as IBAs in both the IEL ESIA and the Avian Diagnostic study. This is the same situation in Afghanistan and Pakistan, where the most important biodiversity areas have been specified in both these studies.

IBAT can provide a useful screening resource for mapping of high-value biodiversity sites (many of which correspond to Critical Natural Habitats) within a country or project area, but the data provided are not necessarily complete, up-to-date, or definitive. Accordingly, IBAT can be a very useful starting point, but needs to be followed up by site visits and consultations with the appropriate government agencies, NGOs, expert individuals, and local communities.

The background and content of this REA in effect forms part of the ToR for the ESIAs, as they will build on the REA and preceding studies, and therefore the background information is not repeated here in this ToR, which concentrates on the main tasks that require to be performed. ESIA contractors will be supplied with this REA prior to commencement of the work and they are required to review and build on the IEL ESIA report, referenced in this REA.

Supplementary information is presented in Annex 1 and 3 of this REA, which also includes management plans and other information that could be used as part of contract documents, to ensure effective management of environmental issues in the ESIA and construction operations.

8.4.2 Approach and Content

The approach to the ESIA is compliance to both national legislation²⁵ and that of the Safeguard Policies of the World Bank²⁶.

As described earlier in the REA, the participating countries have over the years improved and strengthened their approach to and legislation regarding EIA/ESIA and typically have standards and guidance that stipulate the EIA process and also a statutory appraisal of the process and documents produced by Government or Agency authorities. However, as these standards and perhaps more importantly the practice of EIA continues to develop in the Region, it is essential that the EIA work that is conducted is to the highest relevant standard, meeting as a minimum the World Bank Safeguards standards.

It is recognised at this stage that considerable efforts must be made to addressing the social aspects of the Project, building on the very limited investigations conducted during the ESIA and expanding significantly the field work and discussions held during the (preliminary) SIA. Additional work is also required around areas where the route is liable to change.

Regarding the avifauna aspects, the previous study served to identify generic issues around birds and power projects, as well as several sites and habitat assemblages (e.g. IBAs and Ramsar) that required specific analysis. From this work there is nothing that dictates that a further project-wide avifauna study is required and therefore the avifauna issues can be readily addressed in the individual ESIAs. To maximise the value of the work and to compare project-common elements, the ESIA Consultants and the NTCs & Contractors should share dialogue during the assessment, to, for example adopt similar techniques to reduce bird strikes, electrocution and bird nesting issues and the like.

A typical high level structure for the ESIAs is presented below and is followed by a more detailed Table of Contents (ToC), which is aimed at elaborating on the scope and content of the process, such that it covers the requisite standard, taking into consideration the work on E&S that precedes the individual ESIAs.

²⁵ Identify only those laws/regulations and their specific requirements that are relevant/applicable to this Project

²⁶ Use the concept stage final ISDS as a basis for determining the requirements of the applicable WBG policies. To be updated upon issuance of the next stage ISDS by the World Bank.

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The following is an expanded ToC, which is presented to indicate the typical coverage of the individual ESIA's. Each ESIA should aim to address these typical issues, to ensure sufficient coverage of E&S issues in the ESIA and as such individual country ESIA's may vary in their content and structure, so long as the requisite issues and processes are adhered to in the required detail. ESIA Consultants should aim to build on the previous ESIA work, by providing the site-specific detail from fieldwork; facts, figures and detailed assessment work; and moving on to the EMP management aspects, with details of organisational aspects, such that the approach and range of management measures described in the EMP are delivered successfully.

Acronyms and Abbreviations

All acronyms and abbreviations used in the ESIA must be clearly and succinctly defined and described herein.

Executive Summary

A general summary of the ESIA shall be provided and shall be written using a vocabulary that can be easily understood by the public.

Project Description and Context

Objectives of the proposed Project, overall project description (components, funding sources), country specific project descriptions (i.e., proposed investments in the respective countries, including a clear description of associated and off-site facilities such as access roads, borrow pits, workers camps, number of towers, Converter Stations etc.), a summary of work carried out till date and the process/methodology followed in preparing the ESIA.

Legal and Regulatory Framework

This section of the EIA shall define the legal framework under which the EIA²⁷ is being completed, including applicable environmental standards, norms and requirements set forth at the international, national, regional and/or local levels and that of the World Bank.

Project and Alternatives Description

To include a full description and location of the proposed project and reasonable alternatives including ancillary facilities and operations such as the camp/housing for construction, borrow and disposal areas, sanitary services, waste disposal and transportation infrastructure etc. All project alternatives that are reasonable and feasible shall be summarized and evaluated. Full reference shall be made to the ESIA and REA in each individual ESIA. These aspects must draw on the REA and the specialist avifauna study that was undertaken, which identifies the

²⁷ EIA is synonymous with ESIA herein

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generic risks to birds from power projects and a number of important areas (eg IBAs) and habitats likely to support high numbers of birds, representing greater risk to bird populations and/or species.

- Operation phase: Details of equipment, machinery and labour to be used during operations.
- Closure and decommissioning plan: Brief outline for decommissioning and closure of the infrastructure and referencing that the project operator shall contact the proper regulatory agency(s) to obtain the environmental guidelines to carry out the closure or decommissioning.

Environmental Baseline

Based on information available from the literature, government, specialist studies, preceding studies and site fieldwork and surveys as required, the ESIA shall provide information on the environmental and social setting for the different types of physical, biological and social-economic-cultural environments. All sources of data must be cited in the ESIA and this section shall include the following:

- Soil Resources and Land Use: baseline soil resources, as applicable to potential effects. Land use for agriculture and other major uses; Erosion and sedimentation potential; Quantity and quality available for revegetating and restoring the disturbed area after temporary use.
- Water Resources: Surface water resources: permanent and intermittent streams, rivers, wetlands, lakes and reservoirs within the area of influence; Groundwater and exploited aquifers if potentially affected.
- Air and Climate: Baseline information for air resources shall be collected for a representative period and include rainfall and wind direction.
- Noise and Vibration: Present a description of the noise and vibration levels for receptors near where noise generating activities of the project may occur.
- Aesthetic and Visual Resources: Photos presenting baseline panoramic views of the facility site from potential receptors, where TL and tower routing may create a visual impact.
- Biological Environment: Provide information on the location and condition of ecosystems along the proposed routes of the transmission line including: Vegetative mapping of terrestrial and wetland habitats; Aquatic and Terrestrial fauna: Fish and Aquatic Resources potentially affected. Pay particular attention to the protected areas and habitats already identified as important for birds (eg IBAs and Ramsar) in the REA.
- Socio-Economic Conditions: Identify and map nearby human settlements in the Project area, paying special attention to communities or people potentially affected by the Project. For such PAC/PAPs it will be necessary to collect cultural and socio-economic data as may be necessary to assess potential impacts on their income, livelihood status etc. Any resettlement per se, whether that be through land acquisition or actual physical resettlement will require detailed analysis, as per guidelines from WB Involuntary Resettlement policy and the standards and guidelines that are generated from the LARF/RPF work in each Project country for the Project. In the latter case, data would include: population (size, gender and age distribution); cultural characteristics (religion, ethnic composition, languages spoken, etc.); economic activities; literacy rates; community organizations; public health and safety; diseases in the Project area and level of emergency services and access to clinics, doctors and hospitals; existing practice for assessment of occupational health; existing electromagnetic fields; skills and services.
- Infrastructure: For each settlement potentially affected, describe the infrastructure such as roads and traffic patterns on existing roads. Public health infrastructure as appropriate if it is to be used or adversely affected: drinking water supplies and treatment; wastewater treatment and management; solid and hazardous waste management and treatment; communications infrastructure: locations of transmission lines (if applicable); Locations of microwave towers and/or antennae (if applicable).
- Cultural, archaeological, ceremonial and historic resources: identify all cultural, archaeological, ceremonial and historic resources within the area of influence; information on indigenous people or other traditional cultures, if any. Commence with conducting consultations with the governmental

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ministry or agency responsible for archaeology and any specialist interest groups or societies. ESIA Consultants should either employ or contract in the requisite specialists to undertake this work.

Assessment of Impacts

The EIA shall provide information on potential impacts (direct, indirect and cumulative) and their magnitude and frequency on physical, biological, social-economic-cultural resources resulting from construction, operation and a look ahead towards closure issues of the proposed project and associated on-site and off-site facilities (e.g., access roads, borrow pits, workers camps if any, transportation and storage of construction equipment and materials) if relevant.

The EIA shall identify which impacts are significant and the criteria used to make this judgment. Critical data input from Project description and environmental baseline analysis shall be used as the baseline upon which potential impacts are forecast. The EIA shall also identify sources of data used and the uncertainties associated with the outputs of each method used.

- Air and Climate: potential impacts to air resources shall be described including impacts on ambient air quality and any sensitive receptors
- Noise and Vibration: potential impacts from noise shall be described in the project area, particularly for nearby communities; potential vibration for any blasting or movement of heavy equipment; overall assessment of significance of direct, indirect and cumulative impacts for all phases of the proposed project based upon analysis of magnitude, frequency, scope and duration.
- Aesthetic and visual resources: potential impacts to aesthetic resources shall be described including impacts on visual resources and landscapes; overall assessment of significance of direct, indirect and cumulative impacts for all phases of the proposed project based upon analysis of magnitude, frequency, scope and duration.
- Biological Impacts: potential impacts to biological resources: vegetation/flora and associated ecosystems; deforestation or wetlands destruction; other vegetative type conversions; direct vegetative removal for roads, rights of way and substation locations; spread of noxious or invasive species; overall assessment of significance of direct, indirect and cumulative impacts for all phases of the proposed project based upon analysis of magnitude, frequency, scope and duration in context.
- Aquatic and terrestrial wildlife/fauna and associated ecosystems: describe and quantify potential impacts; loss of habitat; disturbance of aquatic resources during construction, operations, or maintenance activities; wildlife resources, paying particular attention to the Avifauna Risk Assessment that is presented in the REA and the issues of protected areas; design features to inherently reduce or avoid the potential for electrocution such as the distances between electrified components and insulators; the routing through high bird-use areas/habitats and the use of deterrents and line markers; and the prevention of nesting and perching features wherever possible; loss of habitat, migratory routes/corridors, and breeding areas due to changes in vegetative cover/wetlands loss; disturbance of habitat, migratory routes/corridors and breeding areas due to project construction, operation, and maintenance, recreational use, and human settlement associated with the project (e.g., noise, vibration, illumination, vehicular movement); loss or contamination of drinking water for wildlife species; overall assessment of significance of direct, indirect and cumulative impacts for all phases of the proposed project based upon analysis of magnitude, frequency, scope and duration in context
- Endangered or Threatened Species: Describe and quantify impacts to endangered or threatened species or habitats; Biodiversity; Individual species (with special emphasis on endemic, rare, threatened and endangered species); Overall assessment of significance of direct, indirect and cumulative impacts for all phases of the proposed project based upon analysis of magnitude, frequency, scope and duration in context. See more discussions on Avifauna Aspects below under section 8.6 on Key Environmental Impacts and Mitigation.
- Protected Areas and important Natural Habitats: impacts on the integrity of any protected areas and other important natural habitats and their ability to support the representative interest for which they

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were notified and a review of sensitive natural habitats must be completed along the transmission line route.

- **Social-Economic-Cultural Impacts:** The ESIA shall assess potential positive and negative impacts to socio-economic-cultural resources including: socio-economic conditions; increased individual incomes; direct employment at the project; indirect employment generated by project activities; other economic activities stimulated in the community as a result of the project; employment opportunities for local residents; displacement or disruption of people's livelihoods (e.g., fishing, hunting, grazing, farming, forestry and tourism); public finance requirements – will more infrastructure need to be built and maintained to meet the demands of increased population; impacts on public health; creation of new electromagnetic fields near residences, including their strength and extent; potential for induced or conducted currents along the transmission right-of-way from electric and magnetic fields; impacts on worker health and safety; occupational diseases due to exposure to dust and other project related activities such as handling of explosives, solvents, petroleum products, etc.; Identification of physical risks and safety aspects; potential for fires; overall assessment of significance of direct, indirect and cumulative impacts; for all phases of the proposed project based upon analysis of magnitude, frequency, scope and duration in context.
- **Infrastructure:** Transportation infrastructure: potential impacts of transportation and traffic patterns on existing roads and related aspects as may be relevant such as run-off into rivers, noise issues etc. other potential issues such as interference with community infrastructure should also be covered here.
- **Cultural, archaeological, ceremonial and historic and resources:** damage during construction; visual or audible elements that diminish integrity; loss of medicinal plants or traditional use areas
- **Land Use:** any changes.

Mitigation and Monitoring

This section of the EIA must include measures designed to mitigate potential adverse impacts to physical, biological and social-economic-cultural resources from construction, operation and closure of the proposed project. These shall include measures to avoid and prevent, and if needed, to reduce or minimize adverse impacts. The project proponent must include measures considered to be “best practices” in the design of all alternatives, compliant to World Bank Safeguards policies and EHS Guidelines. Here and/or in the Environmental Management Plan section, proposed mitigation shall be described in auditable terms and at a level of detail sufficient to demonstrate its effectiveness in addressing the concern or performance criterion, including its anticipated level of effectiveness and/or measurable performance, and design specifications.

The monitoring plan must include monitoring throughout the life of the project for each potential mitigation to confirm the effectiveness of the measure and support contingency plans to provide assurance that the project, at the site preparation, construction, operation, expansion, and closure stages will meet applicable environmental requirements/standards by law, and fall within the limits of impacts deemed acceptable upon approval of the EIA. Some important items to address in the mitigation plan and associated monitoring plans include, but are not limited to the following:

- Workers to show respect to the local populations and their culture and social rules; measures proposed to protect public from failure of proposed facilities; design and operational measures to avoid or reduce risk; measures to exclude public from hazardous areas; development of an occupational health, industrial safety and accidents; prevention program with appropriate accident prevention program, reporting and periodic review including provision of routine training and testing, and proper safety equipment such as hearing protection, hard hats, steel-toed shoes, safety railings, fall arrestors etc.

Environmental Management Plan

The EIA shall include an Environmental Management Plan to prevent, mitigate and monitor each potential impact identified in the EIA. Plans will describe actions to be taken in sufficient detail to provide a basis for subsequent auditing of compliance with commitments made in the EIA process including who is responsible,

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how and when it will be implemented, what will be done and what results will be achieved, why it is being done, and how to know whether it is effective in addressing the underlying concerns.

The Environmental Management Plan shall have the following elements:

- Overview of Environmental Management Plan organization and policy; project management and how environmental management and organization relates to overall project responsibility. Describe the personnel and performance accountability system for design, operation and maintenance for implementation of mitigation and monitoring measures; including commitment to continuous improvement, control and environmental monitoring and good relationship with neighbouring populations and countries, as well as the commitment to internal controls such as compliance and environmental monitoring and routine audits. Include all monitoring, inspections and management, as per the REA EMP approach to management and inspections throughout the various project partners, from Client to EPC Contractor.
- Contingency Plans shall be prepared and described to address a) failure to meet specific performance criteria established by law or necessary for the project to meet its commitments in the EIA (as per EMP Penalty system etc) and b) respond to natural and other risks previously identified and mitigated in the EIA in the event reasonable and feasible mitigation measures to address the risks are inadequate.

Public Consultations and Disclosure

Describe the public consultations process followed, including a summary of key issues/concerns raised and how they were addressed. Ensure consultations with Project Affected People, civil society, Avian experts (especially while developing mitigation measures in hot spots identified during the EIA process) at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, develop guidance for NTCs to consult with such groups throughout project implementation as necessary to address EA-related issues that affect them.

Annexes

These shall be numbered and duly referenced in the text, to include Public Consultation: public consultation plan, target audience, approaches and methods, feedback incorporation etc; see Consultation Guidance Plan; technical supporting documents, maps etc; references: List of all references, (books, articles, technical reports and other information sources) cited in the ESIA.

8.5 Guidance for Alignment Changes

To date in the Project development, starting with the Feasibility Study, a 2km wide Corridor of Interest has been established, with the idea being that the final TL will be constructed within this linear area. It is assumed that this CoI was arrived at by progressive analysis of in effect joining together the infrastructure required to form the Project and essentially the power source and power destination. The selection of such a corridor takes into account aspects such as the shortest feasible route (to minimise cost) and a range of constructability issues including topography; physical constraints; access; geology and soil type; protected or other sensitive or no-go areas; existing infrastructure and communities and the like. The overall alignment followed as much linear infrastructure as feasible, to reduce impacts on undeveloped areas of land.

This CoI was then assessed in the ESIA and associated pESIAs and was generally found to be an acceptable alignment and of sufficient width to allow 'minor' route modifications to avoid sensitive or valuable features, including the precise location of associated infrastructure, such as towers and sub-stations. However, it has come to light during this REA that some Clients may want to make modifications to this alignment to avoid issues like security 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

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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.

If an exact alignment is proposed by a Client at commencement of the country-specific ESIA, then this new corridor should be assessed as part of the ESIA, in a fairly standard manner and no particular issues are envisaged. If however a Client seeks to avoid a particular site or feature there may be a need to develop a new CoI around the avoidance area. The approach for assessing this should involve approaches including:

- 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. Therefore, a data collection and mapping exercise is required, which could involve acquisition of new satellite or aerial imagery, consultation with relevant stakeholders such as Environmental Protection Ministries/Agencies and ground-truthing/field survey.
- Collection of data on socio-economic and cultural issues and values, community infrastructure etc, so as to minimise potential adverse issues.
- Collection and analysis of data on geology, topography and soil and water resources.

In summary, an analysis requires to be performed that ‘funnels’ down the E&S issues, commencing with a broad or high level screening, sequentially down to a final established CoI, that can be the subject of an individual ESIA. As cited in this REA there is considered to be a certain amount of inherent flexibility around TL routing, as there is little definitive guidance in this technical area. In other words, there are precedents of avoiding community residential and other sensitive sites, but there is little in the way of absolute protocol that determines the distance of power line infrastructure to community infrastructure, housing etc. and these aspects require to be resolved on a case-by-case basis, taking into account local issues, landscapes and other ‘design drivers’. Within the international literature and research into power lines, sub stations and related power infrastructure that is capable of emitting magnetic fields, there is little in the way of absolute guidance or standards that determine the proximity of housing or other land uses to power infrastructure. An indicative reference of a 1km distance is considered useful in appraising route modifications, so ESIA Consultants could use this figure as a guide when screening and assessing alignment changes.

8.6 Key Environmental Impacts and Mitigation

The four initial pESIAs completed for each of the countries include a detailed analysis of anticipated project impacts, where possible. For the purpose of the EMP, impacts have been summarized for the construction phase with their key mitigation measures below in Table 8 1. It must be recognized at this stage that the routing and amount of engineering and Project design detail available to date is only at a feasibility stage and as explained elsewhere the whole range of construction-related aspects such as roads, laydown yards and camps have yet to be determined, and will only be determined during the detailed design stage.

From a consideration of the work undertaken to date, it is considered that there are no ‘show stoppers’ i.e. potentially significant adverse impacts that have been identified that cannot be avoided or mitigated. The ‘hot spots’ established to date include the sites and habitats that are important to birds and these were studied in the IEL ESIA and specialist avifauna report, which concluded that further fieldwork was required to evaluate potential effects in more detail and develop mitigation and management plans. This work will be undertaken as part of the four country-specific ESIA to be undertaken on behalf of the Client organisations. Other potential issues relate to proximity to settlements and routing through agricultural lands. Until the detailed ESIA are performed it is not possible to quantify these potential effects and categorically state their level of impact. However, given that there is inherently a 2km wide corridor within which the TL will be constructed, that width is considered generally large enough to be able to avoid sensitive features such as houses, socially sensitive buildings and the like.

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Issues of agricultural land appears at this stage to be manageable, as the key constraints associated with power lines relate to a maximum clearance height and therefore, within reason, many agricultural practices can continue within the CoI and the RoW will not be sterilised in terms of land use or vegetation clearance. Worldwide typical standards and guidelines routinely cite vegetation that is not capable of growing beyond a height of 4-5m is allowable under power lines and therefore agricultural crops and livestock practices should remain unaffected.

Avifauna aspects

This section of guidance has been prepared in view of the avifauna interest identified along the route, as presented previously, namely the IBAs and Ramsar site, to ensure that sufficient coverage is given to this issue in the forthcoming ESIA.

The Avifauna Study was prepared by avifauna specialists, who are knowledgeable about bird species and their habitats and breeding and migration aspects within ornithology. They are also knowledgeable about the potential electrocution aspects of power projects and recommended techniques and designs that inherently reduce or eliminate electrocution risk. Reference to this study and the range of literature available in the scientific community, as can be found on the www, needs to be made such that this issue is fully taken into consideration in the design and environmental assessment of the Project. The other main aspect of bird strike should also be addressed in a similar manner; there are a range of approaches, techniques and specific equipment (eg markers, diverters and colours) that are available to inherently reduce the chance of bird strike.

Consequently the ESIA Consultants need to ensure that the requisite ornithological expertise is available or contractually engaged into their ESIA team. Full reference and adherence to the findings and recommendations made in the Avifauna Study shall be made accordingly. Site visits shall be made to each of the identified bird habitat sites and a specific assessment conducted of all the relevant issues such as:

- The precise alignment of the TL, in relation to flight directions, numbers and bird species
- The exact location of towers and other infrastructure, in terms of habitat features and likely number of birds, their interest in the site such as migratory feeding stop over, breeding locations and other habitat-related aspects
- Habitat and species evaluation of the construction aspects, such as access, ground disturbance, soil management, and any other relevant issues
- Timing in relation to the site interest such as breeding or migration, with the construction work timing aimed at minimising potential adverse effects, all of which needs to be fed into the construction programme as early as possible, to potential timing constraints to be accommodated into the construction programming

The IEL ESIA concluded that environmental and social impacts of the Project are expected to be minimal at this level of analysis and are expected to be effectively mitigated through implementation of measures contained in its EMP. After reviewing and incorporating the findings from the avifauna study and on-going social assessment work, this basic conclusion is supported. For each potential impact presented in Table 8-1, the relevant plan that is required is indicated and detailed information on plan content is provided in Annex 1.

Impacts and their associated mitigation are organized as follows:

- Environmental aspect – an element of an organization's activities, products or services that can interact with the environment – can be direct or indirect;
- Impact – the effect of an environmental aspect on an environmental or social receptor;
- Mitigation Objective/Standard – the Project objective of the result of mitigation;
- Mitigation – the proposed activity to reduce or minimize a project impact; and
- Relevant Plan – the link to the proposed mitigation and proposed mitigation specification to be included in contract bid specifications.

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This EMP is designed as an overriding document in a hierarchy of control sub-plans, and sets out the overarching framework of environmental and social management principles that will be applied to contractual aspects of the Project. It is also directly related to the four Environmental and Social Impact Assessments (pESIAs) for the Project and their associated environmental alignment sheets.

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 project executing agency (NTCs), once the Project has been constructed.

The EMP should also be considered as an overall framework document that establishes the terms of reference for all project environmental and social sub-plans that will be completed including the following :

- Workforce and Site Installation Management Plan
- Site Preparation and Restoration Management Plan
- Construction Impact Management Plan
- Waste Management Plan
- Pollution Prevention Plan
- Aesthetics and Ecological Management Plan
- Safety Management Plan
- Physical Cultural Property – Chance Finds Management Plan
- Community Relations and Health Management Plan

In addition to these sub-plans, the Construction Supervision Engineer (EPC) will develop a Construction Supervision plan and the Independent Environmental Monitoring Consultant (IEMC) will develop a Construction Monitoring Plan.

The EMP is structured as follows:

- Guidance for Alignment Changes Section 8.5
- ToC for National ESIA Section 8.4
- Key environmental and social impacts as identified from the project ESIAs and best mitigation and management practices are presented in Section 8.6.
- A summary of plan contents and individual sub-plans is provided in Section 8.7.
- Roles and responsibilities for environmental and social management are described in Section 8.8.
- A framework for Environmental Monitoring is presented in Section 8.9.
- Communication and reporting procedures are described in Section 8.10.
- Training and capacity building requirements are discussed in Section 8.11.
- Plan monitoring and review procedures are presented in Section 8.12.
- EMP Implementation is outlined in Section 8.13.
- Preliminary EMP costs are estimated in Section 8.13.3.

EMP Annexes

Annex 3 provides important details of the various plans of the EMP, such that they can be incorporated into contractual documentation. Readers are encouraged to refer to them as they contain important information not present in the body of the EMP

Table 8-1: Summary of Key Environmental Construction Phase Impacts

Environmental Aspect	Impact	Mitigation Objective/Standard	Project Mitigation	Relevant Plan
Noise and Vibration Creation	Local residents, livestock and wildlife	To keep noise and vibration from disturbing local residents and breeding livestock and wildlife	Activities to be limited to daylight hours wherever possible If activities must occur at night, residents must be informed and activities will be approved by local authorities Vehicles and equipment maintenance is to occur	Construction Impact Management Plan
Dust Creation	Local residents Construction workers	Dust levels created must not impact the health of construction workers, local villagers and surrounding environment	Access roads and work area will be watered when necessary Construction equipment and vehicles will be restricted to designated roads	Construction Impact Management Plan
Increased Road Traffic	Increased Dust Increased noise and vibration Deterioration of roads	Refer to “Dust” above Refer to “Noise” above To minimise road damage	Road maintenance is to occur as necessary	Construction Impact Management Plan
Accidents and Unplanned	Increase in injury potential	To minimize health and safety risks to all employees and local	Safety training and monitoring will be provided The Contractor will provide safe systems of work, proper	Safety Management

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Environmental Aspect	Impact	Mitigation Objective/Standard	Project Mitigation	Relevant Plan
Events		residents	tools for the job and protective equipment to the employees Vehicles and equipment will be properly maintained and inspected regularly	Construction Impact Management Plan
Resettlement	Loss of homes Loss of cultural identity and family networks	To ensure affected people can re-establish traditional way of life in their new location To ensure affected people are effectively resettled or compensated	New homes will provide the same standard of living or better to those affected Social, educational and communication programs will be available to those affected to support resettlement	Resettlement and Land Acquisition Frameworks
Increased Work Force	Potential job creation for local residents	To ensure equal employment opportunities	Income and employment conditions must be agreed to by the Contractor and local workers	Resettlement and Land Acquisition Frameworks ²⁸
Changes in Land Use	Loss of agricultural and/or urban areas	To confine construction activities to designated areas to ensure minimal disturbance To ensure no long term impacts	Avoid access clearing Avoid agricultural land wherever possible Restore all temporary construction disturbance	Site Preparation and Restoration Management Plan Resettlement and Land

²⁸ Separate initiative to this REA

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Environmental Aspect	Impact	Mitigation Objective/Standard	Project Mitigation	Relevant Plan
	Loss of income		Compensation and possible resettlement	Acquisition Frameworks
Changes in Cultural and Ethnic Identities	Change in traditional behaviour	To ensure standard of living is maintained as well as traditional activities sustained	Monetary assistance to maintain traditional activities Services must be made available to local workers and non-local workers	Resettlement and Land Acquisition Frameworks
Construction Equipment Maintenance	Soil, water and vegetation Air quality	To minimize impact to the adjacent environment To maintain air quality standards	Construction vehicles and equipment will be regularly maintained to prevent spills, leaks, and excess emissions	Pollution Prevention Plan
Waste Management	Soil, water and vegetation	To minimize impact to the adjacent environment	Hazardous materials will be contained appropriately. Spills will be cleaned up immediately as to minimize impact on soil, water or vegetation Waste is to be collected and disposed of at appropriate locations Recycle waste if possible	Pollution Prevention Plan Waste Management Plan
Alteration of Archaeological/Cultural/	Loss of historical/cultural	To minimize destruction of new and known sites during	Follow Chance Find Procedures Consult local residents and authorities about historical	Physical Cultural Property – Chance Finds

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Environmental Aspect	Impact	Mitigation Objective/Standard	Project Mitigation	Relevant Plan
Historical Sites	resources	construction activities	sites	Management Plan
Health Issues	Disease transmission	To minimize risk of exposure to local residents and decrease disease transmission rates of construction workers	Regular health testing of construction workers will be implemented by Contractor Local residents will be educated on disease transmission and personal hygiene Provide locals and workers with necessary health care services, where relevant	Community Relations and Health Management Plan
Gender Issues	Women's privacy	To ensure the least disturbance possible to women	The Contractor must establish policies in consultation with local elders/authorities	Workforce and Site Installation Management Plan
Demand for Infrastructure and Utilities	Potential social conflicts over: potable water, medical services, wastewater treatment, fuel and construction materials	To ensure construction workers are provided adequate services and locals receive benefits from these To ensure activities do not impact local resources To ensure fuel demands for construction activities do not compromise existing	Caution must be taken to ensure local resources are not impacted by construction camp resources Additional fuel supplies will be provided to prevent conflict	Workforce and Site Installation Management Plan Construction Impact Management Plan

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Environmental Aspect	Impact	Mitigation Objective/Standard	Project Mitigation	Relevant Plan
Disturbance to Natural Resources	<p>Loss of biodiversity and habitat</p> <p>Increase pressure on water resources</p> <p>Wildlife accidents</p>	<p>To minimize disturbance during clearing and construction</p> <p>To ensure construction workers and local residents receive potable water and waste water disposal</p> <p>To minimize the impact on wildlife</p>	<p>Potable water supplies and wastewater treatment services for the construction camp shall not conflict with local water needs</p> <p>Rare species habitat will be determined and avoided when possible</p> <p>Waste will be collected and removed so it does not attract wildlife to the construction sites and camp sites, creating a hazard to workers and local residents</p>	Aesthetics and Ecological Management Plan
Cumulative Effects	Impact of the Project in conjunction with all past, present and possible future projects and activities within a defined spatial and temporal framework	Minimize cumulative effects and implement effective land and resource management process	Not to exceed threshold or some defined limit of acceptability to system change	Not defined yet

8.7 Plan Components and Structure

The following sections (8.7, 8.8, 8.9, 8.10, 8.11, 8.12 and 8.13) of this REA will be revised during preparation.

8.7.1 Introduction

This section presents the approach to the preparation of management plans that are required to be prepared and implemented by Construction Contractors, to ensure appropriate management of environmental issues within the Project. The details for each of the Plans required is presented in Annex 3, as part of guidance to Contractors, to ensure readability of the main report and also so that the Management Plan guidance can be separated out and appended to contractual documentation during engagement of Construction Contractors.

Coordination between the national ESIA consultants and the EPC contractors is critical to ensure that the ESIA process influences the final decisions on selection of alignments in each country and ensures avoidance and minimization of potential adverse social and environmental impacts. The respective NTCs need to play an important role in ensuring that the ESIA and EPC contractors work collaboratively, exchange notes/information freely and carry out the pre-alignment surveys jointly. In addition, the respective NTCs, EPC contractors and the ESIA consultants are required to discuss the EMPs proposed by the ESIA consultants and arrive at a legally binding (especially on the EPC contractors) practical, monitorable and enforceable Plans.

As part of each ESIA the Consultants (on behalf of the NTC) will be required to prepare an EMP, comprising a number of sub-plans, based on mitigation and management of potential impacts. After award of construction contracts, EPC Contractors will prepare their own, EMP Implementation Plan, adjusted to the peculiarity of the respective country contexts. The aim of the EPC's EMP Implementation Plans is to demonstrate exactly how they will deliver compliance, based on their actual construction operations and staffing.

Specific components of each of the various environmental management plans, their structure, objectives, timing and responsibility for implementation are contained in Annex 3. Figure 8-1 shows the organizational structure of the EMP for the Project.

ESMP Roles and Responsibilities are discussed in Section 8.8. Table 8-2 shows the primary responsibility for implementation of each plan component. In some cases the primary responsibility may be shared between two organizations.

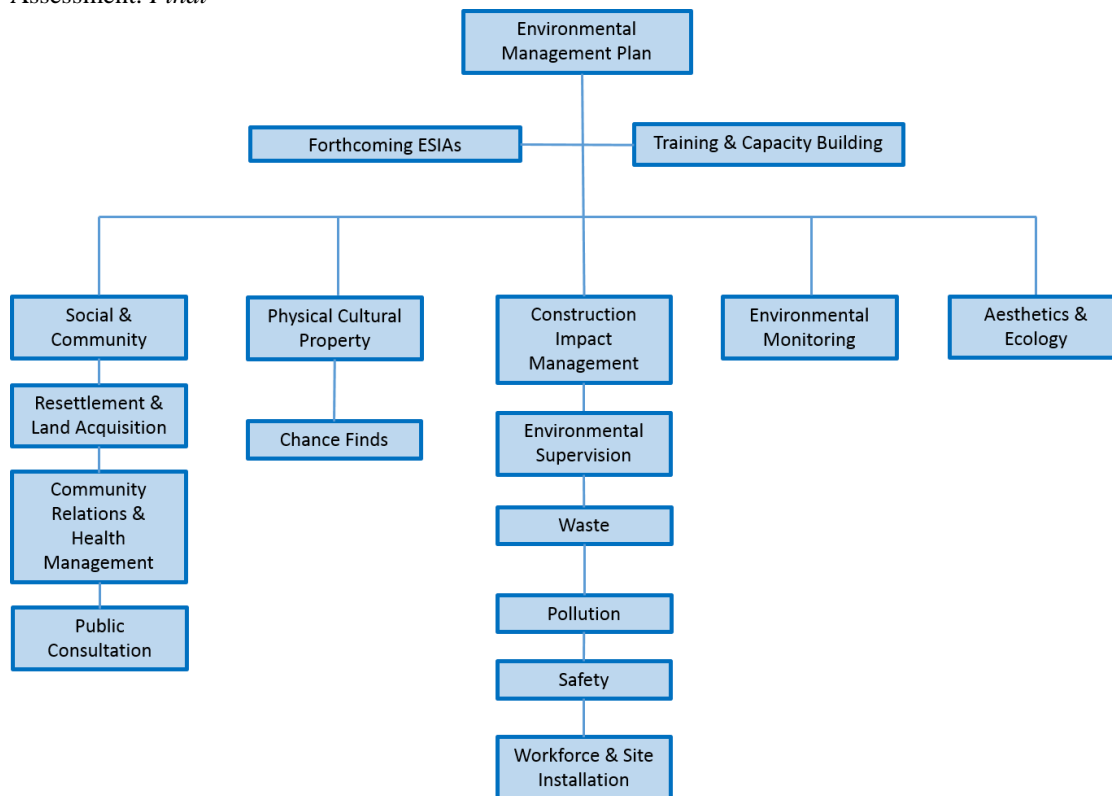


Figure 8-1 EMP Organisational Structure

8.8 EMP Roles and Responsibilities - Construction

8.8.1 Planning and Organisation

The implementation of environmental procedures for the Project requires the involvement of several agencies and institutions within each of the four Project countries, each fulfilling a different but vital role, to ensure effective environmental and management during the construction of the Project.

While the final decision for the structure of environmental and social management²⁹ responsibilities will be made by the Client organisations in each of the four countries, perhaps in discussion with Financiers, the following structure is proposed as a guideline as to how a tiered mechanism for environmental responsibility could be developed.

The following section deals only with construction aspects. Similar operational measures and procedures will be developed prior to onset of operations.

Organizational Layers of the EMP

- (NTC for overall environmental and social responsibility at the national level;
- Project Environmental Officer for day-to-day implementation of environmental responsibility on behalf of the NTC;
- EPC Contractor;

²⁹ This REA addresses only environmental issues, but the SIA will produce an SMP and it is common practice to develop one ESMP that deals with environmental and social aspects

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- Independent Environmental Monitoring Consultant (IEMC)

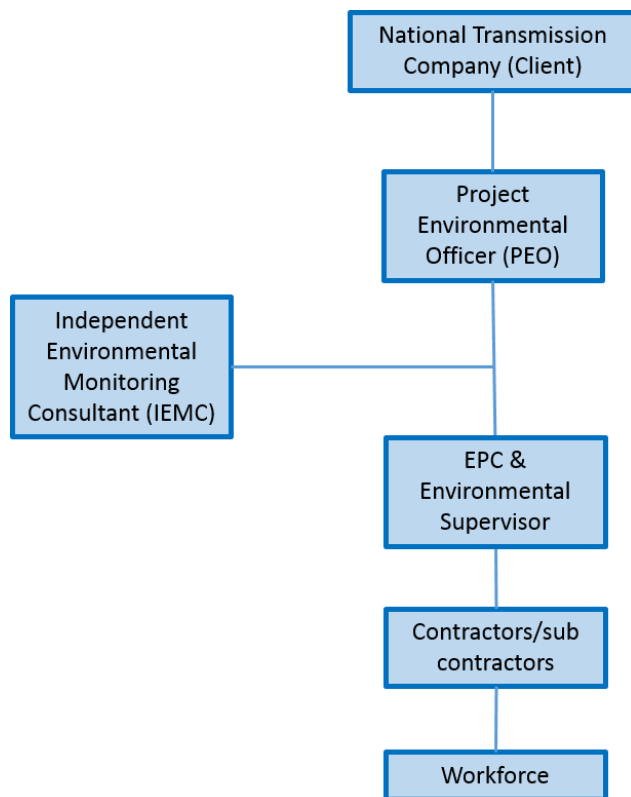


Figure 8-2 Supervision Structure for CASA-1000

Management Plans

The Management Plans are separated into those that arise following, and as part of, the ESIA's (and are ultimately the responsibility of the NTC) and those 'operational' Management Plans which each EPC prepares to control and manage issues that they in effect have control of.

Each Construction Contractor shall ensure that their ES is put in place prior to mobilization and provided with all resources and personnel necessary to complete their job as specified above.

Plan	NTC & PEO	EPC Contractor	IEMC
Workforce and Site Installation Management Plan		√	
Site Preparation and Restoration Management Plan		√	
Construction Impact Management Plan		√	
Waste Management Plan		√	

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Plan	NTC & PEO	EPC Contractor	IEMC
Pollution Prevention Plan		√	
Safety Management Plan		√	
Physical Cultural Property – Chance Finds Management Plan	√	√	
Community Relations and Health Management Plan	√	√	
Aesthetics and Ecological Management Plan	√		
Construction Supervision – Environmental/Social		√	
Environmental and Social Monitoring			√
Training and Capacity Building	√	√	

Table 8-2 Primary Responsibility of the CASA-1000 EMP

Table 8-3 to Table 8-12 that follow present a synopsis of various management plans that are required to be contained within the forthcoming EMPs of each ESIA.

This EMP guidance provides a framework for development of specific management plans that are to be produced prior to the onset of construction activities. The responsibilities for plan preparation are indicated in Table 8-2.

Workforce and Site Installation Management Plan
Objectives: Minimize negative impacts on local communities and the natural environment from construction camps.
Description: Preparation of the Workforce and Camp Site Installation Management Plan will be responsibility of the construction contractor. Specifications for preparation of this plan are to be presented in the construction bid. Details are presented in Annex 3. The plan addresses the following elements: <ul style="list-style-type: none"> • General Workforce • Workers’ Camp and Site Installation Requirements • Sanitary Facilities • Maintenance of Camp Facilities • Medical Facilities • Code of Conduct

Workforce and Site Installation Management Plan
<ul style="list-style-type: none"> • Security • Prohibitions • Environmental Training for Construction Workers <p>Timing/Schedule:</p> <p>Pre-construction: Design requirements, safety and security, sanitary and waste management, camp maintenance, worker code of conduct, prohibitions</p> <p>Construction: camp maintenance and operation, medical and security, environmental training</p> <p>Operation: camp site restoration</p> <p>The plan shall be in place at the onset of construction.</p>
<p>Responsibility:</p> <p>Preparation and implementation of the Workforce and Camp Site Installation Management Plan will be the responsibility of the Construction Contractor.</p> <p>The NTC and PEO in each of the four countries will prepare bid documents incorporating plan provisions and will provide supervision of implementation.</p> <p>The PEO will review compliance of plan implementation against the plan terms of reference.</p>

Table 8-3 Workforce and Camp Site Installation Management Plan

Site Preparation and Restoration Management Plan
<p>Objectives:</p> <p>Minimize impacts of site clearing and preparation associated with construction of the Project and ensure site restoration is completed to pre-existing conditions, or as agreed to by all parties regarding final end land use.</p>
<p>Description:</p> <p>The Site Preparation and Restoration Management Plan contains provisions for the clearing of construction camps, tower locations and the Right-of-Way as required, timber salvage, re-vegetation and site restoration and special provisions adjacent to communities and residential areas. Plan preparation will be responsibility of the construction contractor. Specifications for preparation of this plan are to be presented in the construction bid. Details are presented in Annex 3.</p> <p>The plan addresses the following elements:</p> <p>Clearing of construction areas and timber salvage</p> <p>Re-vegetation and restoration</p> <p>Special provisions for communities and residential areas</p>
<p>Timing/Schedule:</p> <p>Pre-construction: Site clearing and RoW preparation plan</p> <p>Construction: Site restoration for temporary construction disturbance</p> <p>Operation: Camp site restoration</p> <p>Decommissioning: Site restoration</p>

Site Preparation and Restoration Management Plan
The plan shall be in place 2 months after the onset of construction.
<p>Responsibility:</p> <p>Preparation and implementation of the Site Preparation and Restoration Management Plan will be the responsibility of the Construction Contractor.</p> <p>The NTC and PEO in each of the four countries will prepare bid documents incorporating plan provisions and will provide supervision of implementation.</p>

Table 8-4 Site Preparation and Restoration Management Plan

Construction Impact Management Plan
<p>Objectives:</p> <p>Minimize negative impacts of construction activities on local communities and the natural environment.</p>
<p>Description:</p> <p>The Construction Impact Management Plan will contain detailed method statements and mitigation measures as to how construction related impacts on the natural environment and local communities will be minimized.</p> <p>Preparation of the Construction Impact Management Plan will be responsibility of the construction contractor. Specifications for preparation of this plan are to be presented in the construction bid. Details are presented in Annex 3. The plan addresses the following elements:</p> <p>New and Existing Access Roads</p> <p>Substations</p> <p>Erosion and Sedimentation Control</p> <p>Emissions and Dust</p> <p>Noise Control</p> <p>Earthworks, Cuts and Fill Slopes</p> <p>Stockpiles, Quarries and Borrow Pits</p> <p>Soil Compaction</p>
<p>Timing/Schedule:</p> <p>Pre-construction: Design requirements and method statements developed, access management plan prepared</p> <p>Construction: implementation of detailed mitigation measures</p> <p>The plan shall be in place at the onset of construction.</p>
<p>Responsibility:</p>

Construction Impact Management Plan
<p>Preparation and implementation of the Construction Impact Management Plan will be the responsibility of the Construction Contractor.</p> <p>The NTC and PEO in each of the four countries will prepare bid documents incorporating plan provisions and provide supervision of implementation.</p>

Table 8-5 Construction Impact Management Plan

Waste Management Plan
<p>Objectives:</p> <p>To minimize impacts of solid and liquid waste discharges on the natural environment and local communities during construction.</p>
<p>Description:</p> <p>The waste management plan will address management of site runoff, wastewater (grey and black), solid waste discharges and hazardous and chemical waste.</p> <p>Preparation of the Waste Management Plan will be responsibility of the construction contractor. Specifications for preparation of this plan are to be presented in the construction bid. Details are presented in Annex 3. The plan addresses the following elements:</p> <p>Site runoff and drainage</p> <p>Wastewater – black and grey</p> <p>Solid waste – spoil and construction waste</p> <p>Domestic waste</p> <p>Hazardous and chemical waste</p>
<p>Timing/Schedule:</p> <p>Pre-construction: Design requirements of wastewater treatment facilities, identification of waste disposal sites, waste transportation and manifest procedures, waste tracking and waste register procedures</p> <p>Construction: implementation of detailed mitigation measures, waste audits</p> <p>The plan shall be in place at the onset of construction.</p>
<p>Responsibility:</p> <p>Preparation and implementation of the Waste Management Plan will be the responsibility of the Construction Contractor.</p> <p>The Contractor will be responsible for waste tracking procedures, registers and manifests.</p> <p>The NTC and PEO in each of the four countries will prepare bid documents incorporating plan provisions and provide supervision of implementation.</p>

Table 8-6 Waste Management Plan

Pollution Prevention Plan
<p>Objectives:</p> <p>To minimize the impact of accidental or other discharges on the natural environment and local communities.</p>
<p>Description:</p> <p>The Pollution Prevention Plan details measures the contractor will take to prevent accidental discharges of construction related discharges on the environment and local communities. The Pollution Prevention Plan also details response and clean-up measures in the event of a spill or incident.</p> <p>Preparation of the Pollution Prevention Plan will be responsibility of the construction contractor. Specifications for preparation of this plan are to be presented in the construction bid. Details are presented in Annex 3. The plan addresses the following elements:</p> <p>Maintenance on the RoW and Camps during construction</p> <p>Maintenance of construction equipment</p> <p>Material transportation and storage</p> <p>Hazardous and chemical substances</p>
<p>Timing/Schedule:</p> <p>Pre-construction: Design requirements for chemical, hazardous and other material storage, MSDS implementation at all worksites, identification of material transportation routes.</p> <p>Construction: implementation of material storage procedures, camp, construction and RoW pollution prevention procedures, audits and monitoring</p> <p>The plan shall be in place at the onset of construction.</p>
<p>Responsibility:</p> <p>Preparation and implementation of the Pollution Prevention Plan will be the responsibility of the Construction Contractor.</p> <p>The Contractor will be responsible for storage of all project related construction materials and ensuring their safe storage.</p> <p>The NTC and PEO in each of the four countries will prepare bid documents incorporating plan provisions and provide supervision of implementation.</p>

Table 8-7 Pollution Prevention Plan

Aesthetics and Ecological Management Plan
<p>Objectives:</p> <p>To put in place measures to protect landscape and scenic views, native flora and fauna, agricultural or</p>

Aesthetics and Ecological Management Plan
pastoral lands, watercourses, wetlands and forested lands along the RoW.
<p>Description:</p> <p>The design, location, construction, and RoW management of the Project can mitigate some of the adverse aesthetic effects and ecological effects on natural landscapes, flora, fauna and visual resources.</p> <p>Preparation of the Aesthetics and Ecological Plan will be responsibility of the NTC. Aspects of this plan may be presented in the construction bids. Details are presented in Annex 3.</p> <p>The plan addresses the following elements:</p> <p>Visual aesthetics and landscape management</p> <p>Flora and Fauna</p> <p>Impacts on protected areas, reserves or areas of ecological importance</p> <p>Bird protection and minimizing bird strikes</p> <p>Agricultural lands, pasture and grasslands</p> <p>Watercourses</p> <p>Wetlands</p> <p>Woodlands (where they naturally occur)</p>
<p>Timing/Schedule:</p> <p>Pre-construction: detailed routing for final selection of RoW, identification of any aesthetic or ecological constraints, if any, preparation of a plan to avoid and mitigate bird strikes where relevant.</p> <p>Construction: implementation of mitigation measures, monitoring.</p> <p>The plan shall be in place at least 3 months prior to the onset of construction.</p>
<p>Responsibility:</p> <p>Preparation and implementation of the Plan will be the responsibility of the PEO/NTC.</p> <p>The Contractor will be responsible for implementation of all aesthetic and ecological protection measures.</p> <p>The PEO will oversee implementation of the plan</p>

Table 8-8 Aesthetics and Ecological Management Plan

Safety Management Plan
<p>Objectives:</p> <p>To ensure the safety of all Project workers and local communities</p>

Description:

The Safety Management Plan will address safety aspects of construction of the Project including construction site safety, blasting, fire control, unexploded ordinance, airports/airstrips, traffic management and environmental emergencies.

Preparation of the Safety Management Plan will be responsibility of the construction contractor. Specifications for preparation of this plan are to be presented in the construction bid. Details are presented in Annex 3. The plan addresses the following elements:

Construction site safety

Blasting

Fire Control

Landmines and UXO

Airports and airstrips

Electrical shock hazards

Traffic safety

Environmental Emergency Procedures

Timing/Schedule:

Pre-construction: Survey of final detailed routing for UXO and landmines, preparation of safety plan, training plan for workers.

Construction: implementation of safety procedures, safety training and record system, PPE provision, safety checks and safety audits.

The plan shall be in place at the onset of construction.

Responsibility:

Preparation and implementation of the Safety Management Plan will be the responsibility of the Construction Contractor.

The Contractor will be responsible for all safety related procedures for Project personnel.

The NTCs and their PEO or safety personnel/engineer in each of the four countries will prepare bid documents incorporating plan provisions.

Each NTC will oversee implementation of the plan.

Table 8-9 Safety Management Plan

Physical Cultural Property Chance Find Procedures Plan

Objectives:

To prevent any inadvertent loss of physical and cultural resources during project construction.

Physical Cultural Property Chance Find Procedures Plan
<p>Description:</p> <p>Following each ESIA and implementation of recommended measures to safeguard resources, physical and cultural resources (chance finds) may be encountered during construction. The Contractor will develop a Physical Cultural Property Chance Find Procedures Plan that identifies what measures shall be taken to protect these cultural resources.</p> <p>Chance Find Procedures, which identify what measures should be taken in the event that physical cultural resources are encountered, are outlined in Annex 3.</p> <p>The plan should also address measures to monitor physical cultural sites in the vicinity of CoI and implement measures to protect these sites and demonstrate no impact if relevant.</p>
<p>Timing/Schedule:</p> <p>The Plan shall be in place two months prior to the onset of site construction works for the main project site.</p>
<p>Responsibility:</p> <p>Preparation and implementation of the Plan will be the responsibility of the Construction Contractor.</p> <p>The Contractor will be responsible for all loss or damage to physical cultural resources that occur due to non-implementation of this plan</p> <p>The NTC and PEO in each of the four countries will prepare bid documents incorporating plan provisions.</p> <p>The Construction Contractors shall coordinate the preparation and implementation of the Plan for review by the PEO and the appropriate cultural authority or Ministry in each of the four countries.</p> <p>The PEO will oversee implementation of the plan.</p>

Table 8-10 : Physical Cultural Property Chance Find Procedures Plan

Community Relations and Health Management Plan
<p>Objectives:</p> <p>To maintain good community relations along the entire Project RoW during construction and to minimize health related impacts to project personnel and local communities.</p>
<p>Description:</p> <p>Each Construction Contractor will be required to complete a Community Relations and Health Management Plan, see Annex 3.</p> <p>Community Relations</p> <p>The Contractor shall prepare a Community Relations and Community Safety Plan aimed at the following:</p> <p>To inform the population about construction and work schedules, interruption of services, traffic detour</p>

Community Relations and Health Management Plan
<p>routes and construction restrictions as appropriate;</p> <p>To ensure that construction activities shall occur mainly during daylight hours. If necessary, night work shall be carefully scheduled and local communities shall be properly informed;</p> <p>To provide adequate notification - at least five days (if possible) in advance of any service interruption (including water, electricity, telephone, and transportation routes) the community must be advised appropriately;</p> <p>Maintain open communications between local governments and communities;</p> <p>Maintain a mailing list to include interested agencies, organizations, tribal groups and residents - disseminate project information to all affected parties; and</p> <p>Respond to telephone inquiries and written correspondence in a timely, documented and accurate manner and provide a grievance mechanism and means for addressing disputes or concerns.</p> <p>Worker and Community Health</p> <p>Screen workers prior to and during employment;</p> <p>Implementation education on health and provide vaccinations;</p> <p>Implement programs for control of STDs, especially HIV/AIDS;</p> <p>Provide basic first aid services to workers and emergency services, when needed;</p> <p>Implement a pest management program; and</p> <p>Ensure proper operations of water supply and waste treatment systems.</p>
<p>Timing/Schedule:</p> <p>The Community Relations and Community Safety Plan shall be in place at the onset of construction</p>
<p>Responsibility:</p> <p>Preparation and implementation of the Community Relations and Health Management Plan will be the responsibility of the Construction Contractor.</p> <p>Local authorities will coordinate their regional health programs with the Construction Contractor in regard to community health, supported by discussions with each NTC;</p> <p>The NTC and PEO in each of the four countries will prepare bid documents incorporating plan provisions and each PEO will oversee implementation of the plan.</p>

Table 8-11 Community Relations and Health Management Plan

Environmental Monitoring Plan
<p>Objectives:</p> <p>The objectives of the environmental monitoring plan are to a) ensure project components are compliant with all laws and approval conditions; b) to measure the success of proposed mitigation measures; c) to continue</p>

Environmental Monitoring Plan
baseline monitoring and d) to facilitate a continual review of post-construction and operation activities.
<p>Description:</p> <p>Environmental monitoring will be done during construction and operation. Details of the proposed environmental monitoring program are presented in the EMP and Annex 3. The focus of monitoring during the construction phase will be to implement systematic observations to periodically measure the success of proposed mitigation and continue baseline data collection following forthcoming ESIA completion.</p> <p>Environmental monitoring during the construction phase will be done by the Environmental personnel in each EPC, NTC and/or IEMC; a detailed work split will be arranged after staff recruitment and after determining the amount, extent and complexity of the monitoring that is appropriate. Monitoring will include routine work undertaken by each EPC to check compliance as they work and monitoring checks by NTC and IEMC to gauge overall compliance to standards and in response to complaints or concerns that may arise. Specific monitoring aspects to be addressed during construction include:</p> <ul style="list-style-type: none"> Noise Air quality Water quality and water resources Sedimentation and erosion Protected and ecological areas of importance, if applicable Physical cultural resources Access roads Resettlement of displaced persons Land acquisition and compensation Reclamation <p>Oversight and performance assessment of monitoring activities shall be carried out by the Independent Environmental Monitoring Consultant (IEMC).</p>
<p>Timing/Schedule:</p> <p>Environmental monitoring shall start as soon as the project is given the go-ahead, and monitors shall be ready to be mobilized prior to the onset of construction activities.</p>
<p>Responsibility:</p> <p>The EPC and IEMC shall be responsible for environmental monitoring during construction</p> <p>The NTC and PEO in each of the four countries will prepare work scopes for environmental monitoring.</p> <p>The PEO will oversee routine environmental monitoring and the IEMC ultimate compliance and will make all findings available in a regular and transparent manner to financiers such as World Bank and other</p>

Environmental Monitoring Plan

stakeholders; giving them opportunity for interface and feedback remedial measures if required.

Table 8-12 Environmental Monitoring Plan

8.8.2 National Transmission Company (NTC)

Each NTC listed below is ultimately responsible for environmental & social management and implementation of each EMP, namely:

- 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).

Each NTC will be responsible for environmental and social management with, but not limited to, the following specific responsibilities:

- Responsible for day to day supervision and management of all aspects of project preparation and construction, including procurement and the signing of contracts;
- Coordination with local authorities to facilitate the participation of local communities and projected affected persons during project preparation and implementation;
- Responsible for ensuring that the requirements of World Bank safeguards policies (and other IFI lender requirements) are met and that all measures set out in the project Environmental Management Plan (EMP), the respective ESIA's and other project environmental and social documentation are carried out;
- Ensure that project commitments of the construction contractor are fulfilled, including the detailed development of project level specific environmental and social management plans as outlined in this document;
- Report ongoing status of EMP implementation to the World Bank and other lenders as applicable; and
- Develop full time professional and other safeguard (e.g., resettlement) staff to assist with supervision and management efforts for environmental and social management of project preparation and construction phases.

8.8.3 Project Environment Officer (PEO)

Each NTC shall engage the services of a Project Environment Officer (PEO), who will be the person responsible for overall coordination of EMP implementation in each country. The PEO must have professional knowledge and capacity on environmental management systems (EMS), construction impacts relating to transmission lines, and be knowledgeable of relevant national legislative requirements. The PEO should report directly to the NTC, but will be expected to be involved in regular liaison with the wider Project team, which includes World Bank specialist assistance.

The PEO, and any delegated personnel, shall have the authority to monitor and stop construction works if in his/her opinion there is/may be a serious threat or impact to the environment or local communities caused directly or indirectly by the construction operations. His/her authority shall also extend to emergency situations where consultation with the Construction Supervision Engineers of the EPC is not immediately possible. In all such work stoppage situations, the PEO is to inform the EPC of the reasons for the stoppage within 24 hours of occurrence of the non-compliant event.

Upon failure by the Contractor or their employees, or subcontractors, to show adequate consideration to the environmental and social aspects of the ESIA EMP, the PEO may recommend to the EPC to have the Construction Contractor's representative or any employee(s) removed from the work site, fined or suspend all

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work until the non-compliant matter is effectively remedied. No extension of time will be granted in the case of such suspensions and all costs will be borne by the Construction Contractor. The PEO shall be on-site daily during the construction phase.

The duties of the PEO shall include the following:

- Ensure that the EMP is implemented in compliance with relevant legislation;
- Assist the NTC in ensuring that the necessary environmental authorizations and permits have been obtained;
- Maintain open and direct lines of communication between NTC, the EPC and the Contractors with regard to environmental and social matters;
- Monthly reporting to NTC on environmental issues at construction sites;
- Review and approve the Contractor's construction method statements;
- Organize regular site inspections of all construction areas with regard to compliance with the EMP;
- Monitor and verify adherence to the EMP at all times, and that environmental and social impacts are kept to a minimum;
- Coordinate oversight and response to EMP non-compliances with the EPC and ES;
- Take appropriate action if the specifications are not followed; and
- Assist the Contractor in finding environmentally and socially responsible solutions to problems.

8.8.4 Construction Supervision and the Environmental Supervisor (ES)

Construction Supervision Engineers are an important part of the EPC Project team and are responsible for inspection, supervision, audits and oversight of all construction related works and other activities undertaken by the Contractor(s), and ultimately responsible for ensuring compliance with the environmental specification and contractual requirements. The role of environmental personnel in the EPC team is to provide support and guidance to the construction personnel, whilst conducting monitoring to assess the compliance to agreed performance, as specified in the EMP following each ESIA.

The EPC shall include qualified staff (e.g. Environmental Specialist or EMS specialists) with knowledge on environmental protection and construction project management to perform the required duties and to supervise the Contractor's performance. The EPC team shall include an Environment Supervisor (ES) who shall have extensive experience in construction management and oversight, environmental management, supervision and monitoring of construction projects and be familiar with environmental legislative requirements. The terms of Reference for the EPC shall be clearly stipulated in the contract signed between EPC and NTC. Each EPC will also probably include a dedicated Safety Supervisor, responsible for all safety aspects during construction, including traffic management, construction workers and potential interface of the general public to construction operations. In practice in major construction projects there is some cross-over of roles and responsibilities between Safety and Environmental personnel, mainly in aspects such as hazardous materials, site housekeeping and the like, which trigger dual monitoring and reporting. Some contractors utilise the services of a joint Environmental Health and Safety (EHS) role, whilst others split the roles separately as Environmental and Safety. Considering the potential environmental issues, such as avifauna, water and soils resources it is recommended that a separate Environmental Supervisor or Officer is engaged, so as to deliver specialist knowledge on environmental issues, in addition to a Safety Supervisor dealing with safety issues.

The responsibilities of the EPC and the ES include, but are not limited to:

- Integrate project engineering design and the EMP with regard to environmental/social protection and impact mitigation. Construction shall not commence until this review has been completed and the EPC is satisfied with environmental and social management measures compliant with the EMP;
- Provide assistance to the PEO as necessary in the implementation of the environmental monitoring and supervising program;

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- Regularly monitor the performance of the Contractor's support staff, verifying monitoring methodologies and results. In case the EPC considers that any sub-Contractor's environment staff fail to discharge duties or fails to comply with the contractual requirements, work with the PEO to instruct the sub-Contractor(s) to replace the staff or make other changes;
- Instruct the Construction Contractors to take corrective action within the EPC determined response timeframe;
- Supervise the Construction Contractor's activities and ensure that the requirements of the EMP and contract specifications are fully complied with;
- Instruct the Contractor(s) to take actions to reduce impacts and follow the required EMP procedures in case of identified non-compliance and/or discrepancies;
- In the case of Chance Find identification, the EPC will order the sub-Contractor(s) to provide site protection and report to relevant authorities and the PEO;
- Ensure that all social management procedures are fully implemented by the Contractors including oversight of compensation and resettlement and effective implementation of grievance procedures³⁰; and
- Adhere to the social management procedures

8.8.5 Contractor's Site Environmental Officer (SEO)

Each Construction Contractor will be required to appoint at least one competent individual as the Contractor's Site Environmental Officer (SEO), who will provide support to the ES. They will be site based and responsible for hands-on aspects such as toolbox talks, training, monitoring and site inspections. The SEO must be appropriately experienced in environmental management and must possess the skills necessary to impart environmental management and performance measures to all company personnel. The qualifications and competence of the proposed SEO shall be approved by the EPC ES. The SEO will be responsible for overseeing the Contractor's internal compliance with the EMP requirements and ensuring that the environmental specifications are adhered to. The SEO will be a full-time employee of the Construction Contractor for the duration of the contract.

A somewhat parallel exercise is anticipated to address the social and community aspects, whereby a Social Supervisor role is envisaged within the EPC and supporting Community Liaison Officers (CLOs). These arrangements are expected to be addressed and presented as part of the Social Impact Assessment (SIA) process that is running alongside this REA, to evaluate and make management recommendations for the social and community issues. This mechanism will interface with the land acquisition and resettlement work that is currently ongoing in each of the countries, which will generate standards and mechanisms for community dialogue and compensation arrangements for people affected by the Project. Once the standards and modalities on land acquisition are established, the EPC will interact with these, as he will establish in the Detailed Design stage, the areas that he requires for infrastructure siting and access road construction etc and will follow the mechanisms established in the SIA and Social Management Plan (SMP).

8.8.6 Independent Environmental Monitoring Consultant (IEMC)

To implement and be able to demonstrate transparent compliance to environmental (and social) agreed performance, the NTC will engage the services of an Independent Environmental Monitoring Consultant, who will monitor and assess the overall environmental performance. The IEMC could be an individual or a Consultant with access to several skilled staff members.

³⁰ Each NTC will be responsible for resettlement issues and compensatory payments; all to be developed independently of this REA scope of work

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The IEMC shall be a professionally accredited organization or individual directly appointed by each NTC. The IEMC shall have extensive knowledge and experience in environmental monitoring and auditing to provide independent, objective and professional advice on the environmental performance of the project. The IEMC will prepare monitoring reports on EMP implementation and submit these reports to the NTC for approval. However, the results of such monitoring and any actions recommended are to be made available in a transparent manner to the relevant Project stakeholders such as World Bank, to allow an independent remit to be delivered.

Complete terms of Reference for the Independent Environmental Monitoring Consultant are presented in the EMP, Annex 3. In order to minimize potential conflict of interests, the IEMC shall not be part of NTC or the Construction Supervision Team.

The IEMC will perform the following duties:

- The IEMC shall familiarize himself with the project works through review of the reports, including the project ESIA and EMP;
- Review and audit in an independent, objective and professional manner all aspects of the EMP;
- Validate and confirm the accuracy of monitoring results, monitoring equipment, monitoring locations, monitoring procedures and locations of sensitive receivers;
- Carry out random sample checks and audits of monitoring data and sampling procedures, etc;
- Conduct random site inspections;
- Audit the ESIA recommendations, commitments and requirements against the status of implementation of environmental protection measures;
- Review the effectiveness of environmental mitigation measures and project environmental performance;
- Verify the investigation results of any non-compliance of the environmental quality performance and the effectiveness of corrective measures; and
- Submit audit results to the PEO, and ES according to ESMP procedures.

8.8.7 Project Initiation and Staffing

Each NTC should be put in place in a timely manner the environmental (and social) staffing to ensure that aspects are adequately managed within each CASA-1000 country.

It is anticipated that the EPC staff such as the ES, will be mobilized at least one month before the start of construction activities. The one month start up time will be utilized by the ES to review and familiarize itself with the project, the project design, the technical specifications, contract documents, the EIA, EMP and other project relevant documents and reports. Following the review, the ES will prepare a brief report on the potential issues and challenges arising from the implementation of the EMP and the condition of contracts and make recommendations to the EPC about how best to improve the implementation of the EMP, if necessary. The PEO is expected to be mobilized at the beginning of the contract, to prepare the necessary guidelines, documentation, training, etc.

The Construction Contractor shall ensure that the SEO is put in place prior to mobilization and provided with all resources and personnel necessary to complete their job as specified above. The IEMC is expected to be engaged prior to commencement of construction, to develop the monitoring and reporting arrangements.

8.8.8 The Construction Contractor and Sub-Contractors

The Contractor, all employees and sub-contractors shall adhere to the mitigation measures set in the EMP to minimize project impacts on the environment and local communities.

Remedial actions which cannot be effectively carried out during construction should be carried out on completion of the works (and before issuance of the acceptance of completion of works).

The duties of the Construction Contractor and his Sub-Contractors include but not limited to:

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- Compliance with relevant legislative requirements governing the environment, public health and safety;
- Compliance with the EMP and establish an internal environmental and social unit to prepare and implement specific management sub-plans;
- Complete day to day supervision and compliance of construction operation through the ES to ensure EMP provisions are upheld;
- Work within the scope of contractual requirements and other tender conditions for compliance with the EMP and other applicable environmental and social documentation;
- Organize representatives of the construction team to participate in any joint site inspections undertaken by the NTC/PEO;
- Carry out any corrective actions as instructed by the PEO;
- Provide and update information to the PEO regarding works activities which may contribute, or be continuing to the generation of adverse environmental conditions;
- In case of non-compliances/discrepancies, carry out investigation and submit proposals on mitigation measures, and implement remedial measures to reduce environmental impact; and
- Stop construction activities which generate adverse impacts upon receiving instructions from the PEO. Propose and carry out corrective actions and implement alternative construction method, if required, in order to minimize the environmental impacts. Major non-compliance by the Contractor will be cause for suspension of works and other penalties until the non-compliance has been resolved to the satisfaction of the PEO.

8.8.9 Environmental Compliance Framework

The following sections details how initial compliance with the EMP will be incorporated during project design and during construction.

Contractor's EMP Implementation Plan

Prior to commencement of construction activities, each EPC Contractor will be required to submit a detailed EMP Implementation Plan to the PEO/NTC based on the Contractor's actual construction methodologies, work program, method statements, management of construction activities and management of the workforce during construction. The EMP Implementation Plan shall demonstrate compliance with local environmental requirements, provisions of the EMP in each ESIA that will be completed and deliver implementation of mitigation set down in the general specifications for Contractors and World Bank safeguards, other IFI lender requirements, and relevant applicable policies and standards. The content of the Contractor's EMP shall detail how specific EMP sub-plans will be prepared and shall be enhanced by the Contractor's works practices, implementation procedures and program. The Plan shall be certified and approved by the NTC ES in accordance with the project and the ESIA requirements.

The Contractor's EMP Implementation Plan shall provide details such as commitment to environmental protection by the Contractor's employees; specific methods for implementing the project EMP; detailed designs and installation of pollution control and prevention facilities (e.g. drainage channels, settling tanks, noise and dust reduction, access control etc); environmental control mechanisms; detailed management plans and site operation plans outlining proposed measures to minimize, mitigate and manage the effects for the duration of the construction works; and environmental monitoring program during different stages of the construction period.

8.8.10 Construction Contractor Management

It is recognized that the EPC Contractor will be a key component of environmental and social management, pollution control and impact mitigation during construction. A number of measures will be taken to ensure that

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the Contractor is fully aware of their responsibilities and obligations towards the EMP. These measures shall include:

- EMP specifications presented in Annex 3 will be included in tendering documents for Construction Contractors as qualification and selection criteria and eventually in the construction contract. Contractors will be required to monitor their environmental activities and provide a diary on environmental performance on a weekly basis. These records will be subject to supervision and review by the PEO;
- Contractors will be required to communicate and consult with project affected communities near the construction work site. A visible public notice board shall be established in the immediate vicinity of the Project RoW, or other central location, to notify the public of the main construction activities and their duration. The board shall also provide contact names and telephone numbers to the public to express their concerns and any complaints about the construction activities;
- All contractors and their staff will be required to participate in a mandatory environmental/social training program prior to the start of construction onsite (as part of the wider mandatory Site Induction). The contents of the environmental training program shall include:
 - National and local environmental regulations and standards;
 - Technical guidelines on environmental/social protection and management;
 - EMP, ESIA and other project related documentation;
 - Environmental monitoring methods and requirements, as well as reporting and communication procedures;
 - Mitigation;
 - Regulations for evaluation and protection of cultural heritage;
 - Emergency response measures;
 - Worker code of conduct and project prohibitions;
 - Long-term public consultation and response; and
 - Obligation of the contractor to environmental and social protection and management. Training and compliance to the EMP shall be considered an on-going process and procedures will be developed to enforce these measures at the start and close of each working day, including posters, notices, refreshers and toolbox talks.

The requirements for Construction Supervision for environmental and social management will be included in all bid documents.

8.8.11 Compliance with Legal and Contractual Requirements

The EPC Contractor and all subcontractors shall comply not only with the environmental and social specifications and provisions of the EMP on an on-going basis, but also with environmental protection and pollution control laws and regulations of each country. Any failure on their part to do so will entitle the PEO/NTC to impose a financial penalty. For minor infringements—an incident which causes temporary but reversible damage—the Contractor(s) will be given a reasonable period of time to remediate the problem and to restore the environment.

In the event of non-compliance the following suggested process shall be followed:

- If the SEO or the ES concludes that the current status on license/permit application and any environmental protection and pollution control preparation works may not comply with the proposed construction works, or may result in potential violation of EMP environmental and social protection and pollution control requirements, they shall notify the PEO accordingly;
- The PEO/NTC shall issue a notice of non-compliance to the Contractor, stating the nature and magnitude of the contravention;

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- The Contractor shall act to correct the non-compliance within 24 hours of receipt of the notice, or within a period that may be specified within the notice;
- The Contractor shall provide the PEO/NTC with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions. If restoration is done satisfactorily during the established period, no further actions will be taken;
- In the case that the Contractor fails to remedy the situation within the predetermined time frame, the NTC shall impose a monetary penalty based on the conditions of the contract;
- In the case of non-compliance giving rise to physical environmental damage or destruction, the PEO/NTC shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so;
- In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMP, disagreement regarding the implementation or method of implementation of conditions of the EMP, etc. any party shall be entitled to require that the issue be referred to specialists or government authorities for arbitration determination; and
- The PEO/NTC shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement agreed to remediation measures.

If remedial measures are not completed within the specified time period granted, the PEO/NTC will immediately arrange for another contractor to do the restoration, and deduct that cost from the Construction Contractor's next payment. For major infringements—an incident where there is long-term or irreversible damage—there will be a financial penalty in addition to the cost for restoration activities. To minimize the damage, the restoration activities will be implemented without delay.

The Construction Contractor(s) shall regularly copy relevant documents to the PEO. The document shall at least include the updated Work Progress Reports, the updated Works Program, and the application letters for different license/permits under the environmental protection laws, and all the valid license/permit. The PEO shall also have access, upon request, to the Site Log-Book.

After reviewing the documents, the PEO shall advise the Contractor of any non-compliance with the contractual and legislative requirements on environmental protection and pollution control for them to take follow-up actions. If the PEO or the ES concludes that the current status on license/permit application and any environmental protection and pollution control preparation works may not comply with the works program, or may result in potential violation of environmental protection and pollution control requirements by the works in due course, they shall notify the Contractor and the NTC accordingly.

Penalty System

Any inexcusable non-compliance with the conditions of the EMP shall be considered sufficient ground for the imposition of a financial penalty. A system of penalties for offences in terms of this EMP shall be developed in due course as a guideline to be used on site. The PEO may, after consultation with the EPC, adjust these fine values, based on the severity, actual or potential impact and environmental risk involved at the time of the offence. These penalties will be considered additional to any financial penalty imposed for damages by relevant government authorities.

8.8.12 Site Inspections

The SEO and the ES shall carry out a supervision program on a daily, or as needed basis, at selected construction site locations and at regular site inspection sites. The supervision program shall include, as a minimum (Table 8-3):

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- Monitoring of noise levels at identified sensitive receptors by portable monitoring equipment; the monitoring shall take place during construction activities, such as excavation, drilling, power generation, material transportation and night time construction, if any. Noise monitoring shall be conducted near villages, schools, and other sensitive receptors along the project alignment;
- Visual inspections to check for air-borne dust, during demolition, bulk material handling and storage, transportation routes near the villages; and
- Visual inspection to check the water quality in the receiving rivers, fish ponds and lakes affected by any construction activity such as increased turbidity, smell, colour, fish kills, etc. Inspections should also include receiving water bodies adjacent to construction sites and construction camps.

During the peak construction period, or at the request from the PEO/ NTC, the ES shall also carry out additional measurements using hand-held or other appropriate equipment in order to determine compliance with EMP standards. Once non-compliance with environmental quality performance criteria is identified, additional inspections and monitoring shall be carried out.

Environmental/Social Concern	Parameter	Location	Procedure
Forest / vegetation clearing	Clearing techniques Waste storage and disposal Exploitation of natural resources Local community involvement as part of LARP	Construction sites Camp sites	Daily visual observations Incident reporting Photos
Noise	Noise generated during construction (hours and days) Frequency of disturbance to local residents	Construction sites Settlements in close proximity	Auditory observations Report form
Dust	Dust generated during construction	Construction sites Access Roads	Daily visual observations Incident reporting
Hazardous Waste	Storage location, containment and housekeeping	Hazardous materials storage area	Inventory checklists Incident reporting

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Environmental/Social Concern	Parameter	Location	Procedure
			Photos
Non-Hazardous Construction Waste	Volume generated Volume disposed Recycling and proper disposal	Approved disposal location Construction sites Camp sites	Waste tracking sheets Incident reporting Photos
Wastewater	Availability and quality of services Abuse of services Disposal	Construction sites Camp sites	Daily checklists Incident reporting Wastewater register
Water Resources	Shortage of natural water sources Contamination of potable water	Construction site Camp sites Water withdrawal sites	Daily checklists Incident reporting
Maintenance of construction equipment and vehicles	Equipment and vehicles are properly operated maintained Leaks and spills of oil, fuel, and lubricant and gas emissions Disorderly conduct or misuse of equipment / vehicles	Construction site Equipment storage area Access roads	Checklists Incident reporting
Worker Code of Conduct and Safety	Worker safety Incidents and accidents	Construction site Camp sites	Daily safety meetings ³¹ Incident reporting

³¹ In conjunction with the dedicated Safety Supervisor

Environmental/Social Concern	Parameter	Location	Procedure
	Conflict with residents		

Table 8-13 Supervision Responsibilities

8.9 Environmental Monitoring Framework

8.9.1 Objectives

Independent Environmental Monitoring should be done to ensure compliance and project performance in regard to data gaps identified in the ESIA and to continue baseline data collection, where needed. It is essential to design the monitoring program and monitoring frequency appropriately to be able to demonstrate both the overall performance of the project works, as well as the short-term impact due to peak construction activities. More specifically, as the integral and critical part of the EMP, the environmental monitoring program should have the following objectives:

- Determine the actual extent of project related environmental and social impacts;
- Control impacts which are generated from construction process as specified in the Environmental & Social Impact Assessment ESIA report(s);
- Check environmental pollution standards applied to the project during construction;
- Check and supervise implementation of environmental protection solutions during construction based on ESIA report;
- Collect additional baseline data, where necessary, to ensure project mitigations are working and effective;
- Suggest mitigation measures in case of unexpected impacts;
- Suggest to the Client to coordinate with central and local environmental organizations to solve pending issues relating to environmental protection under the scope of the Project;
- Assess the effect of mitigation measures in pre-construction, construction and operation stages; and
- Confirm the impacts forecasted in the ESIA, including those impacts which were not predicted.

8.9.2 Role of the Independent Environmental Monitoring Consultant (IEMC)

The IEMC will check, review, verify and validate the overall environmental performance of the Project through periodic inspections and review. This review will provide confirmation that the reported results are valid and that the relevant mitigation measures and monitoring program provided in the Project EMP are fully complied with. The IEMC will also supply specialized assistance to NTC and PEO in environmental matters, where required.

During the peak construction period, or at the request of the NTC, the IEMC will also carry out additional measurements using hand-held equipment or other equipment as appropriate in order to monitor short-term impact. If non-compliance with environmental quality performance criteria is identified, additional monitoring will be carried out. Complete terms of reference for the IEMC are presented in Annex 3.

8.9.3 Monitoring Framework

The Environmental Monitoring Framework will outline the roles and responsibilities during the construction period. Additional monitoring may continue through the operation phase as determined by the NTC.

Objectives of environmental monitoring are as follows:

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- To ensure construction activities comply with and adhere to all government regulations and conditions of the ESIA;
- To determine if mitigation measures were successful in reducing potential environmental and social impacts;
- To obtain additional environmental and social baseline data;
- To review feedback on the success of mitigation from local communities; and
- To enforce compliance and implement contingency plans where warranted, if proposed mitigation measures are unsuccessful in minimizing or eliminating impacts associated with the Project.

Monitoring during construction of the Project will include the following two activities:

- Measuring the success of the implemented mitigation measures; and
- Collection of data to evaluate environmental conditions before and after construction.

Visual observations, to identify potential environmental and social concerns, in conjunction with checklists are the major component of construction monitoring. Enforcement of government laws and regulations as well as conditions of the ESIA shall also occur during monitoring to ensure compliance. An indicative monitoring framework is presented in **Error! Reference source not found.**; a monitoring terms of reference is presented in Annex 3; albeit in advance of each ESIA.

Environmental or Social Concern	Standard	Frequency	Parameter	Location	Procedure
Noise	EMP	Monthly	Frequency of disturbance to local residents	Construction sites Settlements in close proximity	Auditory observations Reporting forms Monthly reporting
Dust/Air Quality	EMP	Monthly	Generated by civil works dust	Construction sites Access roads	Visual Reporting forms Monthly reporting
Water Quality	EMP	Weekly	Water turbidity, colour and odour	Water resources near camp sites Sewage disposal sites	Visual reporting Monthly reporting
Water Resources	EMP	Weekly	Construction site, camp site and local demands for potable water	Water resources near camp sites Construction and camp sites Local settlements	Consultation with affected residents Monthly reporting

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Environmental or Social Concern	Standard	Frequency	Parameter	Location	Procedure
				Water withdrawal sites	
Vegetation Clearing	EMP	Weekly during clearing activities	Clearing boundaries and concerns defined in EMP	RoW	Visual inspection
Waste Management	EMP	Weekly	Disposal methods	Construction sites Camp sites	Visual inspection
Sedimentation and Erosion	EMP	Monthly	Degree of erosion and sediments being released by wind or water	Construction sites Camp sites Cleared area	Visual inspection Daily environmental checklists Monthly reporting
Accidents/Health	EMP	Weekly	Hazardous activities Consultations with local settlements Appropriate safety training Accident reports	Construction sites Camp sites Local settlements	Daily
Discovery of cultural or historical significant artefact or site	EMP	Daily	Article of cultural or historical significance	Excavation sites Borrow sites Construction sites	Visual Implement Chance Find Procedures
Resettlement and land acquisition ³²	LARF/RPF	On-going during construction	Record of affected people and their new location	New residence of affected people	Consultation with resettled individuals to

³² This aspect will be included in a Social Management Plan, following the ongoing SIA work. It is common practice to integrate (in an ESIA) environmental and social aspects into an Environmental & Social Management Plan (ESMP), due to the inextricable linkages between E&S issues. This REA has been limited to environmental aspects, as specified by World Bank instructions to the REA Consultant. However, the forthcoming ESIA's would be well advised to cover both E&S in one ESMP.

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Environmental or Social Concern	Standard	Frequency	Parameter	Location	Procedure
			Relocation compensation		ensure success Reporting forms Database to track resettled people and related social impacts Monthly reporting
Site Reclamation	EMP	Post-construction	Post-construction condition of soils, vegetation, water resources, flora and fauna	Construction sites Camp sites	Monthly assessments Quarterly reporting

Table 8-14 Environmental Monitoring Framework- Construction Phase

8.10 Communication and Reporting

The following section describes the communication and reporting mechanisms to be implemented as part of the EMP.

8.10.1 Communication Process

Table 8-15 below describes the lines of communication for construction workers, local villagers, local authorities, project organizations and other project-related individuals with respect to filing grievances or incidences throughout the construction and operation of the Project.

Stakeholder	Potential Interest/Concern	Means of Contact	Key Contact
Project Affected Peoples in the Corridor of Interest	Adequate compensation package (financial payment, or equivalent in land or other agreed-to compensation) Location of resettled households Disturbance from construction camp and associated activities	Complaints/concerns shall be communicated to local village leaders, through a grievance process Information broadcasts and project updates shall be provided by the Contractor to local authorities	PEO Project Compensation and Resettlement Specialist PEO Project Compensation

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Stakeholder	Potential Interest/Concern	Means of Contact	Key Contact
	<p>Loss of agriculture lands, trees, fisheries, etc</p> <p>Maintenance of cultural heritage</p> <p>Safety and security of local villagers and communities</p>	<p>Grievance process</p> <p>Compensation and Land Acquisition Framework</p> <p>Cultural Property and Chance Finds Procedures</p> <p>Direct contact</p>	<p>and Resettlement Specialist</p> <p>PEO</p> <p>PEO</p>
Potential Employees	<p>Employment opportunities (local women and affected households)</p> <p>Adequate resources (food, water, etc.) and shelter</p> <p>Competitive wages</p>	<p>Recruitment of locals at the project site and through word of mouth</p> <p>Issues shall be conveyed to ES</p> <p>ES or Contractor's hiring representative</p>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p>
Government Stakeholders	Chronic or severe environmental and socio-economic impacts	Bring to attention of PEO	NTC
Construction workers and camp sites	<p>Worker code of conduct</p> <p>Social conflicts between local villagers and workers</p> <p>Non-compliance with Project prohibitions established in worker code of conduct (gambling, drugs, etc.)</p> <p>Environmental issues (exploitation of natural resources, etc.)</p>	<p>Weekly meetings with construction workers</p> <p>Individual meeting with disorderly workers re: prohibitions – decision on whether removal is necessary</p> <p>Individual meeting with disorderly workers re: prohibitions – decision on whether removal is necessary</p> <p>Bring to attention of PEO</p>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>PEO</p>

Table 8-15 Communication Pathways

8.10.2 Reporting Process

Each EPC will be responsible for submitting to each NTC a monthly environmental/ social report on the status and effectiveness of overall environmental and social mitigation and management compliance. Reports shall be produced through the course of implementation of monitoring programs, collecting incident/grievances forms, consulting with local authorities and community representatives and auditing performance of existing programs/mitigation measures within the ESIA and EMP.

Responsibility	Type of Report	Purpose of Reporting	Frequency of Submission	Submit to:
Construction Supervision Engineer (EPC)	Accidents/Incident Report	Filing/notification of accidents or unplanned events.	Within 24 hours of the incident	PEO PEO
	Non-compliance Report	Detail the cause, nature and effect of any environmental and/or socio-economic non-compliant event and remedial action prescribed.	Within one week of the event	
	Chance Discovery Report	Documentation and registry of newly discovered artefacts	Within 24 of archaeological site, old human remains or artefact	PEO, copy to Cultural Authority PEO
	Monthly Compliance Report	Report to the Construction Supervision Team	Report of compliance and non-compliance measures on a monthly basis	
Environmental Supervisor (ES)	Daily Compliance Checklist	Checklist of environmental and social compliance of construction	Daily	EPC
	Monthly Compliance Report	Monthly report of compliance within 10 days of receipt of report from	Monthly	EPC

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Responsibility	Type of Report	Purpose of Reporting	Frequency of Submission	Submit to:
		Contractor		
Project Environmental Officer (PEO)	<p>EMP updates, including any changes in management or monitoring procedures</p> <p>Key changes in project activities that may trigger Environmental Approvals</p> <p>Environmental monitoring reports</p> <p>Monthly compliance report</p>	<p>For approval prior to implementation</p> <p>Ensure compliance with environmental regulatory approvals received from IEMC</p> <p>Monthly summary of non-compliances and remedial actions</p>	<p>As required, prior to implementation</p> <p>As required, prior to implementation</p> <p>Dependent on environmental parameter: weekly, monthly, quarterly or annually</p> <p>Monthly</p>	<p>NTC</p> <p>NTC</p> <p>NTC, copy to EPC</p> <p>NTC, copy to EPC</p>
Sub-Contractors	<p>Registers</p> <p>Daily Compliance Report</p> <p>Monthly Compliance Report</p>	<p>Develop reporting registers on access roads, waste management, non-compliances and other matters that require on-going reporting</p> <p>Walk-around and site inspection to ensure compliance with management sub-plans on a daily basis</p> <p>Monthly summary of non-compliances, remedial actions and observations on management plans</p>	<p>On-going</p> <p>Daily</p> <p>Monthly</p>	<p>EPC</p> <p>Internal</p> <p>EPC, copy to PEO</p>

Responsibility	Type of Report	Purpose of Reporting	Frequency of Submission	Submit to:
Social Safeguard Team of NTC ³³	Land Acquisition and Resettlement Framework	Ensure resettled/displaced households transition successfully into resettled sites. Ensure adequate compensation for project related damages or losses	On-going	PEO, NTC
NTC	Quarterly Environmental and Social Performance Report	Summary of environmental and social reports to World Bank and to the IGC in each Project country, or to another appropriate reporting agency	4 times a year	WB and IGC

Table 8-16 Reporting Types

These reporting requirements are considered to be preliminary and subject to change once the PEO and others have been established.

8.11 Capacity Building and Training

8.11.1 Introduction

At this stage a detailed capacity assessment of the key Project Partners (Client organisation and other key actors) has not been undertaken, but this is an important aspect and needs to be addressed in the near future. Within the Region it is essential that key actors have the necessary institutional capacity and knowledge to perform the activities described in the REA and subsequent EMPs, as these perhaps new concepts could be quite different from the roles performed previously.

A key component of EMP success depends of effective performance, which may require some capacity building within the CASA-1000 countries, such as staff and all others involved in the EMP, including the construction contractors and possibly national consultants.

³³ To be determined following ongoing SIA work and ESIA-derived arrangements

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All those responsible for the management, implementation and operation of aspects of the EMP need to be adequately trained for their specific role and a training needs analysis would be advised in the future, once roles and responsibilities are established, following the ESIA's in each country.

8.11.2 National Transmission Company

The NTC in each country is the Executing Agency for CASA-1000 and responsible for day to day supervision and management of all aspects of project preparation and construction, including procurement.

The World Bank and potentially the other Project IFIs will provide support for project implementation and technical assistance (TA) required by the four countries to the project implementing agencies, namely the National Transmission and Despatch Company (Pakistan), the Open Joint Stock Holding Company (OJSHC) Barki Tojik (Tajikistan), Da Afghanistan Breshna Sherkat (Afghanistan), and the Joint Stock Company (JSC) National Electric Grid of Kyrgyzstan (the Kyrgyz Republic). Areas where support would be needed include possible support to the NTC & Consultants, the provision of third-party monitoring and supervision of consultants during construction, the design of benefit-sharing schemes, and so on.

8.12 EMP Monitoring and Review

8.12.1 Introduction

Each PEO of the NTC shall periodically review, monitor and audit the effectiveness of the EMP within each CASA-1000 country, including all sub-plans. The audit program should adequately cover the scope, audit frequency and methods that are typically required for large infrastructure projects. The frequency of audits should reflect the intensity of activities (typically more common during construction), severity of environmental and social impacts and non-compliances raised in prior audits.

8.12.2 Review of the EMP

The NTC/PEO shall review the EMP to assess its effectiveness and relevance as follows:

- Within six months of contract award to ensure that all components are being adequately implemented;
- A full review shall be undertaken annually;
- Following a reportable incident, or a significant non-compliance; and
- Following an addition, up-date or change order to the EMP, or a sub-plan. The review of the EMP should consider the following:
 - Adequacy of data collection, analysis and review;
 - Roles and responsibilities are fully understood and being implemented at all levels;
 - Reporting procedures;
 - Non-compliances and other infractions; and
 - Corrective actions implemented.

The EMP shall also be reviewed periodically to evaluate environmental and social controls and procedures to make sure they are still applicable to the activities being carried out. Reviews will be undertaken by the NTC/PEO as follows:

- Within three months of initiation by the EPC Contractor;
- Full review of the EMP at least annually;
- Review of relevant parts of the EMP following a reportable incident;
- Review of relevant parts of the EMP following the receipt of an updated sub-plan; and
- At the request of stakeholders, local authorities, government regulators and financial institutions.

The review shall include analysis of the data collection and analysis of data, definition of roles and responsibilities, sub plan implementation and feedback, supervision and monitoring reports, incident reports,

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complaints/grievances and feedback from stakeholders, consultation or community meeting minutes and training records to evaluate the effectiveness of EMP procedures. Site visits, interviews and other auditing methods may also be used.

8.12.3 Control and Update of the EMP

Control and update procedures to the EMP will be developed by the NTC in each country. The EMP will be issued as a controlled document to all relevant parties and organizations. The procedure to be followed to control the issue of the documents, provide a review of its effectiveness and provide updates will be as follows:

- Issued copies by the NTC shall be numbered;
- The NTC shall initiate a review of any relevant sections following modification to the EMP and any sub plan; and
- Upon changes in regulatory procedures by local authorities, or a change to internal procedures based on corrective actions or improvements in methodologies or analytical procedures.

8.13 Implementation Plan and Schedule

8.13.1 Implementation

The NTC/PEO shall assume overall responsibility for the implementation of the EMP as described including the following activities:

- Oversight of Contractor EMP requirements and responses;
- Preparation of plans and oversight of Contractor management plans;
- Implementation and progress; and
- Training

The NTC/PEO should prepare an implementation plan for the EMP considering the requirements identified in Figure 8-3.

8.13.2 Schedule

A tentative project schedule is provided in Figure 8-3 of the timing for preparation and construction of the Project.

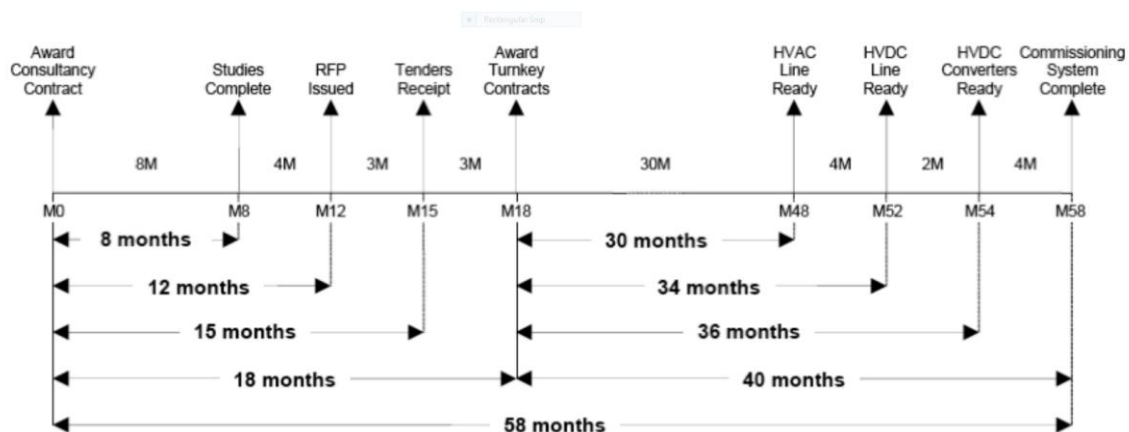


Figure 8-3 CASA-1000 Project Schedule Preparation and Construction (SNC 2011)

The following key milestones were indicated in the SNC Feasibility Study and are presented as a guide to overall timing:

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development																			
NTC/EPC environmental staff																			
Consultation																			

Table 8-17 Indicative ESMP Schedule

Implementation Item	Description	By When
Formation of NTC/PEO Environmental Unit or staff configuration	An Environmental Unit or staff shall be formed to implement the EMP for the Project based on: Construction supervision Environmental monitoring	3-6 months before initiation of preparation of construction site for the main work
Prepare Bid Specifications for Construction Contractor	To prepare environmental and social provisions for inclusion into the contract for each EPC Contractor	Before finalization of any bid process
Contractor Management Plans	The EPC Contractor shall be responsible for the preparation of the following management plans for approval by the NTC/PEO: Workforce and Site Installation Management Plan Site Preparation and Restoration Management Plan Construction Impact Management Plan Waste Management Plan Pollution Prevention Plan Safety Management Plan Physical Cultural Property – Chance Finds Management Plan Community Relations and Health Management Plan (jointly with NTC)	Before initiation of any construction activity
Preparation of NTC Management Plans	Preparation of the following management plans Aesthetics and Environmental Monitoring Plan Environmental Monitoring Plan (compliance) Health Management Plan (jointly with Contractor)	2 months before initiation of preparation of construction site for the main project works

Implementation Item	Description	By When
	Physical Cultural Resources Management Plan	
Training	Develop a training plan outlining training requirements, topics, and areas of capacity building Identify courses/seminars Identify staff requiring training Implement training plan	Upon project approval

Table 8-18 EMP Implementation Plan³⁴

8.13.3 EMP Costs

Estimated, indicative costs for the initial implementation of the EMP are presented below in Table 8-19. Costs have been defined on an initial basis, but covering up to five years of construction and should be regarded as indicative only, for the purposes of budget allocation only and subject to change. Costs can only be indicative at this stage, as no EPCs have been selected, no finalised contracting arrangements have been made and the REA Consultant has no knowledge of the capacities or configuration of any of the NTCs within the four countries.

Costs naturally exclude the cost and expenses of the environmental (and eventual social) staff within each of the EPCs, that are required to be recruited. Costs of providing environmental (and social) monitoring and management in large scale infrastructure projects vary, but typical cost allocations of between 10-25% of the total supervision costs are typically cited and used in industry.

The NTC/PEO will revise these costs and develop annual operating costs for the ESMP³⁵. Costs have been developed on the basis of implementation across all four countries.

ESMP Component	Estimated Cost (\$US)
Contractor – built into contract	
Supervision – environment – to be built into the contract for Engineering Supervision (includes sampling for environmental quality)	10-25% of engineering supervision cost ³⁶
Independent Environmental Monitoring Consultant (IEMC)	\$2,000,000

³⁴ This is a preliminary schedule that will be finalized after project approval and financing arrangements and selection of the construction contractor

³⁵ Assumes an eventual ESMP

³⁶ These costs are not include in the total cost allocation made here

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ESMP Component	Estimated Cost (\$US)
Each NTC \$100,000 x 4 = \$400,000 x 5 years = \$2,000,000	
<p>Institutional Strengthening, Training and Capacity Building³⁷</p> <p>Each NTC \$100,000 x 4 = \$400,000</p> <p>Formation of NTC environmental unit</p> <p>Local authorities, communities and other stakeholders</p> <p>On-site training</p> <p>Offsite training</p> <p>Local capacity building</p> <p>Equipment and logistics</p>	\$400,000
<p>Chance Finds Procedures and Cultural Property Salvage.</p> <p>Allocation available for 3rd party mobilisation on call-out basis to attend site and address chance finds, conservation etc. \$50,000 x 4 = \$200,000</p>	\$200,000
<p>Aesthetics and Ecological Management Plan</p> <p>Allocation for cross-Project ecological issues eg birds and aesthetic aspects, therefore addressing some cumulative aspects. \$25,000 x 4 = \$100,000</p>	\$100,000
<p>Community Relations and Regional Health Programme</p> <p>Allocation for community relations by each NTC (establishment of a formal mechanism that will continue beyond construction, corporate social responsibility-type approach) \$25,000 x 4 = \$100,000.</p> <p>Regional Health Programme would be typical initiative between each NTC and relevant authorities, as part of addressing any induced issues resulting from Project construction and implementation and any initiatives that seek (on health aspects only) to encourage acceptance of the Project by local communities, who may be 'disrupted' by the Project but who receive no direct benefit, such as electricity connections.</p>	<p>\$100,000</p> <p>\$400,000</p>

³⁷ Costs of salaries, administration and function of the environmental unit/staff paid by NTC not included here, as Consultant has no knowledge of capacity of each NTC, staff costs *et al*

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ESMP Component	Estimated Cost (\$US)
Allocation of \$100,000 x 4 = \$400,000	
Cumulative Effects Assessment Allocation of separate cumulative assessment \$25,000 x 4 = \$100,000	\$100,000 ³⁸
Total Initial ESMP Costs	\$3,300,000

Table 8-19 Preliminary Estimate of EMP Costs

³⁸ A cumulative effects assessment should be done across all four countries