PNG Energy Utility and Performance Reliability Improvement Project (P167820)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

Revision 5

PNG Power Limited

August 2019

Acronyms / Abbreviations

AMR	Automatic Meter Reading
AP	Affected Persons (or People)
ARAP	Abbreviated Resettlement Action Plan
CEPA	Conservation and Environment Protection Authority
CESMP	Construction Environmental and Social Management Plan
COP	Code of Practice
DAL	Department of Agriculture and Livestock
DEC	Department of Environment and Conservation
DFAT	Department of Foreign Affairs and Trade (Australia)
DLIR	Department of Labour and Industrial Relations
DLPP	Department of Land and Physical Planning
DOT	Department of Treasury
DPE	Department of Petroleum and Energy
E&S	Environment and Social
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
ESDP	Energy Sector Development Project
ESIA	Environmental and Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMF	Environment and Social Management Framework
ESS	Environment and Social Safeguards
EUPRIP	Energy Utility Performance and Reliability Improvement Project
FA	Forestry Act
FM	Financial Management
FPIC	Free, prior, and informed consultation
GIF	Global Infrastructure Fund
GIS	Geographic Information System
GoPNG	Government of Papua New Guinea
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
HV	High Voltage
ICCC	Independent Consumer and Competition Commission
ICS	Information and Communications Strategy
IA	Implementing Agency
ILG	Incorporated Land Group
ILO	International Labour Organization
IP	Indigenous Peoples
IPP	Independent Power Producer
IPP	Indigenous Peoples Plan
IPPF	Indigenous Peoples Policy Framework
KCHL	Kumul Consolidated Holdings Limited
LA	Land Act
LDSA	Land Dispute Settlements Act

LIR	Land Investigation Report
LTC	Land Titles Commission
MIS	Management Information System
MTAC	Ministry of Tourism, Arts and Culture
MV	Medium Voltage
NCC	National Cultural Commission
NEROP	National Energy Roll-Out Plan
NGO	Non-governmental Organization
NMAC	National Museum and Art Gallery
O&M	Operations and Maintenance
OP	Operational Policy
OSG	Office of the Surveyor General
OTAC	Office of Tourism, Arts and Culture
PE	Project Engineering
PIP	Performance Improvement Plan
PMU	Project Management Unit
POM	Port Moresby
PNG	Papua New Guinea
PPE	Personal Protective Equipment
PPL	Papua New Guinea Power Limited
PPP	Public-Private Partnership
RPF	Resettlement Policy Framework
RPP	Revenue Protection Program
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedure
TA	Technical Assistance
TOR	Terms of Reference
TPA	Tourism Promotion Authority
VA	Valuation Act
VLD	Voluntary Land Donation
WB	The World Bank
WBG	World Bank Group

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EXECUTIVE SUMMARY

Introduction

The Papua New Guinea (PNG) Energy Utility Performance and Reliability Improvement Project (EUPRIP) (the Project) will comprise the following four components:

Component 1 –	Urgent Rehabilitation / Upgrade of PPL Infrastructure
Component 2 –	Implementation of Key Components of PPL's Performance Improvement Plan ("PPL's Performance Improvement Plan")
Component 3 –	Technical Assistance on Least Cost Power Development Plan Development and Implementation ("Support to LCPDP implementation")
Component 4 –	Project Management Support

The Project aims to establish the building blocks for electrification through lowering the cost of supply and transforming Papua New Guinea Power Limited (PNG Power or PPL) into a better performing company and a capable agent for electrification. The Project is designed to achieve the practical outcomes of improving the operational performance of the state-owned enterprise responsible for energy generation and distribution within PNG (PPL) and improve the reliability of electricity supply in areas served by the Project.

The Project forms part of a broader initiative of PPL, which has recently started to invest in strengthening and expanding its system, including additional support to PPL in the preparation of the Naoro-Brown Hydropower Project (Naoro-Brown HPP), a proposed 80MW run-of-river project, and development of a suitable gas-to-power project in the Southern Highlands and investing in network expansion. Rehabilitation of existing non-performing hydropower schemes is also being considered.

The project is categorized as Category A under OP4.01 because a portion of the technical assistance funds under Component 3 will support the Naoro-Brown HPP.

The Project will be supported by US$30 million in IBRD financing blended with reimbursable Global Infrastructure Fund (GIF) grant(s), and possibly other, as yet to be determined, funding sources.

The ESMF was consulted on in February 2019 and disclosed on PPL's and the World Bank's website in March 2019.

Purpose and Scope of the ESMF

The ESMF will serve as the project's umbrella document for the environmental and social management of the funded activities. The purpose of this ESMF is to guide the Implementing Agency (IA) – PPL – on the environmental and social screening of the Project activities and subsequent environmental and social assessment of these activities during project preparation and design, followed by their management applying the mitigation hierarchy during implementation.

The ESMF includes preliminary environmental and social assessments at an appropriate level to manage the potential risks associated with the funded activities. The ESMF was prepared primarily to

manage impacts associated with Component 1 of the Project, which is the only component that will include project funding of physical works.

With regards to Component 3, the ESMF sets out the process to address environmental or social issues associated with the results of the TA. The ESMF has attempted to develop an understanding of the likely environmental and social issues which will need to be addressed by the proposed project(s) (gas-to-power plant, hydropower scheme rehabilitation) and sets out proposed E&S assessment scopes of work and actions to be undertaken during implementation, including the need for stakeholder consultation and public disclosure.

The Naoro Brown HPP has been subject to extensive environmental and social assessment, including comprehensive baseline studies and consultation. Some follow up work may be needed to address current gaps in the draft ESIA, but the project funds will mainly be used to undertake additional advisory services to take the project to market. In this instance, the ESMF sets out how environment and social requirements will be integrated into the next steps for the preparation of the Naoro Brown HPP, namely to include for the review, update and clearance of the ESIA based on the final design, and for the inclusion of the necessary requirements into the procurement documents for the project.

Community consultation in the project areas has not been undertaken on the project to date due to the uncertainty regarding the exact location of the interventions and the absence of a decision on the actual least cost energy supply project that will be supported through TA. For subcomponents that involve physical works that have the potential to generate environmental or social impacts, consultation will need to be initiated with stakeholders (e.g., residents, businesses, landowners, communities, NGOs, government agencies, etc.) early in subcomponent definition and carried through construction and into operation.

Project Description

As noted above, the Project will involve four components, with subcomponents, as follows:

- **Component 1** – Urgent Rehabilitation / Upgrade of PPL Infrastructure (US$15.8m) - This component of the Project will involve three subcomponents including: improvements/upgrades to the MV distribution network; rehabilitation/upgrades to Taraka and Milford (both in the Lae/Highlands area) substations; and enhancing the SCADA and control system and upgrading the national control room.
    - Subcomponent 1-1: Improvements and upgrades in the medium voltage distribution network (US$8.1million)
    - Subcomponent 1-2: Rehabilitation and upgrades in selected substations (US$7.1million)
    - Subcomponent 1-3: Enhancements in control and protection functionality (US$0.6million)

  It is proposed that Component 1 be implemented through supply and installation contracts for the various parts.

- **Component 2** – Implementation of Key Components of PPL's Performance Improvement Plan (US$9m) – This component will involve two subcomponents – incorporating management plans into the PPL Performance Improvement Plan; and protecting and increasing revenues.
    - Subcomponent 2-1: Incorporation of management tools
    - Subcomponent 2-2: Protecting and increasing revenues

  PPL will recruit a consultant to assist in: (i) assessing the existing management information tools in the company; (ii) preparing a gap analysis and recommendations; and (iii) reviewing and preparing bidding documents for the system based on outcomes of (i) and (ii).

- **Component 3** – Technical Assistance on Least Cost Power Development Plan Development and Implementation (US$3.8m, including possible $2.2m of GIF reimbursable grant)
    - Technical Assistance for assessment of existing hydropower stations rehabilitation (US$1m)
        - Assessment of Ramu 1 rehabilitation (US$0.8million)
        - Assessment of Rouna Cascade rehabilitation (US$0.2million)
    - Technical assistance for the development of the Naoro-Brown HPP (potential US$1.4m GIF) - further supporting preparation of the proposed project
    - Preparation of Gas-to-power Project (US$550,000 and potential US$0.8m GIF) - assessments, designs and other technical assistance for a new gas-to-power facility near either Hides or Kutubu, with associated gas pipeline(s) and transmission lines
    - Updating potential energy project database (US$0.05m)

- **Component 4** - Project Management Support (US$3m) - support TA for project management and related technical issues through the recruitment of project management, technical, financial management (FM), procurement and social and environmental safeguards experts as required; and financing for the preparation of project safeguards studies, audits, office equipment and incremental operating costs.

Potential Environmental and Social Impacts

Potential environmental and social impacts as they relate to the World Bank's safeguard policies include:

- **Component 1** – Urgent Rehabilitation / Upgrade of PPL Infrastructure
    - Subcomponent 1-1: Improvements and upgrades in the medium voltage distribution network - the scale of these activities is expected to be small and the environmental and social impacts are expected to be minor.
    - Subcomponent 1-2: Rehabilitation and upgrades in selected substations - the scale of these activities is expected to be small and the environmental and social impacts are expected to be minor.
    - Subcomponent 1-3: Enhancements in control and protection functionality - no environmental or social impacts are expected to result from enhancing the SCADA and protection system.

- **Component 2** – Implementation of Key Components of PPL's Performance Improvement Plan - neither subcomponent of Component 2 is anticipated to generate any adverse environmental or social impacts, since there will be no physical works involved.

- **Component 3** – Technical Assistance on Least Cost Power Development Plan Development and Implementation - no actual physical investment is proposed under the current project – only TA.
    - Technical Assistance for assessment of existing hydropower stations rehabilitation - physical works associated with upgrading Ramu 1 and Rouna Cascade will be carried out on the existing facilities footprints and, therefore, environmental and social impacts are expected to be quite limited.
    - Technical assistance for the development of the Naoro-Brown HPP - potential to generate significant environmental and social impacts from construction and operation if the project proceeds to implementation.
    - Preparation of Gas-to-power Project - potential to generate significant environmental and social impacts from construction and operation if the project proceeds to implementation.
    - Updating potential energy project database - no environmental or social impacts are expected to result from updating the energy projects database.

  All impacts identified through the TAs for upgrading existing hydropower plants, developing the Naoro-Brown HPP, and preparing a gas-to-power project would be fully incorporated into ToRs for analytical work to be undertaken during project implementation. Guidance on the minimum content of these TORs are provided in the ESMF, but the final ToRs will be prepared by PPL and cleared by the World Bank. This will ensure that the preparation of these potential investments includes identification, screening and scoping, assessment and management of impacts associated with the proposed projects, as well as the inclusion of the necessary requirements into the procurement documents for the project. In addition, the environmental and social assessments would inform the design and feasibility work also forming part of the TA work.

- **Component 4** – Project Management Support - No adverse environmental or social impacts are anticipated to accrue as a result of this component, as there will be no physical works involved.

The main social impacts from the overall Project are strongly positive. The technical assistance and analytical work under Component 3 and the other three components of the Project will generate either no negative social impacts, or ones that are very limited (minor, short duration, reversible) and readily managed.

Legal, Policy Framework and Regulatory Requirements

The ESMF identifies PNG's institutional framework, key regulatory agencies, and policies and legislation that have a potential bearing on how the Project will be regulated. Government agencies and NGOs that will most likely play a role in project implementation include:

- Conservation and Environment Protection Authority (CEPA)
- PNG Power Limited (PPL)
- Department of Labour and Industrial Relations (DLIR)
- Department of Lands and Physical Planning (DLPP)
- Department of Petroleum and Energy (DPE)
- Ministry of Tourism, Arts and Culture (MTAC)
- Department of Treasury (DoT)
- Department of Agriculture and Livestock (DAL)
- Forestry Authority (FA)
- Public Solicitors Office
- Provincial Governments
- Civil Society / Non-government Organisations (NGOs)

In addition, a number of international environmental and social treaties have been signed and ratified by the Government of PNG, that apply to the Project.

World Bank Safeguard Policies

World Bank environmental and social safeguard policies and procedures that will be applied to prevent and mitigate undue harm to people, their livelihoods and their environment in the development process include:

- OP/BP 4.01 Environmental Assessment
- OP/BP 4.04 Natural Habitats
- OP/BP 4.36 Forests
- OP/BP 4.11 Physical Cultural Resources
- OP/BP 4.10 Indigenous Peoples
- OP/BP 4.12 Involuntary Resettlement
- OP/BP 4.37 Safety of Dams
- OP 4.09 Pest Management

Some of the policies are triggered because the Project will involve various physical investments. Additional information is provided in the ESMF annexes to aide PPL, including:

- PPL's process for accessing customary land by agreement
- Resettlement Policy Framework (RPF) where involuntary land acquisition is contemplated
- Procedures for acquiring access to land through the VLD protocol
- Procedure for entering into a land use agreement.

E&S Screening of Subprojects and Safeguard Instruments

PPL, supported by its consultants, where applicable, will be responsible for undertaking environmental and social screening of project subcomponents (i.e., subprojects) by undertaking the following steps:

- Identify Subproject Concept and Candidate Sites
- Conduct Desktop Review of Candidate Sites
- Conduct Visits to Candidate Sites
- Consult with Local Community Authorities and Leaders
- Complete Summary Environmental and Social Screening Matrix
- Rank Candidate Sites Based on Environmental and Social Screening
- Prepare Environmental and Social Screening Report
- Present Findings to Other Members of Screening Team

GAP Analysis

Some gaps exist between PNG policies and legislation, and the World Bank's safeguard policies, which will require harmonization so that the requirements of PNG and the World Bank are met with any safeguard instruments that are prepared. The extent to which PNG policy and legislation is equivalent to the World Bank's policy requirements for the Project is as follows:

- Environmental screening, ESIA and ESMP requirements – fully equivalent
- Monitoring and public consultation – partially equivalent
- Disclosure (including to IP), institutional capacity and training assessment requirements, IPP or IPPF requirements, and involuntary resettlement (treatment of informal settlers) – not equivalent

Measures to Address Environmental and Social Issues

E&S risks have been identified by project component and subcomponent, and actions recommended. Risks include:

- Component 1 - Urgent Rehabilitation / Upgrade of PPL Infrastructure
    - MV distribution network subcomponent – social tension with landowners; social tension with PPL customers; accidental spills
    - Substations subcomponent – accidental spills
    - SCADA – no risks anticipated unless asbestos encountered when refurbishing control room at PPL headquarters.
- Component 2 – PPL's Performance Improvement - no risks anticipated for either of the two subcomponents (incorporation of management tools; protecting increasing revenues) due to no physical works.
- Component 3 – Support to Least Cost Power Development Planning
    - TA and preparatory work (hydropower upgrades; Naoro-Brown HPP; gas-to-power) – risks will be managed via detailed ToRs. Preliminary risks identified are listed in the paragraphs below.
    - Updating Energy Project Database – no risks anticipated due to no physical works.

- Component 4 – Project Management Support – inadequate E&S resources to implement new project.

Environmental mitigation measures have been identified to address impacts to vegetation and wildlife, surface water and groundwater, dust and emissions, noise and vibration, and construction and demolition waste.

Social mitigation measures have been identified to address social issues associated with land acquisition, social tension, noise and vibration, cultural heritage, traffic management, and health and safety.

Grievance Mechanism

PPL has an existing national 'Call Centre' that was established under its Corporate Relations Group. Although the function of the Call Centre is not specifically identified as a Grievance Redress Mechanism (GRM), per se, it is presently operating as such in a de facto manner. Notwithstanding, a grievance mechanism has been partially developed as part of the draft Information and Communications Strategy (ICS) for the Naoro-Brown HPP under the ESDP. Once completed, it could easily be adapted for use as PPL's corporate GRM, and in the interim used as the GRM for the new Energy Utility Performance and Reliability Improvement Project.

Information regarding the mechanism will be conveyed to potential project-affected people at each of the subproject locations, as part of the consultation process prior to project implementation.

In addition to PPL's grievance mechanism, communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank's Grievance Redress Service (GRS).

Public Consultation and Disclosure

PPL's Customer Relations Department, which handles both public relations and stakeholder consultation, will undertake a targeted consultation and awareness campaign to reach potential beneficiaries and inform them of the objectives and structure of the Project and its four components.

The consultation process will be conducted and expanded during project implementation to ensure that stakeholders are fully engaged in the Project and have the opportunity to participate in its development and implementation and understand that there is a process in place for them to submit any grievances or complaints. A draft Stakeholder and Consultation Engagement Plan (SCEP) that will be applied to the Project, and adapted as the Project proceeds through its various stages, is included as an annex to the ESMF.

For each component / subcomponent, PPL must ensure that women and other potentially marginalized groups have sufficient opportunity to provide input, including through targeted women-only and other group consultations, to ensure their views and issues are being received and considered. Where project activities trigger OP 4.10 on Indigenous People, consultation conducted by PPL must follow the key principles for free, prior and informed consultation (FPIC).

With the exception of the Naoro-Brown HPP, for which consultation has been on-going since 2016, consultation for the new project has only recently been initiated. A consultation workshop was held with available key stakeholders in Port Moresby on 26 February 2019, at which the draft ESMF was presented and discussed.

In conformance with the World Bank's Public Communications Policy, this ESMF was publicly disclosed on the World Bank website and the PPL website www.pngpower.com.pg on March 22, 2019.

Institutional Roles, Responsibilities and Capacity

The roles and responsibilities of the World Bank, PPL and CEPA in managing project-related environmental and social issues have been identified, along with limitations in PPL's current capacity, which is weak and will need to be significantly strengthened. Substantial and targeted support both for project implementation and durable capacity building is proposed under the Project.

The Bank will be responsible for: advising PPL about Bank Environmental and Social Safeguard Policies; reviewing and clear environmental assessment reports; publicly disclosing the ESMF; reviewing statutory environmental clearances granted by CEPA; reviewing and monitoring ESMP implementation; providing PPL with advice, guidance and assistance on good practice on matters relating to land acquisition; and supporting PPL in conducting required consultations.

PPL will be the implementing agency for the Project and will have overall responsibility for project management, including responsibility for preparing and ensuring implementation and compliance of the ESMF. PPL will monitor and report on project progress to the World Bank with a frequency to be defined in the grant agreement and Project Operation Manual.

During the construction phase of the Project, PPL, with support from specialist consultants if needed, will undertake monitoring and supervision of its contractors to ensure compliance with regulatory requirements. For subcomponents involving physical works, PPL will prepare monthly monitoring reports for submission to CEPA.

As the national agency responsible for environment and conservation in PNG, CEPA will be involved in various environmental management activities, including: providing statutory environmental clearances; monitoring compliance; reviewing PPL's monthly reports; and suggesting ways to improve or strengthen mitigation approaches.

The Department of Petroleum and Energy will oversee the implementation of the project on behalf of the PNG Government.

Budget Provision

With the exception of the Naoro-Brown HPP and selected gas-to-power development subcomponents of Component 3 of the Project, the requirements for addressing environmental and social issues of the remaining subcomponents of Component 3, and all subcomponents of Components 1, 2 and 4, as set out in the ESMF, will fall within PPL's 'business as usual' operations. A budget of US$3m has been allocated for Component 4 – Project Management TA.

A separate ESIA will need to be developed for the selected gas-to-power initiative under Component 3, if it is determined by the TA that this is a viable project that should proceed. A budget of approximately US$2.5M to US$3M is recommended for undertaking the ESIA. Another US$250K to US$300K is recommended for PPL to hire consultants to manage the ESIA process.

1. INTRODUCTION

The Papua New Guinea (PNG) Energy Utility Performance and Reliability Improvement Project (EUPRIP) (the Project) will comprise the following four components, which are described in more detail along with their subcomponents, in Section 3 – Project Description:

Component 1 –	Urgent Rehabilitation / Upgrade of PPL Infrastructure
Component 2 –	Implementation of Key Components of PPL's Performance Improvement Plan ("PPL's Performance Improvement Plan")
Component 3 –	Technical Assistance on Least Cost Power Development Plan Development and Implementation ("Support to LCPDP implementation")
Component 4 –	Project Management Support

The Project aims to establish the building blocks for electrification through lowering the cost of supply and transforming Papua New Guinea Power Limited (PNG Power or PPL) into a better performing company and a capable agent for electrification. The lack of access to affordable and reliable power supply is limiting economic growth in urban areas, constraining growth in smaller urban centers and contributing to poverty in rural areas. It hinders economic activities, access to school and health services, and exacerbates already severe personal security problems. Low levels of access to an adequate supply of electricity limit the ability of children to study, add to the burden of household work, and severely constrain economic activity. Ultimately, the project will also contribute to global efforts to mitigate climate change by promoting the use of renewable energy and, contribute to the use of electricity in rural areas, thereby displacing the current use of mainly kerosene for lighting.

The Project is designed to achieve the practical outcomes of improving the operational performance of the state-owned enterprise responsible for energy generation and distribution within PNG (PPL) and improve the reliability of electricity supply in areas served by the Project. At the same time, these outcomes will contribute toward achieving the government's long-term goal of reaching 70 percent electricity access by 2030 and becoming fully carbon neutral by 2050, specifically through technical assistance and transaction support for the development and implementation of a Least Cost Power Development Plan, aimed at lowering the cost of generation in the country and improving the operational performance and reliability of electricity supply of PPL. Ultimately, lowering the cost of supply and building PPL into an efficient utility and a credible off-taker will not only establish a sound vehicle for implementation of electrification projects, but will also facilitate attracting private investments to the sector.

The Project forms part of a broader initiative of PPL, which has recently started to invest in strengthening and expanding its system. The Project may provide additional support to PPL in the preparation of the Naoro-Brown Hydropower Project (Naoro-Brown HPP), a proposed 80MW run-of-river project that will contribute to the enabling environment of a low carbon growth path and increasing access to electricity through private sector hydropower development in the country, and generate cheaper clean power for a country currently characterized by poor access, low reliability, and more expensive fuels. The Project may also provide advisory services for the development of a suitable gas-to-power project in the Southern Highlands and investing in network expansion. In

addition, TA may also be carried out on opportunities for developing renewable energy schemes, other than hydropower.

The ESMF was prepared primarily to manage impacts associated with Component 1 of the Project, which is the only component that will include project funding of physical works. E&S risk management of components 2 and 3 in which no physical works are proposed (TA and institutional strengthening) are included in the ESMF to ensure E&S considerations are taken into account in undertaking these activities. Since the locations and technical details of the key subcomponent sites in Component 1 will be identified during implementation, this Environmental and Social Management Framework (ESMF) has been prepared as required under the World Bank's Operational Policy / Bank Procedure (OP/BP) 4.10 Environmental Assessment. The purpose of this ESMF is to ensure that all components of the Project meet the environmental and social safeguard policies of the World Bank and laws and regulations of PNG.

The project is categorized as Category A under OP4.01 because a portion of the technical assistance funds under Component 3 may support the Naoro-Brown HPP.

The Project will be supported by US$30 million in IBRD financing blended with reimbursable Global Infrastructure Fund (GIF) grant(s), and possibly other, as yet to be determined, funding sources.

2. PURPOSE AND SCOPE OF THE ESMF

The ESMF will serve as the project's umbrella for the environmental and social management document, setting out the strategy for screening the Project to ensure that key project-related environmental and social issues are captured. The purpose of this ESMF is to guide the Implementing Agency (IA) – PPL – on the environmental and social screening of the Project activities and subsequent environmental and social assessment of these activities during project preparation, design and implementation. This ESMF together with PPL's policies and standard operating procedures (**Annex A**) of PPL, provides:

- Project design to mitigate impacts and optimize benefits;
- Protocol during construction to mitigate environmental and social impacts to pre-construction conditions;
- Protocol for confirming and documenting authorization of impacts on any affected land and assets prior to implementing works;
- Consultation mechanism on the project and the ESMF and records of consultation;
- Complaint / grievance handling mechanism;
- Roles, responsibilities and capacity of those involved;
- Monitoring and reporting mechanism; and
- Budget mechanism

The ESMF was prepared primarily to manage impacts associated with Component 1 of the project, which is the only component that will support physical works. This document has been prepared based on a review of available documents provided by PPL and the World Bank, information provided through interviews with key PPL staff, information obtained from reports available online, a rapid appraisal of potential environmental and social (E&S) risks associated with likely gas-to-power project locations, and recent past field reconnaissance conducted for the proposed Naoro-Brown HPP (both included within Component 3 – Technical Assistance on Least Cost Power Development Plan Development and Implementation). Given that specific locations and technical details for a the improvements to medium voltage systems that comprise Component 1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure, will be identified during implementation, community consultation in the project areas has not been undertaken on the project to date.

The ESMF includes environmental and social assessments at an appropriate level to manage the risks. At the programmatic level, these are undertaken to aide in the selection of potential subcomponents (e.g., subprojects), by determining if the right communities are being targeted, what environmental and social effects (both positive and negative) may accrue, if any, and any key challenges or risks that may be encountered.

Subcomponents included within Component 1 – urgent rehabilitation / upgrade of PPL infrastructure – predominantly consist of equipment replacement at existing facilities, with some limited potential for re-routing MV transmission lines over short (0.2km to 1.0km) distances. PPL will confirm whether land acquisition is required for relocating these short sections of transmission line and consult with communities to identify issues associated with line relocation.

At the subcomponent level, detailed E&S assessments for Component 1 sub-projects will be prepared by PPL when it identifies the activities to improve or change the existing MV system. The technical assistance (TA) work under Component 3 will be subject to detailed terms of reference (ToRs) (at least one for the gas to power work and for supplementary assessment work for Naoro-Brown HPP). These ToRs will detail the work required for respective work activities.

For Component 2 – PPL performance improvement – and Component 4 – project management support - no adverse environmental or social impacts are anticipated, as neither of these activities involves physical works and both components are anticipated to provide net positive benefits

For subcomponents that involve physical works that have the potential to generate environmental or social impacts, consultation will need to be initiated with stakeholders (e.g., residents, businesses, landowners, communities, NGOs, government agencies, etc.) early in subcomponent definition and carried through construction and into operation. PPL uses a range of consultation methods (community meetings, local radio and newspaper media, pamphlets, posters, customer service counters, dedicated customer call centre, etc.) with which to convey information and receive input from individuals and communities regarding their support, issues and concerns. PPL will follow the process of free, prior and informed consultation to obtain necessary input on its subprojects (see **Section 10** – Public Consultation and Disclosure).

3. PROJECT DESCRIPTION

As noted above, the Project will involve four components, with subcomponents, as follows:

3.1 Component 1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure (US$15.8m)

This component will support execution of urgent investments in rehabilitation/upgrade of facilities for electricity supply needed to improve service quality to acceptable levels and minimize outages. An assessment of the most urgent investments has been undertaken and has identified priority investments as follows:

3.1.1 Subcomponent 1-1: Improvements and upgrades in the medium voltage distribution network (US$8.1million)

This subcomponent will include installation of new switchgear equipment (re-closers, load breaker switches) and fault indicators in the Medium Voltage (MV) network, and implementation of backup facilities and reinforcements of around 100km of MV network to reduced overload and avoid large voltage drop situations in the Ramu system. This will likely include 50km of urban network reinforcement focusing on Taraka and Milford areas and 50km of reinforcements in rural areas. The reinforcements consist of mostly replacing conductors in existing lines, with possible small sections of new network (between 0.2 - 1km, using poles) (see **Figure 1**).

Figure 1: PPL Linesman working on Existing MV Distribution Network

3.1.2 Subcomponent 1-2: Rehabilitation and upgrades in selected substations (US$7.1million)

This subcomponent will provide support for increasing the transformer capacity installed in substations to be selected during implementation. and for the installation of medium voltage (MV) capacitor banks in substations for reactive power compensation. According to the current forecasts,

a number of substations are expected to suffer from overloading by 2020, causing issues such as voltage drops, increases in transformer losses, and possible sudden losses of supply. Expanding the transformer capacity in each substation must, therefore, be considered.

3.1.3 Subcomponent 1-3: Enhancements in control and protection functionality (US$0.6million)

The current practice of PPL involves dispatching maintenance crews to a fault location following customer calls to restore power, a process that implies long customer wait times for service restoration, depending on how quickly customers report the power outage and how quickly the maintenance crews locate and solve the problem. A state-of-art Supervisory Control and Data Acquisition (SCADA) system is one of the most cost-efficient solutions that not only helps utilities increase service reliability through automation but also helps to lower costs and enable problem areas to be detected and addressed immediately, automatically and remotely. Currently only the Port Moresby (POM) system is operated with the support of a SCADA System, and its coverage in term of high voltage (HV) and MV equipment is limited to the main breakers and basic analog signals (voltage, current, and active power). Substation visibility in SCADA lacks information on auxiliary services, protection units, and other basic signals that must be integrated into the system. Regarding the Ramu System, although PPL's SCADA Team is working on the integration of substations into the system it is not currently used to operate the system. While a complete SCADA would require an investment that goes beyond the current available project budget, there are some smaller investments that can improve the operation of the system. This would include: (i) expanding the SCADA System to additional priority sites; (ii) setting up of a national control room (through refurbishment of an existing room still to be determined at PPL Headquarters[1]) and (iii) upgrading the protection system.

3.1.4 Implementation of Component 1

It is proposed that Component 1 be implemented through supply and installation contracts for the various parts of Component 1. An owner's engineer would be recruited through Component 4 (Project Management Support) to assist PPL in confirming the final selection of investments, finalize design work, assist PPL in bidding document preparation and evaluation and finally to assist in supervision of the contractors.

3.2 Component 2 – Implementation of Key Components of PPL's Performance Improvement Plan (US$9m)

This component will include support for key components of PPL's Performance Improvement Plan (PIP). An indicative PIP has been proposed and has received broad support by PPL management, which focuses on improving quality and efficiency, transparency and accountability in key operations areas (electricity supply, commercial functions, management of corporate resources) in a sustainable manner, with specific emphasis on better service quality and loss reduction. PPL is already implementing some elements of the PIP on its own – notably the component linked to organizational restructuring and establishment of a skilled management team and workforce, and various actions under the remaining PIP areas.

[1] Covering room refurbishment, cable trench inlet sealing, room's air-tightness improvement, air-conditioning facility installation, etc.

This component will provide support for the following key sub-components of the PIP, which are believed to be the key tools and most impactful investments to enable PPL management to improve the company's operational and financial performance.

3.2.1 Subcomponent 2-1: Incorporation of management tools

Incorporation of management information systems (MIS) will enable more efficient, transparent and accountable development of processes and activities in all business areas: operation and maintenance (O&M) of assets for electricity supply and attention to customers' claims; commercial functions; and management of corporate resources. Incorporation of the MIS must be complemented with the improvement and update of their respective databases (customers, assets, etc.) supported by a geographic information system (GIS).

3.2.2 Subcomponent 2-2: Protecting and increasing revenues

The project will support implementation of a revenue protection program (RPP) for sustainable reduction of non-technical losses in supply (unmetered consumption) through systematic remote recording and monitoring of consumption of large users through the installation of Automatic Meter Reading (AMR) systems. In PNG less than 7% of customers (around 8,000 customers, consuming above 800kWh/month) account for 77% of physical sales in 2013. The program will initially target these customers.

3.2.3 TA for implementation of Component 2

With regards to MIS, PPL will recruit a consultant to assist in: (i) assessing the existing management information tools in the company; (ii) preparing a gap analysis and recommendations; and (iii) reviewing and preparing bidding documents for the system based on outcomes of (i) and (ii). With regards to RPP, a consultant will be hired to assist PPL manage the technical aspects of the tender (responding to questions from bidders, assisting during evaluation and through implementation of the contract). This support would be made available through Component 4 of the Project.

3.3 Component 3 – Technical Assistance on Least Cost Power Development Plan Development and Implementation (US$3.8m, including possible $2.2m of GIF reimbursable grant)

Component 3 will provide technical assistance (TA) to support any supplementary planning studies as may be needed to the Least Cost Power Development Plan (LCPDP). It will also provide support for implementation of the plan through TA as may be needed to: (i) conduct an assessment and any feasibility studies as needed for rehabilitation options for existing hydropower facilities; (ii) support the preparation of projects which have been identified in the LCPDP – namely gas-to-power projects (most likely in the Southern Highlands) and renewable energy projects including Naoro-Brown HPP. Such support could include project level screening, feasibility, safeguard studies and the financing of transaction advisors to support the competitive selection of developers to implement selected projects[2].

[2] This support could include for example complementary TA to what is already being provided on the NBHPP, or support for development of other projects such as solar or wind projects.

3.3.1 Technical Assistance for assessment of existing hydropower stations rehabilitation (US$1m)

Assessment of Ramu 1 rehabilitation (US$0.8million): the Ramu 1 plant has an installed capacity of 77.4 MW but the available capacity is as low as 27 MW due to aged equipment and inadequate maintenance. The TA will include a diagnosis and assessment of the technical potential to recover its available capacity, and preparation of feasibility study and bidding documents for rehabilitation. This will most likely include replacement of electromechanical equipment.

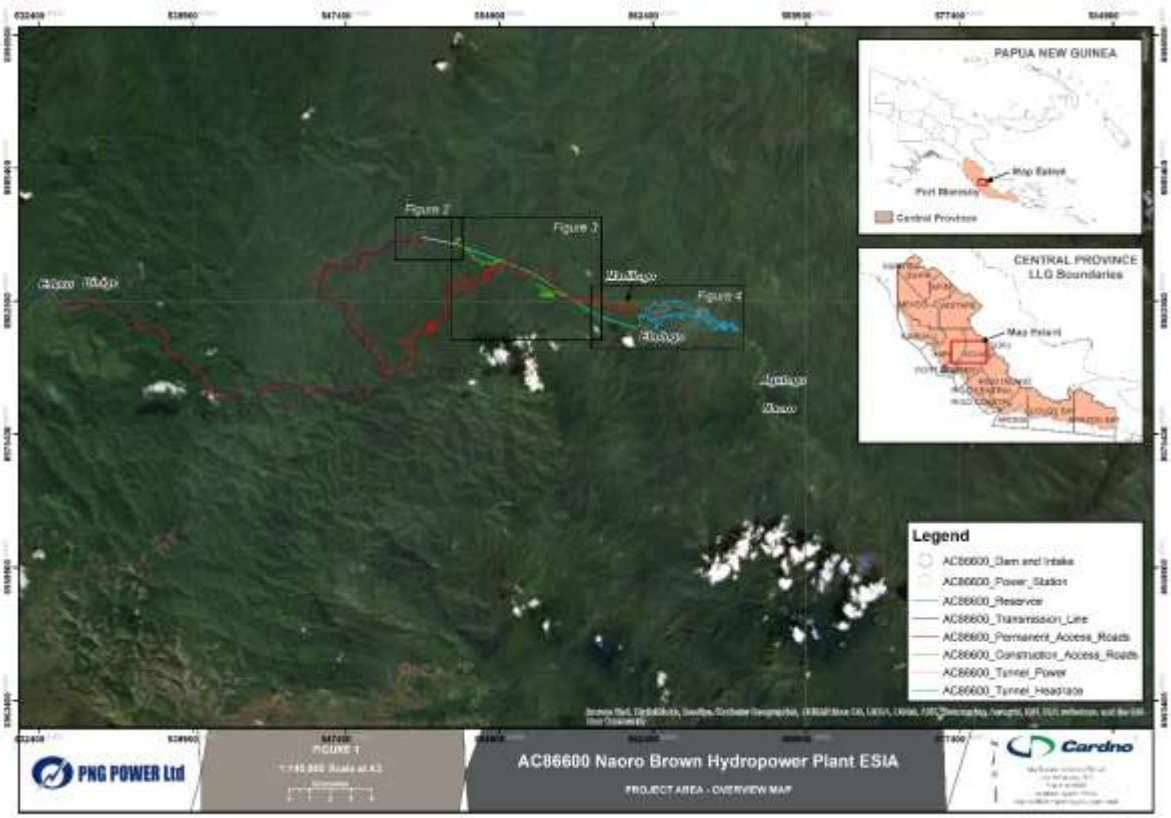
Assessment of Rouna Cascade rehabilitation (US$0.2million): the Rouna cascade includes four stages of hydropower plants, with a total installed capacity of 63.5MW[3]. However, the annual generation is not as high as planned due to improper dispatch of the cascade. The TA will include an assessment of the water flow and optimization of dispatch to maximize the generation of the whole cascade, along with associated training for the system operators.

3.3.2 Technical assistance for the development of the Naoro-Brown HPP (potential US$1.4m GIF):

The proposed 80MW Naoro-Brown HPP (**Figure 2**) has been receiving TA support through the Bank-supported Energy Sector Development Project (ESDP). The on-going support for the project has included updating feasibility studies, hiring transaction advisors to prepare for selection of a private developer for the project through competitive bidding, and preparing a preliminary Environmental and Social Impact Assessment (ESIA). Further support will be provided for closing any key remaining gaps (technical, commercial, legal, safeguards) that would allow bringing the project to market for competitive bidding. With the ESDP closing on July 31, 2019, and unavailability of additional funds under that project, the new project would continue the previous support to continue project preparation through technical assistance, so that the project may be ready to go to market at a later date.

[3] Or 5 stages, if the Sirinumu Dam is included.

Figure 2: Proposed Location of Naoro-Brown HPP and Ancillary Facilities



3.3.3 Preparation of Gas-to-power Project (US$550,000 and potential US$0.8m GIF)

In line with the findings of the least cost study, gas-to-power generation is identified in PPL's expansion plan as a low-cost option. PPL is currently working with the Bank, through Australia's Department of Foreign Affairs and Trade (DFAT) funding, to identify suitable gas-to-power projects in Southern Highlands Province, and is in particular looking at two options at present. These include: potential expansion of the existing Hides Gas Generation Plant (**Figure 3**) (owned by Porgera JV[4]); and possible greenfield gas generation plant in the vicinity of the existing Kutubu Gas Conditioning Plant (**Figure 4**). It is expected that following this initial work, PPL will select one of these gas-to-power projects in the area to develop it further through an independent power producer (IPP) or public-private partnership (PPP) arrangement. The technical assistance provided in this component could include complementary technical studies to make the project ready to go to market (such as preparation of pre-feasibility studies). Additional support could also be provided for preparation of bidding documents and transaction advisory services, to be supported by GIF[5]. All activities will be subject to ToRs prepared by PPL and cleared by the World Bank to ensure that good international industry practice in project preparation is achieved.

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[4] This could be a brownfield, greenfield or combination of both.

[5] Government of PNG has already requested the use of GIF funding for gas-to-power. This request would be confirmed over a few months once the project is firmed up. Furthermore, the World Bank will be able to support sourcing of gas for the project by providing TA to government on definition of the conditions under which the gas will be supplied to domestic customers.

Additional photos of the area around the existing Hides Gas Generating Station and Kutubu Central Gas Processing Plant are included in **Annex B**. A synopsis of environmental, social and political conditions in the area is included in **Annex C,** which will assist PPL in preparing the ToRs for this work during project implementation.

Figure 3: Existing Hides Gas Generation Plant

Figure 4: Existing Kutubu Central Gas Processing Plant

3.3.4 Updating potential project database (US$0.05m)

Since the 1980s, PPL has conducted a series of preliminary evaluations of potential investment generation projects (funded by different stakeholders and PPL). The majority of these projects are hydropower plants. The technical assistance will support PPL to take stock of all available information, updating it as needed – namely with respect to cost estimates.

3.4 Component 4 - Project Management Support (US$3m)

This component will support TA for project management and related technical issues through the recruitment of project management, technical, financial management (FM), procurement and social and environmental safeguards experts as required. The component will also provide financing for the preparation of project safeguards studies, audits, office equipment and incremental operating costs. Significant support for project implementation will be provided through this component, namely for the provision of technical advisory services to PPL for project design, implementation and supervision. It will include setting up a strong project management team within PPL to assist in implementation of rehabilitation and network upgrade works going forward.

4. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

This section of the ESMF identifies potential environmental and social impacts as they relate to the World Bank's safeguard policies (see **Section 6**).

4.1 Project Component Activities

4.1.1 Component 1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure

This component of the Project will involve three subcomponents as identified in sections 3.1.1 through 3.1.3, including: improvements/upgrades to the MV distribution network; rehabilitation/upgrades to Taraka and Milford (both in the Lae/Highlands area) substations; and enhancing the SCADA and control system and upgrading the national control room.

Improvements/upgrades to approximately 100km of MV distribution network will be undertaken primarily along existing rights-of-way, with some line re-routing possibly required for short segments (estimated 0.2km to 1.0km). Most impacts will be social in nature, associated with temporary power outages when line work is being carried out. In the few areas where line relocation is required, PPL advises that this will usually be across industrial estates or adjacent to existing public (e.g., road) rights-of-way. In the event that additional land is required for re-routing sections of MV distribution line, this would be restricted to small (~1 m^2) at sites where power poles would be installed. Excavating holes for erecting power poles may result in the generation of dust, noise, potential drainage issues and disposal of the excess excavated soil materials. However, the scale of these activities is expected to be small and the environmental impacts are expected to be minor. Nonetheless, PPL and its supply/install contractor will be expected to prevent pollution emanating from these activities and apply remedial measures as needed. Due to the extreme complications associated with compulsory land acquisition, PPL would seek to rely on acquisition of land by consensual agreement, possibly using the Government of PNG lease/lease-back process.

No environmental or social impacts are expected to result from enhancing the SCADA and protection system. However, for upgrading the national control room within the existing PPL headquarters building, there may be a potential for encountering friable asbestos, if asbestos containing materials were used in the building's original construction. Therefore, measures will be implemented to test for and confirm whether asbestos is present, and remedial actions will be taken accordingly.

4.1.2 Component 2 – Implementation of Key Components of PPL's Performance Improvement Plan

Component 2 will involve two subcomponents – incorporating management plans into the PPL Performance Improvement Plan; and protecting and increasing revenues. Neither subcomponent is anticipated to generate any adverse environmental or social impacts, since there will be no physical works involved. Benefits will accrue in the form of a more efficient PPL operation, including systems for management of E&S risk.

4.1.3 Component 3 – Technical Assistance on Least Cost Power Development Plan Development and Implementation

This component of the Project will involve four subcomponents as identified in sections 3.3.1 through 3.3.4 above. The work under the project comprises technical assistance (TA) for:

- existing hydropower stations rehabilitation (Ramu 1 and Rouna Cascade);
- further supporting preparation of the proposed Naoro-Brown HPP;
- assessments, designs and other technical assistance for a new gas-to-power facility near either Hides or Kutubu, with associated gas pipeline(s) and transmission lines; and
- updating the energy project database for PNG.

To be clear, no actual physical investment is proposed under the current project, but only TA for the above-mentioned activities. Downstream, the work under this project may inform and facilitate actual execution of physical works, which would go ahead beyond the project scope. To assist in the preparation of ToRs for this TA work and to provide a high-level understanding of the critical issues associated with the proposed work, this ESMF includes a high-level assessment of the possible impacts of the physical works. Physical works associated with upgrading Ramu 1 and Rouna Cascade will be carried out on the existing facilities footprints and, therefore, environmental and social impacts are expected to be quite limited. Work at Ramu 1 will involve upgrading electro-mechanical equipment, which may result in potential loss of lubricants and solvents used as degreasers into the aquatic environment if not properly managed. Rouna Cascade improvements will focus on optimizing dispatching from the four-project cascade, which will be undertaken within existing water licenses with little or no adverse environmental impacts accruing. Rather, benefits will accrue through optimized electricity generation.

However, in accordance with the requirements of OP4.37, a dam safety assessment will need to be undertaken as part of the TA on rehabilitation options.

The Naoro-Brown HPP has the potential to generate significant environmental and social impacts. A separate preliminary ESIA has been completed. This will be followed by a final ESIA to be prepared and submitted by the selected developer, once design parameters have been finalized by the developer.

Similarly, the investigative TA work for a gas-to-power project with associated gas pipeline(s) and transmission lines to be located in Southern Highlands Province near either Hides or Kutubu, has the potential to generate significant environmental and social impacts (see **sections 4.2 and 4.3**). These impacts will potentially arise due to: vegetation clearing, grubbing and earthworks, facility erection during construction, and noise and gaseous emissions during operation. The proposed 100MW installed capacity generating station would require approximately 20,000m^3 of cleared and fenced land; excavation and installation of a 10cm diameter gas pipeline from existing gas conditioning facilities to the gas-to-power generating station; construction of a 132kV transmission line to connect the gas-to-power station to the existing Ramu Grid; and construction of access roads where required to connect to the new facilities. Land access and acquisition arrangements for the power plant site, and access road / transmission line corridor will be a major consideration in the successful delivery of a greenfield gas-to-power project.

All of these identified impacts would be fully incorporated into ToRs for analytical work to be undertaken during project implementation.

No environmental or social impacts are expected to result from updating the energy projects database.

4.1.4 Component 4 – Project Management Support

No adverse environmental or social impacts are anticipated to accrue as a result of this component, as there will be no physical works involved. Rather, beneficial impacts are anticipated if the actions that will be undertaken to build capacity within PPL end up strengthening its environmental and social functions.

Overall, impacts for all remaining components / subcomponents of the Project are expected to be minor in magnitude, extend over a small area, be of short duration, and reversible when addressed through application of effective mitigation measures.

4.2 Environmental impacts

The potential environmental impacts are assessed based on the design, construction and operations activities, as well as the physical and biological environment of the project sites. **Table 1** summarises the potential environmental impacts for the various project components and subcomponents. Mitigation measures (see **section 8**) for each potential environmental and social impact are designed to avoid, minimize or mitigate the adverse impacts and enhance the beneficial impacts.

PPL has yet to develop a set of policies on environmental, social and sustainability goals, objectives and performance targets. As a result, relevant standard operating procedures (SOPs) for environmental, social and sustainability activities have also not been developed. Instead, SOPs (**Annex A)** that support and manage activities undertaken by PPL on a day-to-day basis are primarily focused on worker health and safety, land acquisition and customer satisfaction.

Rapid appraisal for Component 3 – least cost power development – identified the general location, environmental features and proximity of potential protect-affected communities for potential gas-to-power developments in Southern Highlands Province. Prior to initiating work, PPL will consult with potential project-affected communities and undertake an ESIA that identifies valued environmental and social components of the project-affected communities, identifying such things as: the environmental setting of the project (e.g., floral and faunal assemblages, environmentally sensitive areas, biodiversity features, etc.); the location and size of communities relative to the proposed facility; demographic makeup; livelihoods and wellbeing of community members; sensitive receptors (schools, hospitals/clinics, churches, etc.) that could be disturbed by construction or operation activities; local infrastructure (e.g., roads, water, sewerage, electricity), and community amenities (e.g., community halls, playing fields). The ESIA will identify potential impacts to the valued environmental and social features, and identify avoidance / mitigation opportunities and actions, and monitoring requirements.

In addition to the gas-to-power subcomponent of Component 3, the new project includes carry-over of work designed to prepare the Naoro-Brown HPP, for which a preliminary ESIA has been completed. This ESMF sets out follow-up environmental and social safeguard actions required to ready the Naoro-

Brown HPP for implementation, including actions to review, update and clear the ESIA based on the final design, which will include as necessary requirements in the procurement documents for the project.

If technical assistance for existing hydropower schemes rehabilitation is funded by the Project, the TORs for these studies will include consideration and assessment of environmental and social risks associated with the works, if these were to proceed. However, as the works are expected to be entirely electromechanical in nature, and confined to the existing facilities' footprint, very few if any environmental and social risks are anticipated. It is noted that OP04.37 applies to projects that rely on the performance of an existing dam, e.g. power stations that draw directly from a reservoir controlled by an existing dam, as is the case here. The Bank requires that the borrower arrange for one or more independent dam specialists to (a) inspect and evaluate the safety status of the existing dam, its appurtenances, and its performance history; (b) review and evaluate the owner's operation and maintenance procedures, and (c) provide a written report of findings and recommendations fro any remedial works or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety.

Table 1 – Potential Environmental Impacts

Project Component	**Subcomponent (Subproject)**	**Potential Environmental Impact**
1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure	Improvements/upgrades to the MV distribution network substations	Generation of dust, potential drainage issues and disposal of excess excavated soil materials associated with installation of power poles.
	Rehabilitation/upgrades to Taraka and Milford substations	Accidental spills of lubricants and solvents used in upgrading electromechanical equipment.
	Enhancing the SCADA and control system and upgrading the national control room.	No adverse environmental impacts anticipated for SCADA and control system. Possible exposure to friable asbestos when upgrading national control room in existing PPL headquarters.
2 – PPL Performance Improvement Plan	Incorporating Management Plans into PIP	No adverse environmental impacts anticipated. Positive impacts of having improved system management.
	Protecting and Increasing Revenues	
3 – Least Coast Power Development Technical assistance and project preparation	Technical assistance and project preparation including E&S assessments of Hydropower Station Upgrades - Ramu I - Rouna Cascade	Component 3 comprises technical assistance (TA) for: - existing hydropower stations rehabilitation (Ramu 1 and Rouna Cascade); - further supporting preparation of the proposed Naoro-Brown HPP; - assessments, designs and other technical assistance for a new gas-to-power facility near either Hides or Kutubu, with associated gas pipeline(s) and transmission lines
	Technical assistance and project preparation including E&S	

Project Component	Subcomponent (Subproject)	Potential Environmental Impact
	assessments of Naoro-Brown HPP	ToRs to be prepared by PPL and cleared by the World Bank will ensure that the preparation of this work includes identification, screening and scoping, assessment and management of impacts associated with the proposed projects. This work would inform the design and feasibility work also forming part of the TA work. Potential impacts related to the Ramu I and Rouna Cascade rehabilitation are not expected, as the ensuing works would be limited to the existing footprints, and would either involve electromechanical upgrades/repairs, or operational measures. As OP4.37 applies to rehabilitation of existing dams (including TA), a dam safety assessment will need to be performed. For hydropower projects, particularly the proposed new NBHPP, the ESIA identified the following potential impacts : *Direct Impacts* *Potential inundation to downstream reaches due to dam failure, resulting in damage / destruction of downstream infrastructure and potential human mortality* *Potential human mortality due to rapid changes in downstream water levels resulting from peaking operation discharges* *Decline in drinking water quality and/or availability* *Increase in road accidents* *Discontent from economic and physical displacement* *Loss of livelihood and decline in available land and subsistence resources due to physical and economic displacement* *Decline in available fish stocks* *Disputes, and potentially conflict, between local residents and construction workers.* *Indirect Impacts* *Conflict arising from land disputes* *Disputes and/or conflict arising from the allocation and/or management of project benefits* *Disputes and/or conflict and other impacts arising from in-migration* *Erosion of current village leadership* *Increased workload on women and children* *Decline in community support and volunteering* *Adverse health impacts*
	Technical assistance and project preparation including E&S assessments of selected Gas-to-Power (Hides vs Kutubu)	

Project Component	Subcomponent (Subproject)	Potential Environmental Impact
		Increase in law and order problems *Increase in corruption* For a possible gas-to-power project, a rapid appraisal was carried out during Project preparation, which identified the following potential: *Worker & community health and safety.* Potential fire and/or explosion, affecting plant workers or surrounding communities, resulting from gas system malfunction. *Resource use conflicts*: Potential loss or damage to natural resources (e.g., those obtained by hunting, fishing, gathering/harvesting, gardening) that are important to local indigenous people. *Cultural heritage*: Potential disturbance to discrete or landscape based cultural heritage sites that could threaten physical artifacts and cultural heritage features. Potential to lead to civil unrest if not mitigated effectively. *Noise and vibration disturbance*: Noise generated by equipment during construction is expected to be temporary, and attenuate quickly with distance depending on the type of work being undertaken, and the location and type of equipment being used at the time. For the most part, construction will be carried out in fairly remote areas, away from schools or residences. Noise generated by compressors and turbines will be ongoing, but controlled using engineered structures. There is no noise or vibration standard in PNG. Notwithstanding, PPL will follow good international industry practice (GIIP) to mitigate potential impacts. *Vehicular traffic:* Potential disruption to local communities from vehicle traffic, particularly during construction. Traffic within and adjacent to work sites will be managed to avoid accidents. *Worker health and safety*: The construction phase may cause potential health and safety impacts. The main impacts on health and safety are associated with (i) risk of accidents at work sites, and (ii) traffic related safety issues; and (iii) disturbance from noise and vibration. *Water supply:* It is anticipated that water would be supplied from dedicated boreholes.
	Updating Project Database	No adverse environmental impacts anticipated.

Project Component	Subcomponent (Subproject)	Potential Environmental Impact
4 – Project Management Support	–	No adverse environmental impacts anticipated.

4.3 Social impacts

Papua New Guinea is one of the most culturally diverse countries in the world with over 800 languages and over 1,000 distinct ethnic groups. Most of the country's population of almost 8 million people live in rural communities and are faced with significant challenges in health, education and economic opportunity. PNG has complex cultural dynamics deeply rooted in tribal and ethnic identity, indigenous social institutions, and land. These lead to both daunting risk factors and capacities for resilience.

There are limited formal job opportunities for the growing employment age population. Other risks include environmental management, population growth, political fragmentation, inequalities in PNG's resource dominated economy, and social exclusion of some groups.[6]

The main social impacts from the overall Project are strongly positive. Upgrading electricity generation and distribution, and improving reliability of electricity supply will strengthen the socio-economic integration of the beneficiaries by providing them with the opportunity to access education, improved health outcomes and providing income generating opportunities, amongst others.

The technical assistance and analytical work under Component 3 and the other three components of the Project will generate either no negative social impacts, or ones that are very limited (minor, short duration, reversible) and readily managed. Potential benefits are anticipated to accrue at the village and various levels of government (local, provincial and national).

Table 2 identifies the following potential social impacts associated with the Project.

Table 2 – Potential Social Impacts

Project Component	Subcomponent (Subproject)	Potential Social Impact
1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure	Improvements/upgrades to the MV distribution network substations	Land acquisition: Upgrades to the MV distribution network may require rerouting of short (0.2km to 1.0km) sections of transmission line, that will involve only minor civil works such as excavation of holes for power pole installation and trimming or removing vegetation along easements to make room for over-head lines. Power pole installations will occupy only small footprints (< 1m^2) each and, therefore, will require very little additional land, if any. All poles will be

[6] World Bank PNG Country Profile. 2018. http://www.worldbank.org/en/country/png/overview

Project Component	Subcomponent (Subproject)	Potential Social Impact
		located either along existing road corridors or within PPL or public owned rights-of-way.
	Rehabilitation/upgrades to Taraka and Milford substations	Rehabilitation involves installation of new transformers within existing substations. No social impacts are anticipated.
	Enhancing the SCADA and control system and upgrading the national control room.	No adverse social impacts anticipated for SCADA and control system. Possible worker health and safety issues if friable asbestos is encountered when upgrading national control room in existing PPL headquarters.
2 – PPL Performance Improvement Plan	Incorporating Management Plans into PIP	No adverse social impacts anticipated.
	Protecting and Increasing Revenues	
3 – Least Coast Power Development	Technical assistance and project preparation for Hydropower Station Upgrades Ramu 1 Rouna Cascade	Component 3 comprises technical assistance (TA) for: - existing hydropower stations rehabilitation (Ramu 1 and Rouna Cascade); - further supporting preparation of the proposed Naoro-Brown HPP; - assessments, designs and other technical assistance for a new gas-to-power facility near either Hides or Kutubu, with associated gas pipeline(s) and transmission lines ToRs to be prepared by PPL and cleared by the World Bank will ensure that the preparation of this work includes identification, screening and scoping, assessment and management of impacts associated with the proposed projects. This work would inform the design and feasibility studies. also forming part of the TA work. For hydropower projects, particularly the proposed new NBHPP, impacts may include: *Direct Impacts* *Potential inundation to downstream reaches due to dam failure, resulting in damage / destruction of downstream infrastructure and potential human mortality* *Potential human mortality due to rapid changes in downstream water levels resulting from peaking operation discharges* *Decline in drinking water quality and/or availability* *Increase in road accidents* *Discontent from economic and physical displacement*
	Technical assistance for Naoro-Brown HPP	
	Technical assistance for Selected Gas-to-Power (Hides vs Kutubu)	

Project Component	Subcomponent (Subproject)	Potential Social Impact
		Loss of livelihood and decline in available land and subsistence resources due to physical and economic displacement *Decline in available fish stocks* *Disputes, and potentially conflict, between local residents and construction workers.* *Indirect Impacts* *Conflict arising from land disputes* *Disputes and/or conflict arising from the allocation and/or management of project benefits* *Disputes and/or conflict and other impacts arising from in-migration* *Erosion of current village leadership* *Increased workload on women and children* *Decline in community support and volunteering* *Adverse health impacts* *Increase in law and order problems* *Increase in corruption* For a possible gas-to-power project, impacts may include: *Potential fire and/or explosion*, affecting plant workers or surrounding communities, resulting from gas system malfunction. *Land acquisition*: A new 100MW gas-to-power facility will require roughly 20,000m^2 of land for the main generation facilities, as well as additional land for the 10cm diameter gas pipeline, 132kV transmission line, and any additional access road(s). PPL will obtain the needed land on a long-term lease basis. Where required, PPL will provide compensation for any trees that are removed in accordance with rates prescribed by the Department of Agriculture and Livestock in accordance with regulations. Where the Project has the potential to impinge or otherwise interfere with private structures, the Project will avoid the activity that would otherwise affect the structures. Therefore, it is not anticipated that there will be any impacts to private structures. *Social tension*: Potential civil unrest associated with unresolved issues linked to land ownership and benefit sharing agreements, including royalty payments associated with loss of physical assets, gardens, economic trees, etc. *Resource use conflicts:* Potential loss or damage to natural resources (e.g., those obtained by hunting, fishing, gathering/harvesting, gardening) that are important to local indigenous people. Potential resource ownership disputes,

Project Component	Subcomponent (Subproject)	Potential Social Impact
		particularly if outsiders move into the area and try to access natural resources. Potential to lead to civil unrest if not mitigated effectively. *Cultural heritage*: Potential disturbance to discrete or landscape based cultural heritage sites that could threaten physical artifacts and cultural heritage features. Potential to lead to civil unrest if not mitigated effectively. *Health and wellness*: Potential influx of external labour force leading to increased spread of disease to local communities (e.g., HIV/Aids); potential for break-down of family and community values through inequities created by a cash economy, possibly leading to gender-based violence primarily affecting women; issue of gender inequity in hiring opportunities, benefit sharing opportunities, land rights associated with land purchase agreements, and inability to have a meaningful voice on project-related consultations; potential for stress on existing government services (e.g., health, education, law enforcement). *Vehicular traffic*: Potential disruption to local communities from vehicle traffic, particularly during construction. Traffic within and adjacent to work sites will be managed to avoid accidents. Worker health and safety: The construction phase may cause potential health and safety impacts. The main impacts on health and safety are associated with (i) risk of accidents at work sites, and (ii) traffic related safety issues; and (iii) disturbance from noise and vibration. Water supply: It is anticipated that water would be supplied from dedicated boreholes. Power Outages During Operation: unplanned due to environmental factors (see above) and planned for system maintenance, resulting in loss of electricity service and potential impacts to businesses
	Updating Project Database	No adverse social impacts anticipated.
4 – Project Management Support	–	No adverse social impacts anticipated.

5. LEGAL, POLICY FRAMEWORK AND REGULATORY REQUIREMENTS

This section of the ESMF identifies PNG's institutional framework, key regulatory agencies, and policies and legislation that have a potential bearing on how the Project will be regulated.

5.1 Institutional Framework

This section presents information on the government agencies and NGOs that will most likely play a role in project implementation.

5.1.1 Conservation and Environment Protection Authority (CEPA)

The Conservation and Environment Protection Authority (CEPA) was established under an act of parliament of that same name in 2014. CEPA takes over from the former Department of Environment and Conservation (DEC) that was established in 1985, and continues DEC's former mandate by being vested with the powers to protect the environmental values of air, water, soil and biodiversity and the sustainable use of natural resources as mandated by the Fourth Goal of the National Constitution: "*Papua New Guinea's natural resources and environment to be conserved and used for the collective benefit of all and are replenished for the benefit of future generations*".

CEPA, as the key agency responsible for assessing, monitoring and mitigating the environmental and social impacts of developments in PNG, will play an oversight role and ensure that PPL implements the Project according to the directions set by the government, and the various acts and regulations that guide CEPA's mandates. Key among these are: the *Environment Act* 2000, *Environment (Prescribed Activities) Act* 2002; *Environment (Permits) Regulation* 2002*; and Conservation and Protection Authority Act* 2014*.* CEPA will play an important role under the *Environment Act* in evaluating and issuing the development consent for the Project and in monitoring the environmental impacts of the Project. **Figure 5** illustrates the EIA process followed under the *Environment Act* to permit projects

A major constraint faced by CEPA is the limited number of environment officers available to manage issues relating to ESIA for Level 3 (equivalent to World Bank Category A) projects in the country.

5.1.2 PNG Power Limited (PPL)

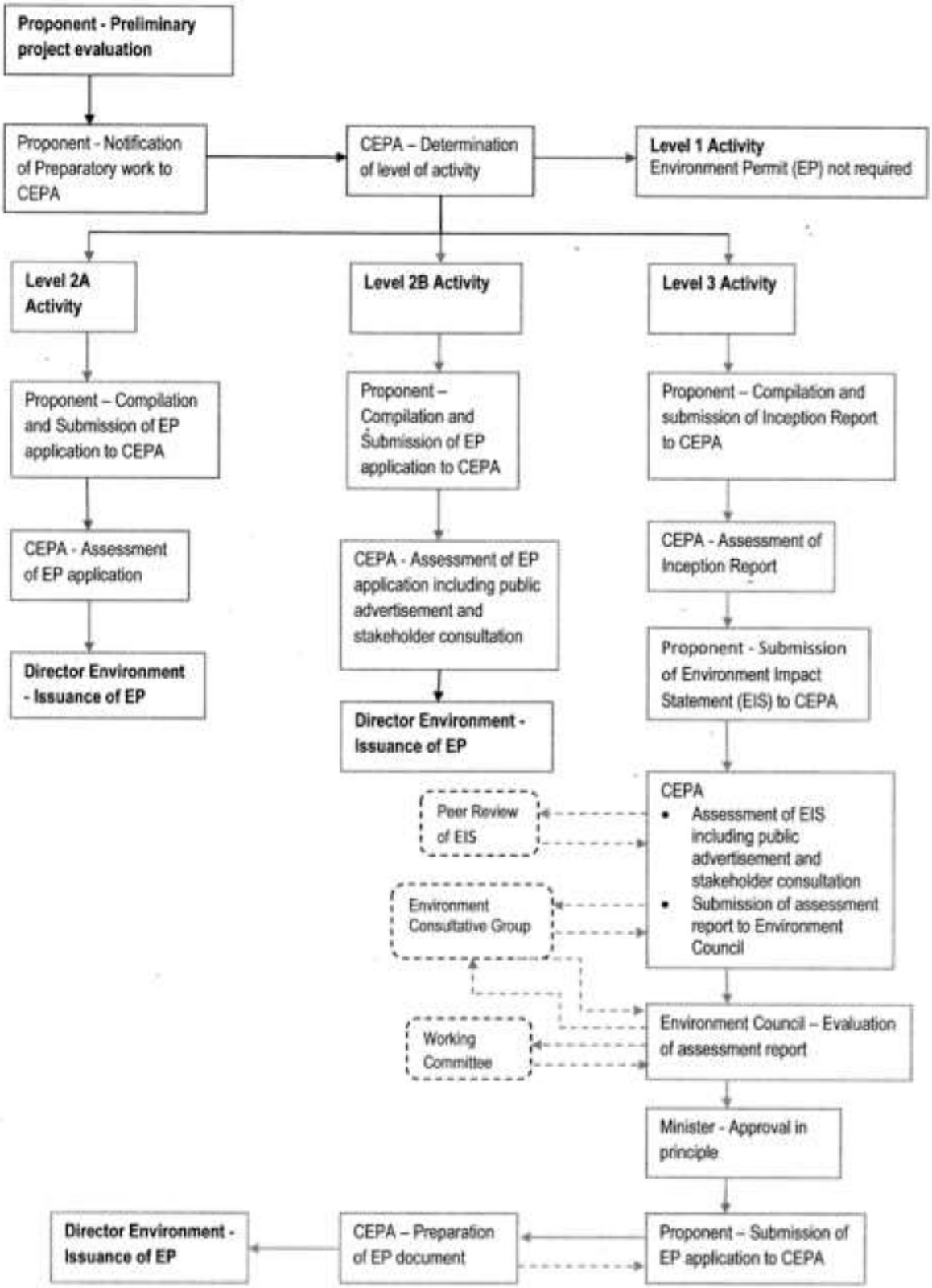
PPL (Company No 1-44680) was incorporated as a State Owned Entity (SOE) under Section 3 (1) of the Electricity Commission (Privatisation) Act 2002, and operates in accordance with the Companies Act 1997.

Kumul Consolidated Holdings Limited (KCHL) holds the shares for incorporated state entities as the trustee of the General Business trust. KCHL acts as the sole shareholder on behalf of the Government of PNG. The Minister for Public Enterprise and State Investments appoints a Board that reports to KCHL.

PPL is a fully integrated power authority responsible for generation, transmission, distribution and retailing of electricity throughout Papua New Guinea and servicing individual electricity consumers. PPL also fulfills a regulatory role on behalf of the Independent Consumer and Competition Commission

(ICCC). These responsibilities include approving licenses for electrical contractors, providing certification for models of electrical equipment and appliances to be sold in the country and providing safety advisory services and checks for major installations.

Figure 5 – Flowchart on EI A and Environmental Permitting Process (*Environment Act* 2000)



5.1.3 Department of Labour and Industrial Relations (DLIR)

The Department of Labour and Industrial Relations (DLIR) is tasked with the responsibility of promoting labour employment opportunities at a national level, to furnish employees with information on their rights through the Office of Labour Administration. It is entrusted with the responsibility of administering labour employment and industrial relations services of the country as outlined in various pieces of legislation and international conventions (e.g., International Labour Organisation [ILO]). Through the *Industrial Safety, Health and Welfare Act* 1961, DLIR is also responsible for providing occupational health and safety protection of workers.

DLIR is also responsible for ensuring that employers have no difficulty in recruiting qualified, skilled and experienced non-citizen workers where these skills cannot be found locally. Overall, DLIR has an obligation to ensure that the work permit system looks after the interests of Papua New Guineans.

5.1.4 Department of Lands and Physical Planning (DLPP)

The complex task of administering land lies with the Department of Lands and Physical Planning (DLPP). DLPP is responsible for promoting the best use of land in PNG in the interest of all citizens, individually and collectively by ensuring that an orderly process exists for sustainable economic and social developments and that land rights are guaranteed. Within DLPP there are eleven divisions that are responsible for various planning and land management issues. Those of greatest relevance to the Project include:

- **Physical Planning Division** – responsible for the spatial expression of the desired form of social and economic development. The purpose of physical planning is to establish and maintain a framework of physical planning nationwide, which aligns the ongoing conversion of land uses and spatial development with long term government objectives for sustainable economic and social development.
- **Customary Land Acquisition Division** – the Division is responsible for administering the process by which the State acquires land from its owners, following one of two possible modes of acquisition provided for under the *Land Act 1996* by which the Minister may acquire land on behalf of the State – Acquisition by Agreement and Compulsory Acquisition. Acquisition by Agreement can apply to Customary Land and Alienated Land for public purposes, reservation, wildlife and conservation, church and non-government organisations activities, economic and resource development, and business and private purposes.
- **Incorporated Land Groups (ILG) Division** – the Division is under the Customary Land Services within the DLPP. The core function of the Division is to register customary landowning units, giving them legal recognition under the *Land Groups Incorporation Act*, which empowers customary groups for greater participation in the national economy.

- **Land Administration (Alienated Land) Division** – the Division's corporate goals ensure efficient management of the State Land Leases with probity, and ensures that State Land is identified and made available to stakeholders through lease arrangements as and when required for approval purposes. It also ensures effective and efficient management of the State Land to ensure compliance as required under all land related legislation. The Division also facilitates the process of equitable allocation of land by the Land Board and ensures that State Land is made available when required for approved purposes by controlling squatting and unauthorised settlements. It also administers State Leases and ensures that lease covenants and conditions are observed.
- **Office of Registrar of Titles** – the Office's major function is to administer and provide reliable and accurate land information in PNG. It is also tasked with effectively and efficiently supporting services to provide an orderly process for land transactions. Further, the Office ensures that land rights are guaranteed and titles registered and issued are indefeasible. The Office of the Registrar of Titles was established under the *Land Registration Act* 1981, (Chapter 191).
- **Office of the Surveyor General** – the OSG is one of the core divisions of the Department of Lands and Physical Planning that looks after all land survey matters in PNG. The OSG also oversees the functioning of the Surveyors Board, which deals with the registration of all the surveyors practicing land surveying in PNG, and regulates all laws affecting the surveyors and the survey profession.
- **Office of the Valuer General** – The Office forms a division within the Department of Lands and Physical Planning. The functions of the office are defined in part, by the *Valuation Act* (and associated regulations), which establishes the Valuer General as a statutory position, with responsibility for administering Valuer registrations, the Valuer Registration Board, regulations for practice and maintenance of standards of valuing and valuation of properties for local government rating purposes. Overall, the Office of the Valuer General is to provide an effective and impartial valuation service and to conduct quality rating and taxing valuations for the DLPP and specific stakeholders throughout the assessment of current unimproved values and ensure there is consistency and integrity across all valuation in the Declared Valuation Areas.

5.1.5 Department of Petroleum and Energy (DPE)

The Department of Petroleum and Energy (DPE) is responsible for administering and regulating all petroleum and energy related projects within PNG. The aim of DPE is to support the Government of PNG's efforts to develop the country's energy resources, including discovered and potentially discoverable petroleum resources, by promoting, monitoring and regulating all activities directly associated with petroleum and energy development.

5.1.6 Ministry of Tourism, Arts and Culture (MTAC)

The primary role of the Ministry of Tourism, Arts and Culture (MTAC) is to develop, protect and promote PNG's culture, art and heritage. Cultural heritage is the responsibility of the National Museum and Art Gallery of PNG.

The Office of Tourism, Arts and Culture (OTAC) has been established as a policy secretariat under MTAC. OTAC's two main functions are policy formulation and coordination of the line agencies PNG Tourism Promotion Authority (PNG TPA), National Cultural Commission (NCC), and the National Museum and Art Gallery (NMAG). These functions are in line with the strategic directions as set out in the Vision 2050, DSP 2010 - 2030 and the MTDP 200-2015 where 'Papua New Guinea will grow the manufacturing, services, agriculture, forestry, fisheries and tourism sectors from 2010 to 2050.

In the event that cultural artefacts are encountered as chance finds during project implementation, the National Museum will be contacted.

5.1.7 Department of Treasury (DoT)

The role of the Department of Treasury (DoT) is to: undertake research and provide advice to GoPNG on economic issues; provide advice on financial issues that arise from the National Budget; prepare and monitor the National Budget; and provide policy advice on the finance and resource management of national government departments, provincial and local level government and state owned enterprises. DoT will be active in structuring and sourcing the financing for the Project.

5.1.8 Department of Agriculture and Livestock (DAL)

The Department of Agriculture and Livestock (DAL) is the lead Government of PNG agency responsible for the management of the agriculture sector in PNG. Its mandate is to provide policy advice and technical and administrative support for optimal performance of the sector. DAL aims to promote improvement and expansion of food crops and livestock programs and projects in a bid to assist the people of PNG in meeting their local requirements in nutrition and household food security. DAL also strives to promote innovative strategies aimed at increasing food production for both local and global markets.

While DAL is not likely to have any direct inputs to the Project, development activities to compensate for impacts on livelihoods could be agriculturally based and, therefore, their inputs in any such initiatives will be important.

5.1.9 Forestry Authority[7] (FA)

The PNG Forestry Authority (FA) was established in 1993 under the *Forestry Act* 1991 replacing the former Department of Forest, and unifying all Provincial Forest Divisions and the Forest Industries Council. The FA has 19 provincial offices, which include five regional offices. It's mission statement indicates that it is to: "*promote the management and wise utilization of the forest resources of Papua New Guinea as a renewable asset for the well-being of present and future generations*".

[7] Also referred to as the Forest Authority

5.1.10 Public Solicitors Office

The Public Solicitor and his Office were established as a branch of the then Law Department on 14 April 1958. At Independence, on the advice of the Constitutional Planning Committee, the Office of the Public Solicitor was established as an independent constitutional office.

The Public Solicitor and his Office have the mandate to provide legal assistance so that everybody in PNG has access to the Law Court. Presumably, this includes legal assistance and representation with free legal advice sessions and formal representation to landowners across the country.

5.1.11 Provincial Governments

The Organic Law on Provincial Governments and Local-level Governments provides certain powers with respect to local government in accordance with section 187B of the Constitution. The Organic Law defines the system, structure and composition of government, requirements for compliance with the PNG constitution, the roles, responsibilities and administrative functions of elected and appointed officials, law making powers, taxation policies, and monitoring and auditing functions for provincial and local-level governments.

5.1.12 Civil Society / Non-government Organisations (NGOs)

There is a range of civil society groups and non-government organisations (NGOs), some of whom may take an interest in the Project, including review of the Component 1 – Technical Assistance on Least Cost Power Development Plan Development and Implementation – specifically, the ESIA developed for the Naoro-Brown HPP subcomponent, and the proposed highlands gas-to-power subcomponent, and review of Component 3 – Urgent Rehabilitation / Upgrade of PPL Infrastructure, which may involve minor rerouting of MV transmission lines that affect customary land holdings.

According to JICA[8], "*the level of involvement of NGOs in environmental policy making in Papua New Guinea has been minimal. However, NGOs have been very effective in expanding environmental awareness and education. They have also been successful in mobilizing and galvanizing public support for many environmental causes.*"

5.2 PNG Policies, Acts and Regulations

5.2.1 Domestic Regulatory Requirements

PNG policies and legislation that apply to environmental and social aspects of the Project are summarized in **Table 3**.

[8] 2002, Japan International Cooperation Agency. PNG Country Profile on Environment. JICA Planning and Evaluation Department.

Table 3 – Relevant PNG Policies, Acts and Regulations

Policy, Act or Regulation	Main Objectives
Constitution of PNG	The PNG constitution includes national goals and directives that outline the aspirations and principles for the development of the nation. The fourth of these national goal and directive principles states: *We declare our Fourth Goal to be for Papua New Guinea's natural resources and environment to be conserved and used for the collective benefit of us all, and be replenished for the benefit of future generations.* The constitution is supported by a legislative and policy framework that ensures that proposed developments assess, reduce and manage any residual social and environmental impacts such that they are as low as practicable. The Constitution provides additional safeguards for the compulsory acquisition of customary land (s.53 – Protection from unjust deprivation of property [5.e]; s.54 – Special provision in relation to certain lands [b]).
PNG National Energy Policy (2018 – 2028)	The Policy, approved by the National Executive Council, outlines the National Government's policies for the planning and management of the energy sector over the next 20 years. The Policy promotes the establishment and maintenance of the safe and efficient system of electricity generation, transmission, distribution and supply, and will also enforce proper standards of safety reliability and quality in the electricity supply industry, under the direction of a National Energy Authority.
Oil and Gas Act 1998	The Act is the principal legislation governing the exploration, development, processing and transportation of petroleum in PNG. It is administered by the Department of Petroleum and Energy (DPE). The Act defines five types of licenses, of which only one (Pipeline License) may be required for the gas-to-power subcomponent of the Project. The Act recognises the authority of the *Physical Planning Act 1989*, and links to the *Petroleum Act 1978*.

Environment Act 2000 (with amendments to 2015), Environment (Prescribed Activities) Regulation 2002, Environment (Permits) Regulation 2002, and *Conservation and Environmental Protection Authority Act* 2014	The *Environment Act 2000* and its Environment Regulations encompass a number of processes, and procedures and, with the Conservation and Environmental Protection Authority Act, established an institution (Conservation and Environmental Protection Authority [CEPA]), to regulate them. The following key issues are addressed by the legislation:
	• Provides protection of the environment in accordance with the Fourth National Goal and Directive Principle (National Resources and Environment) of the Constitution.
	• Identifies Matters of National Importance, including:
	  ○ Preservation of PNG traditional social structures;
	  ○ Maintenance of clean water and subsistence food sources; for those who depend upon them to maintain traditional lifestyles;
	  ○ Protection of areas of significant biological diversity and the habitats of rare, unique or endangered species; recognition of the role of land-owners in decision-making about the development of the resources on their land; and
	  ○ Responsible and sustainable development.
	• Regulates environmental impacts of development activities to promote sustainable development of the environment and the economic, social and physical well-being of people.

Policy, Act or Regulation	Main Objectives
	• Provides for the protection of the environment from environmental harm, by defining prescribed activities for which an Environmental Impact Statement must be prepared, and sets out the procedures for undertaking and approving Environmental and Social Impact Assessments. • Develops requirements for robust stakeholder engagement processes through public consultation as part of assessment and in the decision making process. • Requires the formulation of appropriate environmental and social safeguards as part of the environment and social impact assessment process. • Requires environmental monitoring of the development (section 31) The Act links to the *National Park Act 1984*. The *Environment Act 2000* and the Environment (Prescribed Activities) Regulation of 2002 require development consent for prescribed activities to be obtained from the Department of Environment and Conservation (DEC). A development consent application must include an environmental assessment that complies with the Environment Act and Environment (Prescribed Activities) Regulation requirements. Various subcomponents of Component 1 of the Project (e.g., Naoro-Brown HPP; gas-to-power project) are defined as prescribed activities under s.42 of the Act, and s.3 and schedule 2 of the Prescribed Activities Regulation and, therefore, require the preparation and submission of an Environment Impact Statement (EIS) through the Environment and Social Impact Assessment (ESIA) Process. The following category of activities require submission and approval of an EIS: • 14.1 – activities involving investment of a capital cost of more than K50 million; • 14.3 – activities that will involve the discharge, emission or deposit of hazardous contaminants; • 14.4 – activities that may result in a significant risk of serious or material environmental harm within Wildlife Management Areas, Conservation Areas, National Parks and Protected Areas or any area declared under the provisions of an International Treaty to which PNG is a party; • 18.1 – recovery, processing, storage or transportation of petroleum products requiring the issue of a . . . Pipeline License under the Oil and Gas Act 1998; and • 19.1 – construction of major hydropower schemes or water supply reservoirs inundating an area greater than $5km^2$.
National Park Act 1978 (with amendments to 2015)	The Act stipulates the protection of fauna and flora, scenic beauty, historic remains, and cultural, educational and scientific values of nature. It stipulates land leasing and trust management for possessing government-controlled land and environmental conservation. The Act designates protected areas, including national parks and reserves, and is a basic law concerning the management of national parks along with the Conservation Areas Act.
Conservation Areas Act 1980 (with amendments to 2015)	The Act provides for setting up the National Conservation Council for the purpose of recognizing protected areas and giving management guidance as well as establishing the Management Committee for protected areas, the latter of which is responsible for making and implementing

Policy, Act or Regulation	Main Objectives
	management plans. It stipulates the establishment of a system for terrestrial and marine conservation areas and the protection of lands owned by the government of PNG and individuals. It also provides for the survey of customary land possession, negotiation and acquisition.
Crocodile Trade (Protection) Act 1982	The Act provides for all activities related to crocodile farming, including catches, approved sizes for capture, feeding and export licenses.
Fauna (Protection and Control) Act 1974 (with amendments to 2015)	The Act regulates the capture, possession and sale/purchase of wild animals regardless of the areas designated by the Minister of Environment and Conservation and land title. It designates fauna protection areas called Wildlife Management Areas, Nature Preserves and protected areas. Within the designated areas, customary landowners are prohibited from excessive harvesting of biological resources, biological diversity is protected, the rights to land and resources are formerly approved, opportunities to gain profits are provided, cultural values are protected, and opportunities for scientific study and education are provided.
Fauna (Protection and Control) (Lake-Kutubu Wildlife Management Area) Rules (Chapter 154) 1977	The Rules establish policies and procedures for developments around Lake Kutubu which, in 1998 became PNG's second Ramsar listed wetland. The site includes approximately 1,000 hectares of swamp forest, a wetland type subject to international concern.
International Trade (Fauna and Flora) Act 1983	The Act regulates the export and import of wildlife and related commodities, and fulfills the requirements of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES).
Forestry Act 1991 (with amendments to 2010)	The Act stipulates the protection and management of forest resources. The Government of PNG purchases the rights to felling timber from customary landowners and then licenses private companies to cut the trees, with royalties to be paid to local governments and landowners. An agreement on environmental protection must be made between the government and the licensees. Felling and yarding is banned within 20m from rivers (within 50m in the case of large rivers), and felling and yarding is banned in any area with slope of over 25 to 30 degrees. Licenses for reforestation are to be obtained with prior approval from the landowners.

Industrial Safety, Health and Welfare Act 1961 (and associated Industrial Safety, Health and Welfare Regulation 1965)	The Regulation specifies working conditions for employees, including:
	PART V – CONDITIONS OF WORK.
	• Division 1 – General Provisions.
	  ○ 29. Cleanliness, space and ventilation.
	  ○ 30. Meals.
	  ○ 31. Sanitary and ablution facilities.
	  ○ 32. Means of access.
	  ○ 33. First-aid facilities and personnel.
	  ○ 34. Notification of disease or injury.
	• Division 2 – Particular Provisions.
	  ○ 35. Dangerous work.
	  ○ 36. Installation, operation and maintenance of boilers, etc.
	  ○ 37. Clothing, etc., of employees working with machinery.
	  ○ 38. Ventilation, etc., in certain kinds of work.
	  ○ 39. Protection from dust, fluff, fumes, etc.
	  ○ 40. Work in confined spaces.

Policy, Act or Regulation	Main Objectives
	○ 41. Particular safety responsibilities of employees. • Division 3 – Industrial Safety Orders. ○ 42. Declaration of dangerous trades, occupations and processes. ○ 43. Orders. ○ 44. Application of declarations of dangerous trades and industrial safety orders.
Workers Compensation Act 1978	The Act deals with worker compensation in the event of a work-related injury, occupational diseases or death, as well as employer liability, handling claims and compensation payments.
Environment (Water Quality Criteria) Regulation 2002	Schedule 1 of the regulation sets water quality criteria for aquatic life protection, in accordance with the *Environment Act 2000*, and sets monetary penalties for exceeding these criteria.
Land Act 1996	The Act identifies that all land within PNG, other than customary land, is the property of the State, and the State can acquire customary land under this Act, whether by agreement or by compulsory process. Customary land cannot be leased and, therefore, must first be alienated by the State in accordance with the Act, either by compulsory or voluntary means, before the land can be leased for a Project. Under the lease/lease provision, the maximum term of the lease is 99 years. Customary landowners are to be compensated by the State for alienation of their land.
Land Groups Incorporation Act 1974 (with amendments to 2009)	The Act provides for the survey of groups of customary landowners, the confirmation and organization of social units to manage the major title to land, and their observation of PNG laws. It defines Incorporated Land Groups (ILGs) as groups of customary landowners who manage their own lands in accordance with customs and laws. The group as a customary community is entitled to possess, manage and trade land.
Land Disputes Settlement Act 1975 (with amendments to 2000	The Act provides a just, efficient and effective machinery for the settlement of disputes in relation to interest in customary land. Each province has a Provincial Land Disputes Committee. The Chairman of this committee is the Senior Provincial Land Magistrate. Members of the committee include the Provincial Commissioner or his Deputy, an Officer of the Department appointed by the Departmental Head and two persons appointed by the Provincial Authority. The Committee can declare Land Mediation Areas and Land Mediation Divisions, appoint Land Mediators and approve the appointment of Local Land Magistrates. If an agreement is reached between the parties to a dispute, then the Land Mediator informs the nearest Local Land Court and provides a copy of the terms of the agreement to the Court. Upon receipt of the copy of the agreement and before approving the agreement, the Local Land Court will make sure the parties fully understand the terms of agreements and that the agreement is not in breach of any law, and is not contrary to natural justice or public policy.
Physical Planning Act 1989	The Act incorporates a comprehensive mechanism for physical planning at national and provincial levels of government and empowers government to plan and regulate physical development. The Act applies to towns, the National Capital District and areas deemed to be physical planning areas of national interest. Further, it establishes the Office of the Chief Physical Planner to administer the Act.

Policy, Act or Regulation	Main Objectives
Valuation Act 1967	The Act sets out the requirements for Land Valuers and their registration and certification, the process for Valuing property, and the appeals process.
Organic Law on Provincial Governments and Local-level Governments (1995 with amendments to 2014)	The Organic Law empowers each Provincial Government and Local-level Government, public authority or agent to carry out specific duties or functions. Those of interest to the Project include: ensuring the proper use and care of all public properties; accountability in the use of public finances, properties and as public power; recognising human rights as recognised and enforced by PNG law; and striving to achieve the Fourth National Goal (Natural Resources and Environment) of the National Goals and Directive Principles of the Constitution. Further the Organic Law directs that the wealth generated by lawful exploitation of any natural resources be equitably distributed by the National Government, the Provincial Governments and Local-level Governments for the benefit of resource owners and all levels of governments, and that all levels of government and governmental bodies recognise traditional land rights and other rights and ensure that adequate compensation is made for the loss of such rights.
National Cultural Property (Preservation) Act 1965	Administered under the Ministry of Tourism, Arts and Culture, the Act defines cultural property, prescribes means of protecting it, and prohibits/restricts its acquisition, destruction, importation and exportation.

5.2.2 International Environmental and Social Treaties

A number of international environmental and social treaties have been signed and ratified by the Government of PNG, and were analysed for their applicability to the Project (see **Annex D**). The following treaties have a potential bearing on the Project. These include:

- UN Convention on Biological Diversity (UNCBD) – its purpose is to conserve biological diversity through the sustainable use of its components and the fair and equitable sharing of the benefits arising out of utilizing genetic resources. It is potentially applicable if subcomponents of Component 1, including Naoro-Brown HPP and possibly gas-to-power project affect areas of potentially high biodiversity.
- Ramsar Convention on Wetlands of International Importance – its purpose is to ensure conservation and sustainable use of wetlands, especially as waterfowl habitat. It is potentially applicable to the Project if wetland fens located in the upper Naoro River will be affected by Naoro-Brown HPP reservoir, or if a gas-to-power project is sited near the existing Kutubu Central Gas Processing Facility such that it affects Lake Kutubu.
- International Plant Protection Convention – its aim is to prevent and control introduction and spread of pests of plants and plant products. It is potentially applicable if equipment or building materials contaminated with invasive plant materials or insects are brought in from outside the Naoro-Brown HPP or gas-to-project areas, and are released into the local ecosystems.
- World Cultural and Natural Heritage Convention – Its purpose / aim is the protection and management of cultural and natural heritage. It is administered by the PNG National Museum and Art Gallery under the Ministry of Tourism, Arts and Culture. It is potentially applicable if

cultural heritage resources are encountered during construction of the Naoro-Brown HPP, and the selected gas-to-power project. A chance-find procedure will be implemented for Project.

- United Nations Framework Convention on Climate Change (UNFCCC) – Its purpose / aim is to set an overall framework for intergovernmental efforts to tackle the challenges posed by climate change. It is administered by the PNG Department of Environment and Conservation. It is relevant since the Project will burn fossil fuel for electricity production if the selected gas-to-power project proceeds.
- Paris Agreement (within the UNFCCC) – it deals with GhG emissions mitigation, adaptation and finance, starting in 2020. It is potentially applicable for the same reasons that the UNFCCC is potentially applicable (i.e., production of GhG from burning natural gas to produce electricity).
- United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) – enshrines the rights that "constitute the minimum standards for the survival, dignity and well-being of the indigenous peoples of the world." The UNDRIP protects collective rights that may not be addressed in other human rights charters that emphasize individual rights, and it also safeguards the individual rights of Indigenous people.

6. WORLD BANK SAFEGUARD POLICIES

The World Bank's environmental and social safeguard policies and procedures are a foundation to achieve sustainable poverty reduction. The objective of the policies is to prevent and mitigate undue harm to people, their livelihoods and their environment in the development process. Some of the policies are triggered because the Project will involve various physical investments, particularly for the Naoro-Brown HPP (carried over from the previous Energy Sector Development Project [ESDP]), and a possible gas-to-power project, if PPL decides to proceed with these subcomponent projects. The Naoro-Brown HPP would involve construction of a dam, powerhouse, roads, and transmission line, whereas a gas-to-power facility would involve construction of a gas-fired generating station, gas pipeline, roads, and transmission line. These subprojects would be located on lands acquired from customary landowners, on land identified and provided by the communities (based on willing buyer-willing seller, negotiated lease/license or other agreed and documented arrangement).

6.3.1 OP/BP 4.01 Environmental Assessment

The proposed project requires Environment Assessment to ensure that it is environmentally sustainable. OP 4.01 (Environment Assessment) sets out the general policies and principles for environmental and social protection for projects wholly or partly financed by the World Bank and requirements for assessment of impacts and implementation plans, and measures to mitigate or manage impacts. OP 4.01 has been used to classify the project category. The TA work under Component 3 of the Project will relate to a complex project including additional technical support for the Naoro-Brown HPP and a gas-to-power project. Although the work under the EUPRIP will not comprise any physical works, the scale and complexity of the projects for which detailed preparation and feasibility work will be undertaken during implementation (and the potential significant adverse environmental and social impacts such TA work will need to identify, screen, scope, assess and manage) means the project is a Category A project under OP4.01.

It is important to note that the project is Category A only because of this TA work, and not because of any physical investments proposed under the Project.

For Component 1, rehabilitation works will be carried out within existing facilities operating under existing approvals. Minor rerouting of MV transmission line segments (0.5km to 1km are expected to follow existing public rights-of-way. Therefore, no ESIA is anticipated. However, an ESMP, CoP, or ARAP may be required for this subcomponent if works need to be conducted on customary lands.

6.3.2 OP/BP 4.04 Natural Habitats

OP 4.04 ensures that the development process supports the protection, maintenance and rehabilitation of natural habitats and their functions. The World Bank recognizes that natural habitats, like other measures that protect and enhance the environment, are essential for long-term sustainable development. The World Bank does not support projects that involve significant conversion of natural habitats unless there are no feasible alternatives, and then only where acceptable mitigation measures are employed. Efforts must be made to avoid significant conversion or degradation of critical natural habitats. For the TA work in Component 3, this will be managed via the requirement to address these issues in the ToR for the proposed studies.

The other components with physical impacts will not affect natural habitats within the respective subproject settings, either because they do not involve any physical works, or the physical works will be carried out on sites that have already been anthropogenically altered.

6.3.3 OP/BP 4.36 Forests

The management, conservation and sustainable development of forest ecosystems and their associated resources are essential for lasting poverty reduction and sustainable development. The World Bank does not support projects that involve significant conversion or degradation of critical forest areas, or related critical natural habitats that forests may provide.

Two subcomponents of Component 3 of the Project (i.e., Naoro-Brown HPP; and a new gas-to-power project) have the potential to adversely affect forest ecosystems, if PPL elects to proceed with these subcomponents. Accordingly, the need to fully assess these impacts will be incorporated into the ToR for this work to be undertaken during implementation.

The remaining activities will not affect forest ecosystems within the respective subproject settings, either because they do not involve any physical works, or the physical works will be carried out on sites that have already been anthropogenically altered.

6.3.2 OP/BP 4.11 Physical Cultural Resources

Physical cultural resources are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community. They are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. Efforts must be made to avoid or mitigate adverse impacts on physical cultural resources from development projects that the World Bank finances.

Two subcomponents of Component 3 of the Project (i.e., Naoro-Brown HPP; and a new gas-to-power project) may adversely affect physical cultural resources given the size and location of project footprints that will overlay lands that are relatively undeveloped. The investments directed at the other components under the Project will not affect physical cultural resources, either because they do not involve any physical works, or the physical works will be carried out on sites that have already been anthropogenically altered. Notwithstanding the above, a chance find protocol (see **Section 8.2**) will be implemented for the Project, in the event that any physical cultural resources are encountered.

6.3.3 OP/BP 4.10 Indigenous Peoples

OP 4.10 ensures that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples (IP). The World Bank recognizes that the identities and cultures of IP are inextricably linked to the lands on which they live and the natural resources on which they depend. These distinct circumstances expose IP to different types of risks and levels of impacts from development projects, including loss of identity, culture, and customary livelihoods, as well as

exposure to disease. IP are defined under OP 4.10 as distinct, vulnerable, social and cultural groups possessing the following characteristics in varying degrees:

- self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
- collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
- customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and
- an indigenous language, often different from the official language of the country or region.

As IP will be among the primary beneficiaries of the Project and be the overwhelming majority of people in the project areas, no IPP needs to be developed for this project. Rather, IP will be consulted and their issues considered in project design.

Where there is potential for IPs to be affected by a subproject, the policy requires:

- a process of free, prior and informed consultation (an inclusive, transparent, and continuing process of consultation with affected Indigenous Peoples);
- a social assessment by the borrower to evaluate the project's potential positive and adverse effects on Indigenous Peoples, and an examination of project alternatives where adverse effects may be significant;
- a summary judgment by the Bank that affected Indigenous Peoples have provided broad community support to a proposed project;
- preparation of an Indigenous Peoples Plan (IPP) guided by the Indigenous Peoples Planning Framework (IPPF)[9] (**Annex E**);
- public disclosure of the social assessment report and the relevant safeguard instrument;
- attention to emerging issues affecting Indigenous Peoples / Ethnic Minorities, which may include, for example: an action plan for the legal recognition of Indigenous lands and territories; equitable benefits in commercial development of natural resources; or prior agreement to the commercial development of their cultural resources and knowledge.

6.3.4 OP/BP 4.12 Involuntary Resettlement

Involuntary resettlement refers to management of adverse impacts or loss of, or damage to, land, assets or livelihoods, where land is compulsorily acquired. It is not expected that any works under Component 1 will involve involuntary resettlement to any degree. Only Component 3 of the project will involve physical works that may have a resettlement component,

Both the Naoro-Brown hydropower and selected gas-to-power subproject of Component 3 – Least Cost Power Development – will involve major civil works and varying degrees of impacts on land. It can be expected that a range of land access arrangements will be applied to these subprojects. The project funded feasibility and impact assessment work will be defined by ToRs which establish the

[9] Note: the World Bank has determined that this is not required for the current project

minimum requirements for this TA work. These ToRs would be prepared by PPL and cleared by the World Bank.

Involuntary land acquisition in PNG is extremely time consuming and can lead to social unrest and substantial project delays. Therefore, land acquisition is considered by PPL as a measure of last resort. Because of the associated complexities, and the very small scale of impacts associated with Component 1 works, PPL will make every effort to avoid compulsory land acquisition. It is expected that the land required for works under Component 3 will be able to be accessed via customary land by agreement, following a willing seller/willing buyer arrangement or use the government's lease/lease back process. The process that PPL will follow for accessing customary land by agreement is summarized in **Annex F**.

PPL will scope and design subprojects that require land acquisition in close collaboration with project-affected communities. In accordance with World Bank policy, a Resettlement Policy Framework (RPF) has been included in this ESMF (**Annex G**) to provide guidance where involuntary land acquisition is contemplated. **Annex G, Appendix 2** is a checklist for preparing and ARAP.

Another means of acquiring land for the Project is through voluntary land donation (VLD), although this is not envisaged since it is not a procedure used by PPL. Nonetheless, it is mentioned here in case the opportunity arises to acquire land in this manner. The process would come about where a landowner (or ILG) would like to donate his/her land voluntarily to the Project, or allow it to be used for the Project. The ESMF provides procedures for acquiring access to the land through the VLD protocol, as well as the procedure for entering into a land use agreement. (**Annex G, Appendices 1 and 3; and Annex H**).

Most subcomponents of Component 1 – Urgent Rehabilitation / Upgrade of MV Systems will be undertaken on sites owned by PPL. The possible exception is rerouting short (0.2km to 1km) sections of MV transmission lines. Wherever possible, PPL will use existing publicly owned rights-of-way (e.g., existing transmission or road corridors), or private industrial lands on which PPL can negotiate an easement. In the unlikely event that land is required for transmission line rerouting, land acquisition will be limited to the footprint for power pole installations, with compensation for land acquired paid accordingly. Likewise, compensation will be paid in the event that trees, crops or structures are to be removed to site poles or run conductor wires.

6.3.5 OP/BP 4.37 Safety of Dams

When the Bank finances a project that includes the construction of a new dam, it requires that the dam be designed and its construction supervised by experienced and competent professionals. It also requires that the borrower adopt and implement certain dam safety measures for the design, bid tendering, construction, operation, and maintenance of the dam and associated works.

For large dams (>15m high), the World Bank requires:

a. reviews by an independent panel of experts (the Panel) of the investigation, design, and construction of the dam and the start of operations;
b. preparation and implementation of detailed plans: a plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an

emergency preparedness plan;

c. prequalification of bidders during procurement and bid tendering, and
d. periodic safety inspections of the dam after completion.

The above will apply to the TA work for Naoro-Brown HPP,, which at roughly 20m high, will qualify as a new 'large dam'. Dam safety is covered in the existing studies for the Naoro-Brown HPP and a Panel of Experts has been appointed.

With respect to the potential funding of TA for the rehabilitation of the Rouna and Ramu hydropower facilities, it is noted that OP04.37 applies to projects that rely on the performance of an existing dam, e.g. power stations that draw directly from a reservoir controlled by an existing dam, as is the case here.

The Bank requires that the borrower arrange for one or more independent dam specialists to (a) inspect and evaluate the safety status of the existing dam, its appurtenances, and its performance history; (b) review and evaluate the owner's operation and maintenance procedures, and (c) provide a written report of findings and recommendations fro any remedial works or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety. The Bank may accept previous assessments, under certain conditions.

When substantial remedial work is needed, the Bank requires that (a) the work be designed and supervised by competent professionals, and (b) the same reports and plans as for a new Bank-financed dam be prepared and implemented. For high-hazard cases involving significant and complex remedial work, the Bank also requires that a panel of independent experts be employed on the same basis as for a new Bank-financed dam.

6.3.6 OP 4.09 Pest Management

The World Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank-financed projects, the borrower addresses pest management issues in the context of the project's environmental assessment. Where a project will involve pest management, the Bank assesses the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management.

The Naoro Brown HPP ESIA has determined that there are a number of invasive species present downstream of the proposed dam at Edevu, and that there is a risk that these will be transported to the project area during the construction works. Invasive pest species may have to be eradicated using a variety of appropriate methods, which may include chemical pesticides. Hence, this policy is triggered.

7. E&S SCREENING OF SUBPROJECTS AND SAFEGUARD INSTRUMENTS

PPL, supported by its consultants, where applicable, will be responsible for undertaking environmental and social screening of project subcomponents (i.e., subprojects). The Following process will be applied:

Identify Subproject Concept and Candidate Sites – potential candidate sites for the gas-to-power project will be identified by PPL, which will identify: size of site required; minimum site parameters to satisfy subproject development; potential site locations; and preferred timeframe for completion.

Conduct Desktop Review of Candidate Sites – based on the concept level information provided, environmental and social specialists from PPL (or its sub-consultants) will obtain and review existing available information on the candidate sites. The review will provide an initial indication of the potential environmental and social issues that may favour some sites over others. At the very least, the team will be better prepared for conducting visits to the candidate sites.

Conduct Visits to Candidate Sites – PPL's environmental and social specialists, accompanied by engineering staff, will visit each of the candidate sites to conduct a rapid environmental and social screening evaluation of each site, and its surroundings. Key environmental resources and social attributes will be identified for each potential development site, as well as for new or upgraded infrastructure that would also need to be developed to support the site, including access roads, transmission lines, gas pipelines, water supplies, etc. The site visits will also provide the opportunity to identify any "red flag" issues that would preclude a site from any further consideration.

Consult with Local Community Authorities and Leaders – while in the field, the team will meet with local government and community leaders to review the candidate sites being considered. The objective of these meetings would be to gather more information on the location of sensitive environmental areas or areas of biodiversity concern, proximity of communities to the candidate development site, the presence of indigenous peoples, and other matters related to social conditions.

Complete Summary Environmental and Social Screening Matrix – information obtained from the desktop review and the visits to the candidate sites will be incorporated into a screening matrix that summarises the environmental and social issues and concerns for each candidate site. For each candidate site, the character of the receiving environment, potential impacts to valued environmental and social components, resilience of natural and human environments to cope with change, and degree of government regulatory agency and community interest or concern, will be summarized. The likelihood of adverse impacts and likely impact ratings will be identified so that suitable environmental and social safeguard instruments can be chosen. An example environmental and social screening matrix is included as **Annex K**.

Rank Candidate Sites Based on Environmental and Social Screening – the pros and cons will be listed for each candidate site from an environmental and social perspective, and each site will be ranked from most preferred to least preferred, based on the potential severity of concerns or issues. In particular, any "red flag" issues will be identified that could prevent a site from being approved by government regulatory agencies or raise significant objections from nearby

communities or residents, such that the likelihood of a given subproject proceeding at the location in question is low.

Prepare Environmental and Social Screening Report – the evaluation process, findings and recommendations (with rationale) will be recorded for site screening in a brief screening evaluation report, to which the completed rapid appraisal checklists and summary screening matrices and related documents (Google air photos, maps, photographs, etc.) will be appended.

Present Findings to Other Members of Screening Team – the findings of the environmental and social screening will be presented to the other members of the team (engineering, financial, legal, etc.). A recommendation will be made regarding the ranking of sites based on the environmental and social criteria. These criteria, along with other site selection criteria (engineering, financial, legal, etc.), will be used to come up with an overall ranking of candidate sites. A written recommendation will then be made to senior management regarding the preferred site(s) and rationale for selection.

8. GAP ANALYSIS

This section identifies gaps that appear to exist between PNG policies and legislation, and the World Bank's safeguard policies. Where identified, the processes will be harmonized so that the requirements of PNG and the World Bank will be met with any safeguard instruments that are prepared.

Table 4 outlines the gaps that exist between the World Bank Operational Policies (OPs) and the PNG laws and regulations. In all instances where PNG legislation is not fully equivalent with World Bank OPs the latter will prevail.

Table 4 – Regulatory Gap Analysis

OP Requirement	PNG Equivalent	Equivalence
Environmental Screening. Projects categorised as A, B or C.	Projects are screened and categorised as Level 1, 2A, 2B and 3.	Fully equivalent. These are broadly equivalent to the WB Cat A, B and C projects.
Cat B projects require the preparation of either an ESIA if the sub-projects are not known or an ESMP if the sub-projects impacts are similar and not likely to involve serious impacts.	Level 2B projects require a Permit Application which includes the same requirements for baseline environmental assessment and an EMP.	Fully equivalent.
An EMP that includes mitigation measures, allocation of responsibilities, costs and reporting requirements.	Level 2B activities require an EMP that includes mitigation measures, allocation of responsibilities, costs and reporting requirements.	Fully equivalent
Monitoring is required that includes a monitoring framework that allocates location, frequency, costs and responsibilities,	Monitoring is required but there is no specified framework provided.	Partially equivalent.
Public consultation required for Category B projects	Level 2B only require consultation under special circumstances.	Partially equivalent.
Disclosure is required	Disclosure is not required.	Not equivalent.
Institutional capacity and training requirements are assessed.	Not required.	Not equivalent.
IPP or IPPF is a requirement	No equivalent legislation.	Not equivalent.

OP Requirement	PNG Equivalent	Equivalence
Involuntary resettlement (specifically treatment of informal settlers)	No mention of informal settlers. Section 145 of the *Land Act* 1996 makes it an offence to unlawfully enter or occupy Government or customary land.	Not equivalent.
Disclosure to IP	No equivalent legislation.	Not equivalent.

9. MEASURES TO ADDRESS ENVIRONMENTAL AND SOCIAL ISSUES

The following measures are proposed to mitigate the environmental and social impacts that were identified in sections 4.2 and 4.3, respectively. Physical works to be supported by the Project which could present E&S impacts and risks are very limited and comprise minor and manageable impacts associated with replacement of transformers in existing substations, restringing of conductors on existing LV power lines and the rerouting of sections of the MV distribution line network if this involves land acquisition. A summary of environmental and social mitigation measures is provided in **Table 5** below.

9.1 Environmental Mitigation Measures

Vegetation and wildlife: Vegetation provides protective ground cover (see erosion and sedimentation below), as well as habitat for local wildlife. Where possible, vegetation and wildlife should be protected as follows:

- Remove only the amount of vegetation required to provide a footprint for the facility.
- Retain vegetation that does not pose an electrical hazard, or danger to a transmission or distribution line;
- During operation, use mechanical (as opposed to herbicide) methods of controlling vegetation along fence lines, along road margins, and along pipeline and transmission line rights-of-way.

Surface water and groundwater: To prevent contamination of surface water and groundwater, the following measures should be implemented:

- Store fuels, lubricants and other toxic liquids in sturdy containers (e.g., drums or tanks) on impermeable surfaces under cover and within secondary containment areas;
- Dispose of wastes having the potential to contaminate soil, surface water or groundwater in an approved manner. This includes domestic sewage associated with construction camps and facility offices and residences during operation;
- Immediately contain and cleanup any spills of toxic substances; and
- Ensure that a fully stocked, fit-for-purpose spill prevention cleanup kit is stored on each site.

Dust and emissions: There are a number of good engineering practices that can be employed to ensure that dust and vehicle related air quality emissions impacts are mitigated during construction of Component 3 activities. These include:

- Water down non-sealed roads and construction areas to keep dust from being generated;
- Ensure that all vehicles transporting potentially dust-producing material are not overloaded, are provided with adequate tail-boards and side-boards, and are adequately covered with a

tarpaulin (covering the entire load and secured at the sides and tail of the vehicle) during transportation;

- Locate material stockpiles in sheltered areas and cover with tarpaulins or other such suitable covering to prevent material becoming airborne;
- Conduct periodic qualitative air quality monitoring (by observation rather than testing);
- Maintain construction equipment in good working order, and inspect all motorized equipment at regular intervals to ensure they are being properly maintained. Record the results of inspections as part of PPL's environmental monitoring;
- Prohibit the use of equipment and machinery that causes excessive pollution (i.e., visible smoke) at the project sites;

Noise and vibration: The following measures should be employed to mitigate construction and operation related noise:

- Ensure stationary and mobile construction equipment is equipped with exhaust manifolds and noise baffles;
- Limit the hours of construction operations so that work only proceeds between 6:00am and 6:00pm Monday through Friday; and
- Design buildings that house noise generating equipment to limit noise at the fence line of the generating station to 55dBA or less.

Construction and demolition waste: The potential for reuse and recycling of demolition and construction waste will be considered. Where disposal appears to the only option, demolition and construction wastes will be disposed of at designated sites approved by PPL and CEPA. These wastes will be removed as soon as possible during the construction phase to allow accessibility to areas of the sites and for health and safety reasons. Solid wastes, debris, spent oil or fuel from construction machinery or plant, construction material, spent lead-acid batteries, or waste vegetation removed from worksites will not be disposed of in areas not approved for such disposal.

9.2 Social Mitigation Measures

Land acquisition: Works will largely be carried out on existing sites owned or leased by PPL.

Some minor land acquisition, based on the same approach, may be required for rerouting short segments (0.2km to 1.0km) of the MV distribution network that cannot otherwise be located on existing rights-of-way. In this latter case, some trimming or removal of vegetation may be required during construction to provide safe clearance distances for over-head lines, and a clear patch of ground in which to install power poles. If a landowner refuses to allow power related facilities on his/her property, then the Project will look for alternative locations to install the facilities.

Under PPL's standard operating procedures (**Annex F**) for customary land acquisition, PPL will consult

with relevant stakeholders, including the District Administrator, Provincial Lands Office, Village Magistrate and Land Mediators, ward councilors and landowners on site to identify suitable land and legitimate owners of the land. PPL will then determine if the legitimate land owner(s) has/have existing ILG and, if not, PPL will work with the landowner(s) to take all required steps under PNG legislation to register the ILG(s), have cadastral surveys undertaken by a reputable registered surveyor, register the survey with the Surveyor General's Office, and prepare the Land Investigation Report (LIR) with the Customary Land Registration Division. Once the LIR has been verified and approved by the Director of Customary Land Registration, PPL will, with the aide of the Valuer General's Office, conduct a valuation assessment of the unimproved value of the land, which will be based on whether the land is being purchased or leased. Finally, based on the unimproved valuation assessment, a deed of sale with land title transfer, or lease agreement will be finalized.

Social tension: social tension between stakeholders or between stakeholders and PPL can arise for many reasons. PPL will work to reduce social tension by preparing and implementing an Information and Communication Strategy (ICS) that commits PPL to ensuring regular consultation is undertaken during all phases of project development – design/preconstruction; construction; and operations phases (see **Section 10**). PPL will examine gender equity issues within its own organization as well as contractor organizations. It will also employ a grievance redress mechanism (see **Section 9**). The aim will be to employ an effective communications strategy with which to identify and respond to stakeholder concerns in a timely manner, before concerns become issues that flare up as social tensions, or worse.

Noise and vibration: As mentioned in Section 4.3, during construction there will be temporary adverse impacts due to noise and vibration caused by the operation of construction equipment. For sites in relatively close proximity to receptors (e.g., schools, homes, businesses), the following general measures will be taken to mitigate the effects of noise:

- PPL and/or the contractor will be required to conduct regular inspections of all noise generating equipment, including vehicles, compressors, generators, drilling equipment, etc., to ensure that it is in good working order. All vehicle exhaust systems, mufflers and noise shrouds will be maintained in good working order;

- No construction activities between 6:00pm and 6:00am, especially in areas where construction will be carried out in close proximity to receptors;

- PPL will prepare a construction schedule that will be approved by affected stakeholders. The schedule will establish the days, including identifying days on which there should be no work, and hours of work for each construction activity. The schedule will identify the types of equipment required to construct the subprojects;

- As noted under environmental impacts, buildings housing gas turbines and generators will be designed to minimize noise emanation, such that noise levels will be 55dBA or less at the fence line;

- Workers will be provided with noise abatement equipment as may be required to meet good international industry practice for worker health and safety; and

- Any noise complaints received by PPL will be addressed through its grievance redress mechanism.

Cultural heritage: A chance-find procedure will be employed by PPL contractors to enable appropriate responses to be taken to protect cultural artifacts/relics that may be encountered during construction.

Traffic management: The following traffic management measures will be used:

- Inform local government or chiefs of planned road closures or traffic control measures;
- Minimize traffic disruptions, including minimizing closure / blockage of access to homes, business, and other thoroughfares during construction; and
- Use appropriate traffic safety measures such as posting signs, placing traffic cones or temporary barriers, and using traffic flaggers to indicate construction works are being undertaken and/or divert traffic safely around a works site.

Impacts on health and safety: To reduce the risk of accidents at the work sites, health and safety measures will be implemented as follows:

- Construction workers will receive training in health and safety issues, and on the specific hazards of their work;
- Workers will be provided with the appropriate level of personal protective equipment (PPE) commensurate with the risks to which they will be exposed, such as safety boots, safety glasses, reflector vests, helmets, gloves, and protective clothing; and
- Adequate protection will be provided to the general public in the vicinity of work sites, including advance notice of commencement of works, installing safety barriers / fencing if required and signage or marking of the work areas.

Table 5 provides a summary of the potential environmental and social impacts, and the interventions to be applied.

Table 5 – Potential Environmental and Social Mitigation

Impact	Mitigation Measures	Implementing Agency
Environmental		
Vegetation and wildlife	Schedule vegetation clearing in accordance with civil works and construction progress. Retain vegetation where possible; use mechanical methods of vegetation control during operations (no herbicides permitted).	PPL; contractors
Surface water and groundwater	Minimize area from which vegetation removed until	PPL; contractors

Impact	Mitigation Measures	Implementing Agency
	construction required; install sediment and erosion control measures; follow good practice for equipment fueling and lubricating.	
Construction and demolition waste	Remove from site as soon as possible; dispose of in approved manner at an approved site	PPL; contractors; ECD
Social		
Land acquisition • Potential rerouting of short segments (0.2km to 1.0km) of MV distribution network • Damage to assets.	Use existing road or other public rights-of-way when existing PPL rights-of-way not available. In the event that land is needed, it will be acquired by consensual agreement, or lease/lease-back arrangement. The Project will attempt to avoid any impacts to privately-owned or community structures. Any damage (accidental or willful) will either be restored or compensation paid to owner.	PPL; DLPP PPL (or the contractor if responsible)
Noise and vibration	Regular equipment inspections and maintenance; equipment to be kept in good working order; no work between 6:00pm and 6:00am; use of noise abatement equipment; design gas-to-power generating station to control noise emissions to 55dBA or less at fence line; ensure grievance mechanism in place.	PPL; contractors
Traffic management	Inform local authorities; minimize traffic disruptions; use of signage and traffic barriers.	PPL; contractors
Health and safety	Safety training, use of PPE, protect public by excluding from sites, and/or posting warning signage.	PPL; contractors

9.3 E&S Risks and Actions

Environmental and Social Risks are described below and in **Tables 6 through 9** for each project component / subcomponent along with relevant commentary and suggested actions for addressing each risk.

9.3.1 Component 1 – Urgent Rehabilitation / Upgrade of MV Infrastructure E&S Risks and Actions

9.3.1.1 Improvements / Upgrades to Medium Voltage Distribution Network E&S Risks and Actions

Table 6 – Improvements / Upgrades to MV Distribution Network E&S Risks and Actions

Risk / Action No.	Environmental / Social Risk Description	Comments	Actions
ESR1	Social tension with landowners	In the event that rerouting MV transmission lines requires acquisition of land from customary landowners.	Ensure FPIC with potentially affected landowners; implement measures to acquire land through consensual agreement process; avoid compulsory land acquisition at all cost.
ESR2	Social tension with PPL customers	In the event that power outages will occur with PPL customers.	Schedule outages to enable physical works to be carried out; provide customers with prior notification of scheduled outages; ensure PPL community relations staff are advised that customer complaints will need to be handled as per PPL's procedures.
ESR3	Accidental spills	Spills associated with removal and replacement of outdated oil-filled transformers, or solvents used for degreasing and cleaning, that could be released to the natural environment.	Ensure that standard operating procedures are in place for spill prevention, containment and cleanup.

9.3.1.2 Rehabilitation / Upgrades to Selected Substations E&S Risks and Actions

Table 7 – Rehabilitation / Upgrades to Selected Substations E&S Risks and Actions

Risk / Action No.	Environmental / Social Risk Description	Comments	Actions
ESR4	Accidental spills	Spills associated with removal and replacement of outdated oil-filled transformers, or solvents used for degreasing and cleaning, that could be	Ensure that standard operating procedures are in place for spill prevention, containment and cleanup.

Risk / Action No.	Environmental / Social Risk Description	Comments	Actions
		released to the natural environment.	

9.3.1.3 Enhancements in Control and Protection Functionality E&S Risks and Actions

There are no E&S risks anticipated with the installation of SCADA systems or upgrading the protection system. However, there may be environmental risks associated with refurbishing a room within PPL Headquarters to function as a national control room.

Table 8 – Enhancement in Control and Protection Functionality E&S Risks and Actions

Risk / Action No.	Environmental / Social Risk Description	Comments	Actions
ESR5	Potential for encountering asbestos	Refurbishing a room within PPL Headquarters to provide space for a national control room may result in exposure to asbestos fibres	Confirm by testing that materials to be removed when carrying out refurbishment do not contain asbestos. If asbestos is confirmed, employ good international industry practice for containing, removing and disposing of material.

9.3.2 Component 2 – PPL's Performance Improvement E&S Risks and Actions

There are no E&S risks associated with either of the two subcomponents (incorporation of management tools; protecting increasing revenues) since there will be no physical works that could result in environmental or social impacts.

9.3.3 Component 3 – Support to LCPDP Implementation E&S Risks and Actions

Component 3 comprises TA and preparatory work for a range of potentially high impact projects. For this reason, this component of the Project has been identified as Category A under OP4.01.
The Technical Assistance activities will include environmental and social risk assessments in parallel with the technical studies or advisory work being undertaken for the selected projects. The below paragraphs list the minimum requirements for E&S activities to be included in the scope of Technical Assistance activities for the 3 potential groups of projects to be prepared, including Naoro Brown HPP, rehabilitation of existing hydropower schemes and/or gas-to-power plant.

Naoro Brown HPP

Naoro Brown HPP is a planned 80MW hydropower scheme on the Naoro River in the Central Province, approximately 70 km away from Port Moresby. A preliminary ESIA and ESMP have been prepared for the scheme, including extensive baseline surveys.

The overall scope of the ESIA was limited due to the preliminary nature of the design documentation available to describe the project (Feasibility Stage level). It is intended that the ESIA will be updated when detailed design level information is available, once the developer is on board. This final document will also set out the selected construction methodologies, ancillary facilities, material sourcing and logistics, assess associated impacts and propose adequate mitigation measures.

The main study limitations, technical knowledge gaps applicable to the production of the preliminary ESIA , which would ideally be addressed during the next phase of preparation of the project, include the following:

- Update the Preliminary ESIA with detailed information on the potential for acid generation from rock spoil, following rock sample analysis (to be commissioned at the earliest), with appropriate management plans developed where identified.
- Wet season aquatic studies, including fish migration patterns, aquatic environment and seasonal connectivity studies (include flow monitoring between dam location and Madilogo, see dot point below).
- Preliminary identification of biodiversity offset options for lost terrestrial and riparian habitats, followed by the development of a biodiversity offset strategy.
- Resolve identified inconsistencies in peak flow calculations. Ideally any further modelling would be based on local rainfall and flow data (rainfall, hydrology and sediment monitoring is a pre-requisite, which needs to be commissioned at the earliest). This will provide a more reliable means of assessing impacts on aquatic fauna, particularly concerning aquatic fauna passage and maintenance of flows during critical spawning and movement periods. In addition, a reliable hydrological model would assist in specifying an actual e-flow in terms of cumecs or percentile in order to provide appropriate management during critical aquatic fauna movement periods.
- Possibly, water quality modeling for the reservoir, in order to assess potential anoxia risks during the first dry season, with appropriate monitoring and management plans for anoxia occurrences and releases.
- Incorporate the findings of the dam expert panel and seismic risk assessment into the preliminary ESIA.
- Completion of ILG surveying and associated activities
- Once the engineering and financial aspects of the project are better understood (including accurate cost and revenue modelling of the project including roads and transmission lines etc), assist PPL with ongoing consultations on benefit sharing mechanisms, with a view to agree and finalise a benefit sharing plan.
- Clarification of engineering and cost elements of the access road and transmission line corridor so that E&S assessments (at least at a high level) including land ownership, compensation and inclusion in benefit sharing can be undertaken.
- Review of PPA, financing instruments for inclusion of environmental, social and OHS requirements especially having regard to financial aspects around benefit sharing
- Inclusion (or preparation) of environmental, social and OHS requirements into bidding documents for a commercial developer to enter into a BOOT agreement for the design, construction and operation of the Naoro Brown Hydropower Plant.

Rehabilitation of Existing Hydropower Schemes (Rouna Cascade / Ramu I)

Rouna Cascade and Ramu 1 HPPs are located on the Laloki (Central Province) and Ramu (Eastern Highlands Province) rivers respectively. Both schemes are exhibiting operational issues and the rehabilitation works are likely to focus on the power house only, introducing systems for better managing power generation. Hence, minimal environmental and social impacts are anticipated to arise from the works. However, during preparation of either of these hydropower schemes rehabilitation projects, the following environmental and social risk assessment studies and inputs should be undertaken:

- An environmental and social audit of the existing hydropower schemes, with the aim of identifying significant environmental and social issues in the existing activities, and assessing their current status, specifically in terms of meeting the requirements of the World Bank's Safeguards Policies. This audit will cover operational issues including, but not limited to waste management protocols, land due diligence, community engagement, an assessment of presence of asbestos/PCBs/lead paint/general hydrocarbon contamination, etc. Based on the findings of the audit, suggested measures to meet the requirements of the Bank's policies, corrective measures to mitigate or rectify potentially significant environmental and/or social risks and impacts and measures to avoid or mitigate potential adverse adverse environmental and social risks or impacts associated with the proposed project, will be listed and incorporated in contract documents and/or legal agreements.
- ESIA/ESMP for proposed interventions, if strictly electro-mechanical interventions are undertaken only, an ESMP will suffice
- Environmental, social and OHS input to tender documentation
- Dam safety assessment: as the project relies or may rely on the performance of an existing dam, independent dam specialists will be retained to (a) inspect and evaluate the safety status of the existing dam, (b) review and evaluate the owner's operation and maintenance procedures; and (c) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam.

Gas-to-power Plant (Kutubu or Hides)

Proposed feasibility, transaction advisory and/or engineering studies for a gas-to-power development shall incorporate requirements for adequate environmental and social assessment to be undertaken, in order to gain an understanding of potential E&S risks, their significance and potential for mitigation. E&S risks and their ability to be readily mitigated form a significant contributing factor in the feasibility assessment and decision making process.

A detailed TOR for environmental and social assessment will be developed during project implementation, at the time of preparation of the TOR for the technical studies (most likely to be feasibility / concept design studies). The TOR for E&S studies will be specific to the selected location and relevant to the type of TA being funded by the project. As a minimum, the TOR will include the following requirements:

- An E&S risk screening and scoping activity, which culminates in a scope of work for an environmental and social impact assessment

- Review of environmental and social baseline data available in the public domain, complemented with targeted, high resolution survey work to establish an understanding of the presence of valued environmental and social components in the project area
- Preliminary impact assessment and mitigation strategy, at a level commensurate with the project and design information available, to enable meaningful input to project design and decision making
- Alternatives analysis and E&S input to a multi-criteria assessment, if this is part of the overall feasibility study scope. Where possible, cost of land acquisition and mitigation measures should feed into the multi-criteria assessment.
- Consultation – stakeholder identification, preparation of Stakeholder Engagement Plan and initial consultation with stakeholders and project affected people, ensuring their input to project design. Initial consultation with indigenous people, if present, using culturally appropriate methods
- Land due diligence study: identification of stakeholders, land tenure, land access arrangement/options, costs and access procedures.
- Capacity development and training program for the PMU
- If appropriate, inputs to tender documentation will be provided (e.g. in the case of transaction advisory services)

9.3.3.1 Updating Project Database E&S Risks and Actions

There are no E&S risks anticipated with this subcomponent of Component 3, since there will be no physical works that could result in environmental or social impacts.

9.3.4 Component 4 – Project Management Support E&S Risks and Actions

Table 9 – Project Management Support E&S Risks and Actions

Risk / Action No.	Environmental / Social Risk Description	Comments	Actions
ESR6	Inadequate E&S Resources to implement new Project	E&S resources will be required to ensure the final ESIA and ESMP for Naoro-Brown meet GoPNG requirements. E&S resources will be required to oversee preparation of the ESIA and ESMP for a new gas-to-power project. E&S resources will be required to monitor ESMPs for other rehabilitation / upgrade subcomponents. Without adequate E&S resourcing the Project will face potential delays and fail to	PPL needs to strengthen the capacity of the PIU, particularly the E&S functions, including preparing and implementing a project management plan. PPL needs to develop E&S policies and standard operating procedures by developing an Environmental Management System for the organization.

Risk / Action No.	Environmental / Social Risk Description	Comments	Actions
		meet World Bank Safeguard requirements.	

10.GRIEVANCE REDRESS MECHANISM

PPL has an existing national 'Call Centre' that was established under its Corporate Relations Group to enable customers to contact PPL regarding power supply issues or emergencies, including fallen power lines, power outages, Easipay issues, any other power problems. The Call Centre was also set up to address general enquiries and information. Although the function of the Call Centre is not specifically identified as a Grievance Redress Mechanism (GRM), per se, it is presently operating as such in a de facto manner. The Call Centre receives, records and responds to complaints that go beyond power supply issues or emergencies according to a senior member of PPL's Corporate Relations Group. Complaints related to billing, bill payments, electricity metering, or other electricity services related issues, are received by PPL's Call Centre. The complaint is recorded, categorized and directed to the relevant department for resolution.

Stakeholders are advised regarding how to contact the Call Centre through advertisements on radio, television and newspapers, and posters included in PPL's online handbook (see examples in **Annex I**).

Notwithstanding the above, a grievance mechanism has been partially developed as part of the draft Information and Communications Strategy (ICS) for the Naoro-Brown HPP under the ESDP. Once completed, it could easily be adapted for use as PPL's corporate GRM, and in the interim used as the GRM for the new Energy Utility Performance and Reliability Improvement Project.

10.1 Project Grievance Mechanism (PGM) (N-B HPP)

All grievances, complaints or issues raised will be documented in a register maintained at PPL's Project Management Unit. These should be included in any internal reporting mechanisms to leadership. The proposed steps for the PGM are indicated below in **Table 10** and illustrated in the flow chart included as **Figure 6**. A proposed PPL Grievance Tracking Form is included as **Figure 7**.

Table 10 – Steps for Resolving Community Grievances

Step	Process	Duration
1	Affected Person (AP) / takes grievance to their local contact, a PPL representative on site, direct to the Project Manager, or their chief or Clan leader. This is communicated to the Project Manager (PM) or delegate either verbally or using a Feedback form.	Any time
	The Project Manager (PM) documents the issue on a form if one has not been prepared by the complainant or their representative.	Within 24 hours
2	A Project Officer and PM, or delegate, reviews the issue, and in consultation with the appropriate parties proposes and records a solution to the problem on a grievance form and in the grievance log.	Within 3 working days of receiving the grievance
3	The PM or delegate communicates either directly to the complainant using their preferred method, or via their community leader or delegate, and gets feedback from the complainant on whether the	Within 5 working days of receiving the grievance.

Step	Process	Duration
	proposed solution is acceptable to close the grievance. All is documented using the grievance form and in the grievance log.	
5	If the AP is not satisfied with the proposed solution, negotiations continue or are scheduled for a later date, with the AP able to request to bring a representative to accompany them to assist with discussions, if desired. This is documented in the grievance form and in the grievance log.	Within 5 working days of receiving the grievance.
If unresolved		
6	The Community member or their delegate takes the grievance to the Managing Director of PPL.	Within 24 hours of community member Decision within two weeks
7	The Managing Director advises the AP regarding the outcome of further deliberation and either directs the PM to rectify the problem, or indicates to the AP that the matter is not able to be resolved by PPL.	
If still unresolved or if at any stage the AP is not satisfied with progress the AP can take the matter to the appropriate national court.		As per judicial system

Figure 6 – Proposed Steps for PPL's Project Grievance Mechanism

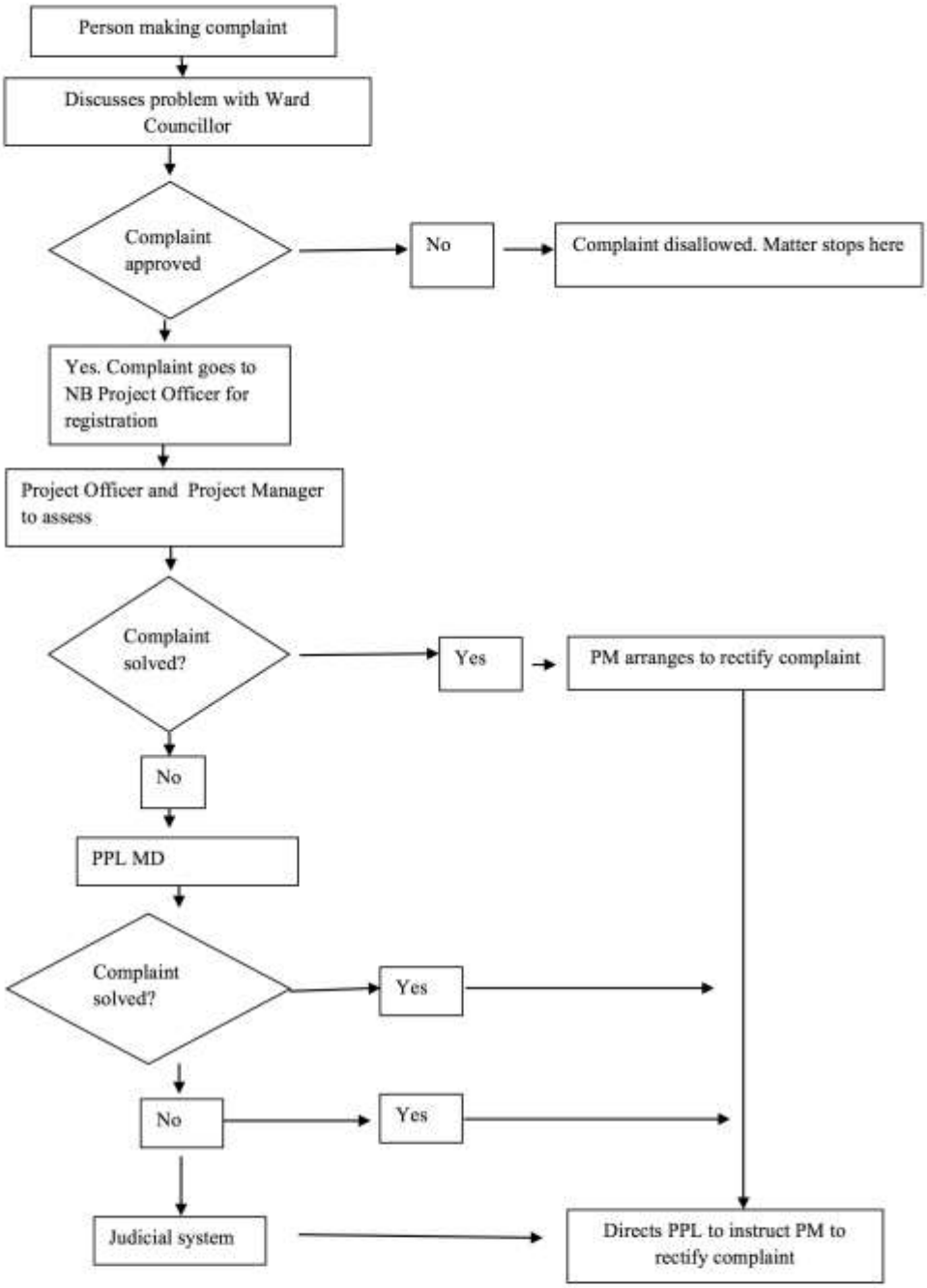


Figure 7 – Proposed PPL Grievance Tracking Form

PNG POWER Ltd

Our representatives commit to responding to this feedback within 5 days if required.

Name			
Company or Clan			
Address or Village			
Phone Number Home		**Mobile**	
Feedback/Comment			
Concern Type: ☐ Environment ☐ Work ☐ Water ☐ Noise ☐ Access/Roads ☐ Gardens ☐ Questions ☐ Privacy ☐ Concerns with study ☐ Behaviour of workers ☐ Other			

Preferred Contact (Tick)	**Phone**	
	Email	
	In person	

OFFICE USE ONLY		
Proposed and Actual Actions to Resolve Grievance	**Date:**	**Initials:**
Resolution Accepted by AP ☐ Yes ☐ No	**Date:**	**Initials:**
Next Action:		

Entered into Register by: (Person who entered data)		**Date**	
Delegated to: (Representative nominated by Grievance Manager)		**Date**	
Completed by (Delegate) (Must have entered all outcomes into the register)		**Date**	
Closed by (Grievance Manager)		**Date**	
Notes:			

Information regarding the mechanism will be conveyed to potential project-affected people at each of the subproject locations, as part of the consultation process prior to project implementation.

It is anticipated that most complaints arising during construction will be minor. In particular, complaints concerning noise, dust, health and safety issues, and vegetation clearing or removal, should be relatively easy to resolve. Simple matters such as obstruction of access to a complainant's premises or more complex matters, such as issues associated with land ownership or resource use, are dealt with as soon as possible. Complaints submitted by individuals will be handled on an individual basis. Complaints raised by communities will be handled through consultation with the affected community to resolve the grievance.

PPL will have a physical presence in the form of a site office for every subproject location with at least one representative whose task will be to liaise with members of the community, including receiving complaints (if any) that may be raised.

For site related environmental or social issues associated with construction or operations, for which a complaint has been raised, the affected party will have their complaint referred directly to the Project Engineer (PE), who will meet with the complainant. For issues that are easily addressed at site, the PE can make an on-the-spot determination to resolve the issue. For more complicated complaints, the PE will forward the complaint to the appropriate department manager at PPL's head office in Port Moresby.

In addition to PPL's grievance mechanism, communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project-affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. Information on how to submit complaints to the World Bank's corporate GRS can be found by visiting http://www.worldbank.org/GRS. Information on how to submit complaints to the World Bank Inspection Panel can be found at www.inspectionpanel.org.

Details regarding PPL's grievance redress mechanism will also be provided in the Project Operation Manual.

11. PUBLIC CONSULTATION AND DISCLOSURE

11.1 Public Consultation

PPL's Customer Relations Department, which handles both public relations and stakeholder consultation, will undertake a targeted consultation and awareness campaign to reach potential beneficiaries and inform them of the objectives and structure of the Project and its four components.

The World Bank's Safeguard Policies require that a project related ESMF be made available for public consultation and disclosure. Likewise, the Environment Act 2000 (s.55(b) – Public Review and Submissions) requires that "*any environmental impact statement . . . be made available for public review* . . . " Although this ESMF is not an EIS, per se, it can be construed as a form of EIS that would satisfy a Level 2 activity. The aim of the consultation is to inform the general public and potential beneficiaries about the project, the access, land requirements and construction activities that will be the focus of physical works. The consultation program will encourage inputs from stakeholders on environmental and social issues related to the various project components. Comment will be invited and stakeholders will be made aware that there is a mechanism for registering complaints.

PPL's Customer Relations Department employs a media outreach program to increase public awareness of its various activities. This media outreach is conducted through local radio and television station broadcasts. PPL also uses its media outreach program to introduce information on its projects / programs, to provide safety awareness regarding electricity, electrical equipment and its use. The program also provides information on procedures to follow to discuss power and emergency issues, and other useful information. The Project will also be publicly launched using media outreach to inform as many people as possible about the Project and its various components.

In addition to its media outreach, PPL has established a national Call Centre (see **Section 10** – Grievance Mechanism). Customers and members of the public seeking information or wishing to lodge complaints regarding power issues are able to do this by calling one of several dedicated telephone numbers, or by sending an email to callcentre@pngpower.com.pg. According to PPL, issues are followed-up within a reasonable timeframe.

The consultation process will be conducted and expanded during project implementation to ensure that stakeholders are fully engaged in the Project and have the opportunity to participate in its development and implementation and understand that there is a process in place for them to submit any grievances or complaints. Consultations including for component 1, proposed technical advisory activities under the Component 3 will take place when exact locations are known and when site-specific instruments are prepared. **Annex J** includes a draft Stakeholder and Consultation Engagement Plan (SCEP) that will be applied to the Project, and adapted as the Project proceeds through its various stages.

Physical works for the EUPRIP will be confined to Component 1 – Urgent Upgrade / Rehabilitation of PPL Infrastructure. Since rerouting of short segments of the MV distribution network within Component 1 may trigger OP 4.10 on Indigenous People, consultation conducted by PPL must follow the key principles for free, prior and informed consultation (FPIC). Although there is no single internationally agreed definition of FPIC and "no single, nor a one-size fits all mechanism for its

implementation" (UN Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, 2013), international development agencies define FPIC as follows:

- FREE – implies that information should be transparent and free from coercion or bias and conducted in a manner that allows Indigenous Peoples to openly express their preferences or concerns without intimidation or manipulation;

- PRIOR – implies that sufficient time is provided to indigenous communities and stakeholders during consultations and decision-making processes. Consultation should start as early as possible in the project planning stage. This allows community members and stakeholders to receive adequate information, come together, discuss the proposal, and make decisions prior to providing any formal response (e.g., consent). This includes giving Indigenous Peoples sufficient time to go through the traditional processes of decision making, deliberation and consensus-building, such that the preferences or concerns raised by Indigenous Peoples' communities may be considered before project design decisions or implementation arrangements are finalized;

- INFORMED – implies that the affected communities and stakeholders have access to relevant information on the Project to engage in consultations and decision-making processes. Providing 'access' to information implies that the information is:
    - in a form and language that is suitable for the particular communities and stakeholders;
    - accurate;
    - delivered in a culturally appropriate and inclusive way; and
    - made available to every member of the community.

  Indigenous Peoples must be given enough information – information that is transparent regarding the project scale, delivered in such a way that it allows them to fully understand the impacts being discussed, feeds into the decision-making process where appropriate, and provides sufficient opportunity to consider relevant information about the Project;

- CONSULTATION – An inclusive and fair process of interaction, engagement and dialogue between various stakeholders with respect to a proposed development or activity. Consultation should be conducted in a manner that allows Indigenous Peoples to participate meaningfully in decisions directly affecting them, including proposed management and mitigation measures and benefit sharing or distribution, through methods that enable concerns of women, the elderly, or others who customarily may not be expected or allowed to participate in community meetings, to be considered. The desirable outcome of consultation is broad agreement within the community that the proposed project or activity can proceed, as determined through local customary decision-making practice.

For each component / subcomponent, PPL must ensure that women and other potentially marginalized groups have sufficient opportunity to provide input, including through targeted women-only and other group consultations, to ensure their views and issues are being received and considered. A short report will be prepared at midterm and closing of project preparation, that details

the outcomes of consultations and how they have influenced project designs, with a separate section that addresses feedback provided by women.

For the MV distribution network upgrade subcomponent of Component 1 – Urgent Rehabilitation Upgrade of PPL Infrastructure, PPL will consult adjacent landowners and residents about the proposed siting of any sections of distribution lines that may need to be rerouted onto customary land, along with construction timing and methods.

For subcomponents of the Project that involve physical works on existing sites or under existing environmental or operating permits, PPL will advise its customers and the broader public of any potential interruptions to electricity services arising from these works, using PPL's established notification system. For subcomponents that do not involve any physical works, disclosure of this ESMF will suffice.

For the major works subcomponents (Naoro-Brown HPP; selected gas-to-power development) of Component 3 – Least Cost Power Development, the current project will only fund technical assistance studies of these subcomponents. Funding will not be provided within the Project for physical works on these subcomponents. However, prior to commencing any physical work on these subprojects in the future[10], PPL will work together with the village and ILG leaders to arrange community meetings, and distribute information pamphlets. Local project-affected people will receive information on the subprojects in their respective areas and the nature and location of proposed works. Potentially affected parties will be consulted on the location, construction and operation methods, and project timing, and any environmental and social issues, such as the need to acquire customary land and requirements to remove vegetation to provide for facilities. They will be advised that the work may create possible inconvenience (noise, dust, traffic disturbance, crowded area caused by workers, material, equipment and vehicles, etc.). Further, PPL will inform the affected communities on measures that will be taken to minimize such effects to the people and make them aware of the grievance procedure.

11.2 Consultations Undertaken to Date

With the exception of the Naoro-Brown HPP, consultation for the new project has only recently been initiated. A consultation workshop was held with available key stakeholders in Port Moresby on 26 February 2019, at which the draft ESMF was presented and discussed. Attendees included a wide range of government representatives as well as non-governmental representatives (NGOs, etc.).

A list of meeting participants and key issues raised is included in **Appendix 1** of **Annex J**.

Due to lack of location details of the selected subprojects, consultation with project affected people and communities was not yet possible at this stage.

Stakeholder consultations on the proposed Naoro-Brown HPP have been on-going since 2016. This includes numerous meetings at the village level leading up to, and as part of, the ESIA process, as well as meetings with CEPA officials and NGOs. A list of consultations conducted for the Naoro-Brown HPP

[10] For Naoro-Brown HPP, community meetings and meetings with government and NGOs have been ongoing since 2016.

is provided in **Appendix 2** of **Annex J**. These consultations indicate that the key issues of concern for stakeholders include such things as land rights; importance of the road infrastructure; and access improvements.

11.3 Information Disclosure

Disclosure will conform to the Public Communications Policy of the World Bank: Disclosure and Exchange of Information, which requires that the ESMF document for World Bank projects be accessible to interested parties and the general public.

This ESMF was publicly disclosed on the World Bank website and the PPL website www.pngpower.com.pg on March 22, 2019. The purpose of this disclosure was to ensure that all people and agencies have had the opportunity to comment on the project, the level of social and environmental assessment and to provide comments at least 120 days prior to the project being considered by the World Bank Board.

12. INSTITUTIONAL ROLES, RESPONSIBILITIES AND CAPACITY

This section identifies the roles and responsibilities of the World Bank, PPL and CEPA in managing project-related environmental and social issues. It also addresses the capacity of PPL in this role. **Table 12** summarises the roles and responsibilities of the three organisations.

12.1 World Bank

The World Bank will:

- Advise PPL about World Bank Environmental and Social Safeguard Policies and requirements;
- Screen and determine environmental categorization of projects, including the environmental assessment requirements;
- Review and clear environmental assessment reports as a basis for project approval;
- Publicly disclose the ESMF in the WB external website and on the World Bank website;
- Review all statutory environmental clearance granted by CEPA, particularly the conditions of the Development Consent and note all conditions in approving a project;
- Review ESMP implementation and, where appropriate, take actions (as necessary) in close consultation with CEPA;
- Monitor the ESMP implementation and conduct due diligence as part of review missions;
- Provide advice, guidance and assistance on good practice to PPL on involuntary land acquisition for the Project and land donation (if any); and
- Support PPL in conducting the required consultation with community and project beneficiaries, including Indigenous Peoples, women, and other relevant stakeholders in the project area, and discloses relevant information for each of the component subprojects, including project information on design, land requirements, construction, operation, and related project impacts, including the grievance redress mechanism in an appropriate form, manner and language(s) accessible to those being consulted.

12.2 PNG Power Limited (PPL)

PPL will be the implementing agency for the Project and will have overall responsibility for project management. The Department of Petroleum and Energy will oversee the implementation of the project on behalf of the PNG Government.

PPL will also be responsible for preparing and ensuring implementation and compliance of the ESMF. Given that the impacts of the majority of subcomponents are deemed to cause no impacts (those not requiring physical works), or impacts that are minor, site specific, and of short duration (those requiring physical works on existing facilities), the ESMF will be implemented as part of PPL's usual business operations. Additional resources will be required to prepare ESMPs, Codes of Practice (CoP), etc., for the smaller subprojects.

PPL staffing focused on E&S risk management remains an ongoing issue. Absent these technical skills, it will remain difficult for PPL to ensure its advisors and consultants are proactively working to identify and manage risks. Key here is that people who have been working on the Project have been doing so on an adhoc basis because they have substantive work to perform on other projects. It is also

understood that this limited support will further diminish over the coming months as these people will increasingly focus on their main work tasks. Staff responsible for critical aspects of the Project, such as providing environment, land, social and communications input on a full-time basis, has now become critical to project development, feasibility assessment and risk management. A substantial body of work will be required once the draft ESIA and supplementary technical work has been completed. In addition to appointing key personnel, critical activities would include knowledge transfer to the new staff from those staff who have, until now, been working on the Project; development of a clear communications and messaging strategy; assessment of documentation; and bringing the many associated elements together in a manner which effectively integrates the technical, financial and E&S risks. To advance the E&SS aspects of the Project further, provision has been made for PPL to hire a safeguard expert, financed through the project, to assist PPL.

Currently, environmental matters within PPL come under the direction of the Senior Manager Health, Safety and Environment Department. However, as noted above, PPL presently lacks sufficient numbers of experienced in-house environmental and social specialists. There are only five environmental specialists within the organization, of which two are assigned to an ADB funded project, leaving only three environmental staff to manage environmental issues across the rest of PPL's program. There is only one social / gender specialist. The limited number of E&S staff have more work between them than they are able to cover adequately. Therefore, PPL must continue to look to outside consultants to provide these services.

As environmental and social impact assessments (ESIAs) are not required, per se, for the hydropower rehabilitation and project database subcomponents of Component 1, or any of the Component 2, 3 and 4 subprojects, due to the limited or no adverse anticipated impacts, PPL will use the ESMF as a guide to prepare environmental and social management plans (ESMPs) for each subcomponent of a component for which physical works will be carried out. A template for developing an ESMP is provided in **Annex L**.

For the gas-to-power subcomponent of Component 3 - once PPL has determined which of the two potential sites (Hides vs Kutubu) will be developed, an ESIA (with accompanying ESMP) will need to be prepared, commensurate with the level of impacts associated with a Category A project..

The ESMPs developed for each subcomponent of the Project in which physical works will be undertaken, will be submitted to CEPA for review and acceptance. The revised ESMPs will then be provided to the World Bank for review and 'No Objection'. The ESMPs will be included as an integral part of the bid documents to enable the contractors to bid on the Project with awareness of the environmental and social issues and mitigation measures to be implemented as part of the respective project components. Each successful contractor will prepare a Construction Environmental and Social Management Plan (CESMP) that outlines how environmental and social mitigation measures will be implemented and monitored during construction, based on the work methods to be used and schedule that will be followed.

PPL, with input from its contractors, will be responsible for updating the subcomponent ESMPs during the construction stage, whenever additional engineering information is available and for implementing the environmental, health and safety actions included in the ESMPs. PPL (or its environmental and social consultants) will be responsible for environmental monitoring during

construction and operation of the Project. CEPA will also be responsible for verifying, through a process of targeted and random audits, that PPL is fulfilling its monitoring obligations. The outcomes of the monitoring will be included in the overall monthly progress reports to be submitted to PPL by its IPP developer, and annually by PPL to CEPA..

Regarding the Naoro-Brown HPP and gas-to-power subcomponents of Component 3, PPL will be responsible for following the government mandated process for obtaining land for these sub-projects as well as meeting the World Bank's requirements for addressing involuntary resettlement issues, if these arise. PPL will ensure that relevant stakeholders, including Indigenous Peoples, are involved and participate in these subprojects and obtain project-related benefits. It will also be responsible for receiving, resolving and maintaining a register of any complaints or grievances submitted by potentially project-affected people, as guided in the ESMF.

12.3 Conservation and Environmental Protection Authority (CEPA)

As the national agency responsible for environment and conservation in PNG, CEPA will be involved in various environmental management activities. Under the requirements of the *Environment Act* 2000, and the *Conservation and Environmental Protection Authority Act* 2014, CEPA will review the ESIA for the two subcomponents of Component 3, for which an ESIA is required (i.e., Naoro-Brown HPP; and selected gas-to-power development) should either or both of these projects proceed to implementation. CEPA would also monitor the progress of implementation activities if Development Consents are given for these subprojects.

CEPA is fully aware of the Naoro-Brown HPP under the soon to be concluded ESDP. It has also participated in the 26 February 2019 consultation workshop in Port Moresby, where the proposed Energy Utility Performance and Reliability Improvement Project (EUPRIP) was introduced, along with its components / subcomponents.

CEPA will be consulted during the construction phase of the various component subprojects to ensure that PPL and its contractors are adhering to all monitoring requirements. CEPA will also be tasked with auditing implementation of the ESMPs and ensuring that environmental management and mitigation of the Project is undertaken to an acceptable standard.

12.4 Environmental Management and Reporting Arrangements

Monitoring is required to address unanticipated impacts, to ensure mitigation measures are effective and to reassure the public on the progress of the development. Progressive monitoring will coincide with each stage of the Project (pre-construction, construction and operation). The ESMPs will be based on the potential impacts, significance of impacts and mitigation approaches identified in environmental and social assessments. The ESMPs will identify the parameters to be monitored, monitoring frequencies, and the parties responsible for undertaking the monitoring. CEPA will be responsible for monitoring compliance, reviewing PPL's monthly monitoring reports and suggesting ways to improve or strengthen mitigation approaches.

CEPA is required to:

- Co-ordinate compliance monitoring programs; and

- Review PPL's monthly monitoring reports and suggest ways to strengthen mitigation approaches.

Table 12 – Responsibilities for Environmental Management and Monitoring

Project Stage	Responsible Organization	Responsibilities
Pre-feasibility study	PPL (and its consultants)	• Develop project concept • Identify land requirements • Confirm land ownership and method of land acquisition (leasing; negotiated acquisition; voluntary land donation; etc.)
Feasibility study - Preparation	PPL (and its consultants)	• Prepare preliminary designs • Prepare feasibility study, including carry out environmental screening for the gas-to-power subcomponent of Component 1 (ESIA nearing completion for Naoro-Brown HPP); prepare ESIA for gas-to-power project (if deemed a viable project) and prepare ESMPs based on preliminary designs
	World Bank	• Review feasibility study terms of reference and issue 'No Objection' • Advise on consultant procurement process and issue 'No Objection' for consultant selection
- Review	CEPA	• Review and approve overall ESMF, environmental and social assessments, and ESMPs • Provide inputs to monitoring requirements
	World Bank	• Review all feasibility study documentation, including overall ESMF, environmental and social assessments, and component ESMPs, issue 'No Objection, prepare Board presentation and submit to Steering Committee (as required)
Detailed design	PPL	• Prepare detailed design • Update ESMP based on specifics of detailed design and contractor work methods • Submit ESMPs to CEPA and World Bank for review
	CEPA	• Review and approve ESMPs
	World Bank	• Review and issue 'No Objection for ESMPs
Construction	PPL and/or contractor	• Implement the component ESMPs • Monitor and supervise construction phase through environmental inspections and review monitoring data • Prepare and submit monthly environmental reports • Provide awareness/training to workers

Project Stage	Responsible Organization	Responsibilities
	CEPA	• Ensure compliance with Government requirements • Review complicated issues arising from the Project
	World Bank	• Conduct supervision missions to ensure compliance with conditions of loan
Operation	CEPA	• Provide budget to undertake long term environmental monitoring • Undertake environmental monitoring and prepare bi-annual reports

12.5 Monitoring and Supervision

As the project implementation agency, PPL will monitor and report on project progress to the World Bank with a frequency to be defined in the grant agreement and Project Operation Manual.

During the construction phase of the Project, PPL, with support from specialist consultants if needed, will undertake monitoring and supervision of its contractors to ensure compliance with the following:

Environmental

- Required environmental permits and approvals are in place;
- Handling, collection and disposal of demolition and construction wastes are carried out in accordance with CEPA requirements;
- Only that vegetation identified as being required to construct the Project will be trimmed or removed;
- Erosion and sediment control procedures are being implemented;
- Prohibitions on hunting and poaching are in place and communicated by the contractor(s) to workers;
- Motorized equipment is being kept in good working order to minimize emissions;
- Procedures are being implemented to prevent generation of fugitive dust from roads, excavation areas, stockpiles and vehicle loads;
- Construction works are being carried out within agreed hours of the day / days of the week so as to prevent noise disturbance occurring outside these hours;
- Motorized equipment is equipped with exhaust / muffler systems to minimize noise generation, or surrounded by movable noise baffles;
- Solid and liquid wastes are being regularly removed and disposed of in accordance with CEPA requirements;
- Fuels, lubricants and other chemicals are being stored within secondary containment devices;
- Incident reporting and emergency response plans in place;
- Appropriate soil erosion and sediment control measures are being implemented;
- Proper use and servicing of temporary toilet facilities.

Social

- Community consultation is being carried out, including consultation with women and other potentially marginalized groups, to address issues of concern and a grievance redress mechanism is in place;
- Gender-based violence indicators are identified and monitored;
- Potential impacts associated with influx of outside labour force are being monitored for larger subprojects;
- In accordance with the OHSMP, workers are equipped with personal protective equipment (PPE) appropriate to the work being undertaken;
- Occupational Health and Safety Management Plan (OHSMP) is prepared and implemented;
- Community health and safety issues are identified and monitored;
- Chance-find physical cultural resource procedures are in place;
- A traffic management plan is in place and is being implemented;
- Measures are in place to prevent mud from being tracked from construction sites onto public roads.

Monitoring and supervision reports will include the following documentation:

- Consultation undertaken for each project area, including evidence of free, prior and informed consultation, evidence of gender balance (i.e., women consulted at all stages of project development and implementation, and on matters involving land sales and benefit-sharing), and evidence of consultation with other potentially marginalized groups.
- Evidence regarding land agreements, as applicable, in the form of:
    - Land purchase agreements;
    - Leasing contracts for project required land;
    - Proof of voluntary land donation (if any); and
    - Summary of complaints and outcomes and any incidents in relation to the ESMF.

PPL will submit the report to CEPA for review and forward the report to the World Bank, which will provide feedback.

12.6 Capacity Building and implementation support

While PPL has previously implemented projects with the World Bank, and has experience with fiduciary and safeguard policies, its implementation capacity is weak and will need to be significantly strengthened. Substantial and targeted support both for project implementation and durable capacity building is proposed under the Project.

The core PMU team will comprise an environmental and social safeguards officer who will be tasked with implementing the ESMF requirements throughout the project duration. It is expected that the in-house E&S safeguards officers will need support from a part-time, international safeguards specialist who will be expected to mentor, guide and train the local safeguards staff with the management of environmental and social risks associated with the various project components. Early safeguards involvement will be essential in the preparation of the TORs for the TA components, design and supervision contracts and construction contracts for the upgrade works. The preparation of

adequate safeguards instruments for each of the project's subcomponents and enforcement of their implementation by consultants and contractors will require a dedicated effort by the national E&S safeguards officers, with the assistance of the international safeguards specialist.

The core team will be appointed or recruited by PPL within three months of effectiveness.

13. BUDGET PROVISION

With the exception of the Naoro-Brown HPP and selected gas-to-power development subcomponents of Component 3 of the Project, the requirements for addressing environmental and social issues of the remaining subcomponents of Component 3, and all subcomponents of Components 1, 2 and 4, as set out in the ESMF, will fall within PPL's 'business as usual' operations. This includes handling of customer complaints through PPL's existing grievance process. Consultation, outreach and awareness activities and logistics costs associated with project supervision and compliance with the ESMF will be covered by each of the project components for which World Bank funding will be provided. This includes costs associated with CEPA charges for project permitting.

As noted in section 3.4 of this ESMF, a budget of US$3m has been allocated for Component 4 – Project Management TA. Provision has been made within this component for PPL to hire a safeguard expert within the supervision engineering firm to oversee the ESS activities of the project developer and ensure these meet WBG and CEPA requirements. A provisional budget of US$0.5m has been assigned to this role. An additional US$50k has been allocated provisionally for preparation of site-specific ESMPs that are not otherwise prepared by a selected project developer. Additional funds, as required, will also be allocated for specialized consultants to undertake such things as capacity assessments, develop templates for E&S screening, and prepare Codes of Environmental Practice and other applicable safeguards instruments.

The costs of preparing and managing the ESMP for the Naoro-Brown HPP will be covered under a design-build contract that will be awarded to an independent power producer, once the preliminary ESIA has been completed and the procurement process has been concluded.

A separate ESIA will need to be developed for the selected gas-to-power initiative under Component 3, if it is determined by the TA that this is a viable project that should proceed. A budget of approximately US$2.5M to US$3M is recommended for undertaking the ESIA. Another US$250K to US$300K is recommended for PPL to hire consultants to manage the ESIA process. The budget for implementing the ESMP for the selected gas-to-power project will be developed as part of the ESIA process, with funding to come as part of the design-build contractor bid.

ANNEX A Relevant Policies, Administrative Guidelines, and Standard Operating Procedures for PNG Power Ltd.

ANNEX A Relevant Policies, Administrative Guidelines and Standard Operating Procedures for PNG Power Ltd.

Title	Policy	Administrative Guideline	Standard Operating Procedure
Acquisition of Customary Land	?	?	**Y**
Employee Conduct	**Y**	**Y**	**Y**
Environment	N	N	N
Occupational Health and Safety Manual	**Y**	?	**Y**
- Access Procedures for Work in Thermal Power Stations			**Y**
- Isolation and Lock-out/Tag-out Procedure			**Y**
Sustainability	N	N	N
Workplace Harassment	**Y**	**Y**	**Y**

Y = Yes N = No (does not exist) ? = Unknown

ANNEX B Additional Photos of Hides and Kutubu Project Areas

Annex B – Additional Photos of Hides and Kutubu Project Areas

▲ Photo 1 – Aerial view of road (on right) leading from Hides Gas Generation Station to Hides Gas Conditioning Plant (~13km). Togari River (looking downstream) on left.

▲ Photo 2 – Hides Gas Conditioning Plant (Hides Gas Generation Plant located in the valley ~13km straight ahead over the ridgeline).

▲ Photo 3 – View of earthquake (Feb 2018) induced mass wasting along Tagari River downstream of Hides, en route to Kutubu.

▲ Photo 4 – View to the southeast of natural rainforest landscape with Lake Kutubu in the background. Kutubu Central Gas Processing Plant lies to the southwest, just outside the right side of the photo.

▲ Photo 5 – View to the northeast toward Mendi from east of Pangwa Station. Potential route for a transmission line to connect a possible Kutubu gas-to-power facility to Mendi and beyond to Mt. Hagen.

◀ Photo 6 – Highlands Highway between Mendi and Mt. Hagen (potential transmission line route to connect a potential Kutubu gas-to-power facility to Mendi and onwards to Mt. Hagen).

ANNEX C Synopsis of Social, Environmental and Political Considerations in the Hides and Kutubu Area to Inform Preparation of ToR for TA Work by PPL

ANNEX C Synopsis of Social, Environmental and Political Considerations in the Hides and Kutubu Area to Inform Preparation of ToR for TA Work by PPL

1. Social Background

The Environmental Impact Statement for the PNG LNG Project summarises the social setting for the area in which the two potential gas-to-power projects are being considered as follows and is largely based on information contained in ESSO Highlands Limited, 2009[11] [12], 2010[13], 2011[14], 2012[15], 2013[16], and 2014[17]:

- Socio-cultural Character – The project area is located in one of the most remote / least accessible parts of PNG – low population density due to remoteness, soil infertility and endemic malaria, leading to limited hunting and forest clearing. The sociocultural character is diverse, with numerous tribal and language groupings. Social organisation is mainly based on patrilineal descent (determines important relationships – people to people, people to land, people to spiritual needs).

  The area around Hides is primarily occupied by the Huli ethnic group (roughly 150,000 speakers). The Huli clans have a system of patrilineal descent with representatives of a totemic (descended from an animal or plant) named clans living in scattered households spread across more than one village, which in effect is a local clan segment. It is traditional for the Huli males and females to live apart in their own houses and maintain their own gardens, with sons and brothers or other close male relatives building houses for their female relatives.

  The area around Kutubu is predominantly occupied by two linguo-cultural groups – the Fasu around the western and south-eastern fringes of Lake Kutubu, claiming land on the eastern

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[11] 2009a. Esso Highlands Limited. PNG LNG Project Environmental Impact Statement: Executive Summary. Prepared by Coffey Natural Systems Pty Ltd. (https://pnglng.com/media/PNG-LNG-Media/Files/Environment/EIS/2-Executive_Summary_EIS.pdf)

[12] 2009b. Esso Highlands Limited. PNG LNG Project Environmental Impact Statement: chapter 10 – Receiving Onshore Environment: Upstream Facilities and Onshore Pipelines. (https://pnglng.com/media/png-lng-media/files/environment/eis/eis_chapter10.pdf)

[13] 2010. Esso Highlands Limited. PNG LNG Project Hides Gas Conditioning Plant: Resettlement Action Plan. (https://pnglng.com/media/PNG-LNG-Media/Files/Environment/Resettlement%20Action%20Plans/HGCP_RAP.pdf)

[14] 2011. Esso highlands limited. PNG LNG Project Kutubu to Kantobo (KP 80–153): Communal Resource Plan. (https://pnglng.com/media/PNG-LNG-Media/Files/Environment/Resettlement%20Action%20Plans/Kutubu_Kantobo_KP80-153_CRP_Addndum1-KP975_Laydown.pdf)

[15] 2012. Esso Highlands Limited. PNG LNG Project Moran to Kutubu (KP 65.5-80): Communal Resource Plan. (https://pnglng.com/media/PNG-LNG-Media/Files/Environment/Resettlement%20Action%20Plans/Moran_Kutubu_KP655-80_Communal_Resource_Plan.pdf)

[16] 2013. Esso highlands Limited. PNG LNG Project Kutubu to Hides (KP 0–80): Resettlement Action Plan (https://pnglng.com/media/PNG-LNG-Media/Files/Environment/Resettlement%20Action%20Plans/Kutubu_Hides_KP0-80_RAP.pdf)

[17] 2014. Esso highlands Limited. PNG LNG Project Kutubu to Hides (KP 0–80): Resettlement Action Plan Addendum #1 – Updated Resettlement Impacts (https://pnglng.com/media/PNG-LNG-Media/Files/Environment/Resettlement%20Action%20Plans/PGHU-EH-SPZZZ-490032-Kutubu_to_Hides_(KP_0-80)_RAP_Addendum_1_Updated_Resettlement_Impacts_WS.pdf)

and western borders of the Hegegio/Tagari River; and the Foi(e) around the north-eastern fringes of Lake Kutubu and beyond.

Fasu clans historically claimed the lower Tagari riverbanks and the Huli claimed higher elevation land on the mountainsides. Fasu categorise themselves into mountain, bush-top and headwater social and geographic groups.

Like the Huli, Fasu clans are organised based on patrilineal descent, are totemic in their naming, and are often represented in multiple villages.

Prior to the 1960's the Kutubu area served as a trade route between Huli, Fasu and Foie people, with Fasu and Foi(e) occupying the middle of a polyethnic network of subsistence, ritual and exchange activities.

- Cultural Heritage – numerous discrete cultural heritage sites (caves, burial sites, sacred stone sites, settlement sites, spirit sites, sacrifice sites), as well as those involving broader landscapes (sacred lakes [i.e. Lake Kutubu], swamps, creeks, spirit sites, limestone outcrops, sacred groves, pant harvest and hunting areas) within the region. Lake Kutubu is home to ". . . ossuary sites, where corpses of local people are left on cliff edges by the water."[18]

  The majority of Huli cultural sites are comprised of sacred pools at which sacrifices have been made, or caves that provide hunting shelters and ossuaries.

- Economy – principal sources of cash income are wages and royalties from oil and gas developments. Around Hides, residents have been employed as carpenters, chainsaw operators, cooks and mechanics. Staple sources of income also come from bride price, trade-store, public motor vehicle (PMV) and wantok gifts/loans. However, most people have no form of paid employment (i.e. cash economy remains at a low level), still producing their own food to eat, rather than sell. The local (customary) subsistence economy is based on sago palm cultivation, slash-and-burn (swidden) agriculture, and hunting, gathering and fishing. A key crop is sweet potato. Other crops include: coffee, economic trees (casuarina, black palm, bamboo), garden crops (banana, choko, chilli, corn, cucumber, ginger), and tree crops (avocado, breadfruit, fig, marita).

  In the Hides area, Huli gardeners mainly grow sweet potato and highlands pitpit (*Setaria*), sugar cane, various greens and ferns, bananas and tanget (*Cordyline*). Also grown are avocado trees, marita (*Pandanus canoideus*), ficus, black palm, mature Casuarina, bamboo and pine trees. Pig husbandry is also practiced, contributing to both subsistence and case economies. It is customary practice for Huli individuals to lease garden lands from others to cover potential food shortages.

[18] 2016. Tlozek, E. PNG Villagers Teach Ancient Practices to Celebrate Culture, Protect Environment. ABC News. (https://www.abc.net.au/news/2016-10-08/png-villagers-tech-ancient-practices-to-protect-environment/7895084)

Aside from gardens around Hides and Komo (just south of Hides), the project area has very low potential for large-scale commercial agriculture.

Traditionally, both Fasu and Foi(e) have depended on three subsistence strategies: sago palm cultivation; swidden (shifting slash and burn) cultivation; and hunting, gathering, fishing and pig husbandry.

The main source of protein for people living around Lake Kutubu is fish caught from the lake.

- Health and Wellbeing – Overall, health status of the local population is poor with public health facilities generally inadequate or non-existent within the region. However, the settlements in the Moran/Kutubu area have benefited by more than a decade of oil and gas related developments that have provided good roads, health and education services, relative to other areas of Southern Highlands Province.

- Education Facilities – more than a decade of higher incomes in the Hides area has helped to stabilize social services (schools and health posts) to produce relatively higher standards of living than elsewhere in the highlands. Roughly half of school-age children in the wider Hides catchment attend school, with fewer attending the farther away from Hides they dwell. Residents achieving Grade 1 to 10 is higher than for the general region. Rates of males attending school are roughly twice that of females in the area. Generally, schools are under-staffed and under-resourced. Literacy rates average 55% for males / 40% for females, and less than 1% go on to tertiary education.

- Resource Extraction – a proposed forestry concession was identified surrounding the Hides Gas-to-Electricity Plant at the time the plant was proposed.

- Disputes – depending on the specific area around Kutubu, the nature of disputes has been varied. One report[19] notes that most disputes and grievances arise over distribution over petroleum revenues, not land ownership. Another report[20] indicates that since 1996 the primary reason for disputes is land ownership and relative status of resident clan segments in relation to their land tenure. In this second report, it was noted that imposition of oil and gas tenures in the oil and gas producing area of the highlands has effected relations between and among ethnic groups, and social life between villages. Major disputes have arisen between the Foi(e) and Huli over the amount of land claimed by one of the Huli clans. Where contested land disputes have arisen, but have not directly affected construction, compensation payments have been held in escrow until disputes are resolved.

- Local Community Attitudes Toward Oil and Gas Projects – ESSO Highlands Limited (2009) reported that 95% of people canvassed support their gas fields project, with most respondents believing that their lives would be improved.

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[19] 2011. Esso highlands limited.
[20] 2012. Esso Highlands Limited.

2. Land and Environmental Background

The Environmental Impact Statement for the PNG LNG Project summarises the environmental setting for the area in which the two potential gas-to-power projects are being considered as follows (ESSO Highlands Limited, 2009[21]):

- Topography and Land Form Features (Figure X-1) – the region's geology is characterised by predominantly Miocene limestones and siltstones of the Nipa Group, with features that include northeast to southeast trending ridges and ravines, with karst and incised volcanic features of higher elevation Papuan Fold Belt. Numerous karst sink-holes, pinnacles, towers, caves, springs and waterfalls are found locally throughout the area. The existing Hides Gas-to-Electricity Plant is situated on a composite alluvial plain, whereas the Hides Gas Conditioning Plant is located on little dissected volcanic lower slopes and volcano alluvial fans. The Kutubu Central Processing Facility sits on polygonal karst (plateau or broad ridges on limestone covered with numerous rugged hills).

- Seismicity – The Southern Highlands Seismic Zone follows the Papuan Fold Belt. The largest earthquake magnitudes for once-a-year, ten year and thirty year frequencies are 4.7, 6.2 and 6.9, respectively, with large earthquakes and severe effects expected in future.[22]

- Watercourses (Figure X-2) – proposed sites are situated mainly within the Kikori River catchment area, with the Hides sites located in the upper portion of the Tagari River watershed, and the Kutubu site located on a small tributary of the Hegigio River. The Tagari River flows into the Hegigio River, which in turn becomes the Kikori River. Landform runoff is relatively low, with high infiltration through karst features and into aquifers and underground watercourses. Rivers carry high sediment loads during high flows. Impeded drainage forms swamps in some areas. Higher-order streams generally have low turbidity except when in flood, while lower-order streams into which the higher order streams flow, tend to be turbid (trending toward being reasonably clear during periods of low flow).

- Bioregions (Figure X-3) – the diverse landscape of Southern Highlands Province supports twelve bioregions. Hides Gas-to-Electricity Plant and Hides Gas Conditioning Plant are located within the Eastern Uplands Volcanics / Karst Bioregion and Western Volcanics Bioregion, respectively, whereas the Kutubu Central Processing Facility is located within the Lagifu Agogo Limestone Uplands Bioregion.

- Flora (Figure X-4) – most of the Kikori River catchment is blanketed with primary tropical forest. Floristic diversity is high (6,000 to 12,000 species). The Hides Gas-to-Electricity and Hides Gas Conditioning plants are situated in an area of lower montane small crowned forest, whereas the Kutubu Central Processing Plant is situated in an area of lower montane very small crowned forest with complexes of *Nothofagus* (southern beech). The floors of

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[21] 2009a. Esso highlands limited.

[22] 1983. Ripper, I.D. and K.F. McCue. The Seismic Zone of the Papuan Fold Belt. (https://d28rz98at9flks.cloudfront.net/81143/Jou1983_v8_n2_p147.pdf)

most valleys and basins is predominantly comprised of vegetation assemblages affected by anthropogenic influences.

- Fauna – diverse with high endemism – 89 species of non-flying mammals (rodents [50], possums [11], macropods [8], cuscuses [6], and marsupial carnivores [7]); 47 species of bats; 407 species of birds; 61 species of reptiles; and 107 species of amphibians. Listed / restricted species include 22 non-flying mammals, 27 bats, 70 birds, 11 reptiles and 5 amphibians, many of which are affected by hunting pressure. Critically endangered species include several mammals. The Kikori River system has more endemic species (15) than any other river system in New Guinea.

- Parks, Conservation / Protected Areas and Wildlife Management Areas – there are five formal conservation areas in the region, including Lake Kutubu Wildlife Management Area (24,057ha) which provides habitat for endemic fish and is a wetland of international significance (Ramsar-listed)[23]. The lake supports 18 species of freshwater fish, of which 12 are endemic, giving it the highest endemicity of any lake in the New Guinea-Australian region, most likely due to its isolation and unique habitats. Water within Lake Kutubu is exceptionally clear. However, hydraulic fracturing associated with gas development within the area has been attributed to contamination of the lake sediments.[24]

  The other four conservation areas include three protected areas of rainforest on the slopes of Mt. Bosavi (within 45km WSW of Kutubu Central Processing Plant; within 56km WSW of Lake Kutubu) in the Kikori River basin (Sulamesi 70,159ha, Hose 4,830ha and Arisai 4,661ha)[25], and the 3,984ha Neiru wildlife management area located 168km southwest of Kutubu in the Aird Hills (Gulf Province) of the Kikori River delta.

- Climate – under the influence of the seasonal northwest monsoon (December to March) and southeast trade winds (May to October), both of which bring significant rain. The mean annual rainfall varies within the area from 2,500mm at Tari to 4,500mm at Kutubu.

- Noise and Air Quality – reflect the low level of development within the region.

ESSO Highlands Ltd. (2009a, 2009b) concludes that conservation and biodiversity quality and values in the area are uniformly high. Many areas remain undisturbed by human activity. However, none of the areas within which the gasworks were proposed in 2009 were identified as having a concentration of listed species. Notwithstanding, ten noteworthy areas were identified as priority areas for management / mitigation. Of the ten, those within the upland gas production areas

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[23] 2006. UNESCO. Kikori River Basin / Great Papuan Plateau. (http://whc.unesco.org/en/tentativelists/5060/)

[24] 2015. Schneider, L., *et al*. History of Human Impact on Lake Kutubu, Papua New Guinea: The Geochemical Signatures of Oil and Gas Mining Activities in Sediments. Science Direct. Elsevier publishers. (https://www.sciencedirect.com/science/article/pii/S0045653515305403)

[25] 2006. WWF. New Protected Areas for Papua New Guinea. (http://wwf.panda.org/wwf_news/?84160/New-protected-areas-for-Papua-New-Guinea)

included: low-altitude forest around Juha; lower mountain forest on karst of Hides Ridge; caves (only a few of which deemed suitable for bats); sinkhole swamps (breeding habitat for frogs); upland streams (habitat for frogs, birds, some rodents); swamp forest (habitat for birds, turtles and crocodiles); and stable areas in landslide / erosion-prone areas (fauna refuges).

3. Government and Politics

The following points address the organisation of government and the political climate in the highlands gas producing areas in which the two gas-to-power options are being reviewed:

- The potential gas-to-power site at Hides is within Hela Province, the capital of which is Tari, while the site at Kutubu is in Southern Highlands Province, the capital of which is Mendi.

- There are three districts that make up Hela province. The existing Hides plants are located in Komo-Margarima District, in which three local level (rural) government (LLG) areas are identified.

- There are five districts that make up the Southern Highlands Provice. The existing Kutubu Central Processing Plant is located in Nipa-Kutubu District, in which five LLG are identified.

- Under PNG legislation, the state manages negotiation of benefit sharing arrangements between different levels of government and landowners, with the government responsible for managing distribution of benefits.

- Road conditions are very poor in both Hela and Southern Highlands provinces, and local road users, including public motor vehicle operators, have in the past expressed their dissatisfaction with lack of government action to improve road conditions. Kutubu-Mendi, Komo-Tari and Mendi roads were sited as being among the worst roads in the area. Vehicle maintenance costs soar when deteriorating road conditions contribute to vehicle wear and tear. Locals have sometimes blamed the use of heavy trucks transporting machinery to Hides. Concern has been expressed that people may take matters into their own hands if the government does not take action, especially since the money for infrastructure (roads, electrification [including supplying power to Hides communities for free], police stations, hospitals, etc.) is supposed to come from tax credits paid out of the oil and gas sector. Regarding demands for road improvements, government responds that there are too many demands for compensation from landowners residing along some sections of road.[26] [27] [28]

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[26] 2013. Tari, M. Mendi to Tari Road a Nightmare. Blog. (http://mangtarwantok.blogspot.com/2013/01/mendi-to-tari-road-nightmare.html)

[27] 2018. Elapa. J., Mendi-Ambua and Kutubu Access Roads. Post Courier. (https://postcourier.com.pg/mendi-ambua-kutubu-access-roads/)

[28] 2018. Unknown. Undialu Queries OSL on State of Infrastructure. Post-Courier. (https://postcourier.com.pg/undialu-queries-osl-state-infrastructure)

- Key issues raised by local customary land owners effected by the previous Hides and Kutubu projects include:
    - Environmental – concerns over emergencies along an operating pipeline and how this will be handled; concerns that the present natural habitats will be altered; issue of whether soils will be affected by gas development; concern for damage to, or loss of water sources that serve communities and have not been restored in the past.
    - Social / Livelihoods – concerns over promises made, but not kept, in the past, and what the project will do to ensure this doesn't happen again; concern over lost opportunities to hunt, and collect wild berries and ferns for food, to supplement the main diet of sweet potatoes; claims of delay in receiving food rations or not receiving sufficient rations for household needs.
    - Social Infrastructure – issue of access to schools and churches by those who are resettled to new dwelling sites; concern for lack of road upgrades and effects this has on limiting access to local and distant markets; issue of lack of roads, health and education services – community not seeing any tangible development; issue of lack of basic support on community health initiatives – lack of medicine a concern; need for sports facilities for youth so they don't pick up their guns and start fighting again.
    - Cultural Heritage – concern that changes to alignments will affect sacred sites and disturb spirits who will cause people to become sick or die – will hold the project responsible.
    - Marginalised Groups – concerns that women and children need more medicine and health services; questions regarding whether separate compensation packages are available to women, mothers and children.
    - Land Access and Ownership – issue of how long people will be restricted from accessing their lands; concern for potential loss of land ownership if it is necessary to relocate due to the project, and what this does to people whose net worth is tied to their land.
    - Employment – concern about lack of hiring of local people during project construction related jobs when those from outside the project area are being hired.
    - Benefit Sharing / Compensation Payments – claims that government leaders have cheated project-affected people out of their royalties; claims that census and valuation processes were faulty, resulting in under-compensation; issue of misrepresentation by persons claiming to own structures and assets that did not belong to them; claims that Huli boys who are considered adults at age 16 were included in their fathers' household valuations rather than their own; concern of inadequate compensation for households that include a man with more than one wife, since the different wives are customarily accommodated in separate structures; concern that payments for surface damage are not being paid upon

signing of agreements, rather they are only being paid once construction works start; issue of cut-of-date for valuation of gardens and economic trees; issue of speculative structures being constructed after the cut-of-date and the need to commence construction as soon after that date to prevent more people from trying to erect structures and build gardens after the date; concern that damage outside the ROW will not be compensated

- Resettlement – concern for where people will be settled given the lack of available flat land; issue of whether materials will be supplied with which to construct new dwellings in resettlement areas where natural building materials may not be available

- Cash Payments / Bank Accounts – concerns that bank charges are too high (10%)

- Grievance Process / Disclosure Program – questions regarding how the community can bring its grievances to the project; concerns that there are too many different teams that present information, ask questions and leave.

ANNEX D International Treaties Ratified by Papua New Guinea

ANNEX D INTERNATIONAL TREATIES RATIFIED BY PAPUA NEW GUINEA

Multilateral Environment Agreement	Status	Purpose/Aim	Agency Responsible	Relevance to Project
Regional Multilateral Environment Agreements				
Pollution Protocol for Dumping	Ratified - 15/09/1989	Prevention of pollution of the South Pacific region by dumping.	Department of Foreign Affairs (DFA), and Department of Environment and Conservation (DEC)	NA
Pollution Protocol for Emergencies	Ratified - 15/09/1989	Cooperation in combating pollution emergencies in the South Pacific region.	DFA and DEC	NA
Natural Resources & Environment of South Pacific Region (SPREP Convention)	Ratified - 15/09/1989	Protection of natural resources and environment of the South Pacific Region in terms of management and development of the marine and coastal environment in the South Pacific Region.	DFA and DEC	NA – the Project will not affect the marine and coastal environment.
Waigani Convention on Hazardous & Radioactive Wastes 1995	Ratified - 12/06/1976	Bans the importation of hazardous and radioactive wastes into Forum Island countries and to control the trans-boundary movement and management of hazardous wastes within the South Pacific region.	DFA and DEC	NA – the Project will not use or generate hazardous or radioactive wastes.
International Multilateral Environment Agreements				
Chemicals, Wastes and Pollution				
International Convention for Civil Liability for Bunker Oil Pollution Damage	Ratified - 12/03/1980	Strict liability of ship owner for pollution damage to a coastal state within a certain amount.	DFA and DEC	NA – the Project will not affect the marine and coastal environment.

Multilateral Environment Agreement	Status	Purpose/Aim	Agency Responsible	Relevance to Project
Convention On The Prevention Of Marine Pollution By Dumping Of Wastes And Other Matter (London Convention)	Ratified - 10/08/1973	Prevention of marine pollution by dumping of wastes and other matter.	DFA and DEC	NA
United Nations Convention to Combat Desertification (UNCCD)	Ratified - 06/12/2000	Agreement to combat desertification and mitigate the effects of drought in countries experiencing drought or desertification.	DFA and DEC	NA
Stockholm Convention on Persistent Organic Pollutants	Ratified - 07/10/2003	Protection of human health and environment from persistent organic pollutants (POPs).	DFA and DEC	NA - as no POP chemicals will be used during construction or operation.
Biodiversity				
Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal	Ratified – 01/09/1995	Reduce the movements of hazardous wastes between nations, and specifically prevent transfer of hazardous wastes from developed to less developed countries	DFA and DEC	NA
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Ratified – 12/12/1975	Regulations and restriction of trade in wild animals and plants through a certification system of imports and exports.	DFA and DEC	NA

Multilateral Environment Agreement	Status	Purpose/Aim	Agency Responsible	Relevance to Project
World Heritage Convention (UNESCO)	Ratified - 28/07/1997	Protection of sites of Outstanding Universal Values.	DFA, DEC and National Museum	NA
UN Convention on Biological Diversity (UNCBD)	Ratified – 16/03/1993	Conserve biological diversity through the sustainable use of its components and the fair and equitable sharing of the benefits arising out of utilizing genetic resources.	DFA and DEC	Potentially Applicable – if subcomponents of Component 1, including Naoro-Brown HPP and possibly gas-to-power project may affect areas of potentially high biodiversity
Cartegena Protocol on Biosafety to the UNCBD	Ratified – 14/10/2015	Protection of biological diversity from the potential risks posed by genetically modified organisms resulting from modern biotechnology.	DFA and DEC	NA
Coral Triangle Initiative (CTI) Agreement	Ratified – May 2009	Protection and conservation of marine resources within the coral triangle region.	DFA, DEC and CTI-CFF National Coordinating Committee	NA
Ramsar Convention on Wetlands of International Importance	Ratified – 16/07/1993	Conservation and sustainable use of wetlands, especially as waterfowl habitat.	DFA and DEC	Potentially Applicable – if wetland fens upper Naoro River will be affected by Naoro-Brown HPP reservoir, or if gas-to-power project affects Lake Kutubu
International Treaty on Plant Genetic Resources for Food and Agriculture	Ratified – 29/08/2014	Guarantees food security through conservation, exchange and sustainable use of the world's plant genetic resources for food and agriculture.	DFA and Department of Agriculture and Livestock (DAL)	NA

Multilateral Environment Agreement	Status	Purpose/Aim	Agency Responsible	Relevance to Project
International Plant Protection Convention	Ratified – 03/12/1953	Prevent and control introduction and spread of pests of plants and plant products.	DFA, DEC and DAL	Potentially Applicable – if equipment or building materials contaminated with invasive plant materials or insects are brought in from outside the Naoro-Brown HPP or gas-to-project areas
International Tropical Timber Agreement	Ratified - 09/06/1996	Promote the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests; promote sustainable management of tropical timber producing forests.	DFA, DEC and Forest Authority (FA)	NA
Cultural and Natural Heritage				
World Cultural and Natural Heritage Convention	Ratified – 28/07/1997	Protection and management of cultural and natural heritage	DFA, DEC and National Museum under the Ministry of Tourism, Arts and Culture (MTAC)	Potentially Applicable - since cultural heritage is valued by local communities in the Naoro-Brown HPP and gas-to-project areas
Convention for the Safeguarding of the Intangible Cultural Heritage	Ratified – Date Unknown	Take necessary measures to ensure the safeguarding of the intangible cultural heritage present in its territory.	DFA, DEC and National Museum under MTAC	Potentially Applicable - since cultural heritage is valued by local communities in the Naoro-Brown HPP and gas-to-project areas
Climate Change Related				
United Nations Framework Convention on Climate Change (UNFCCC)	Ratified – 16/03/1993	Set an overall framework for intergovernmental efforts to tackle the challenges posed by climate change.	DFA and DEC	Potentially Applicable - since the Project will use fossil fuel for electricity production

Multilateral Environment Agreement	Status	Purpose/Aim	Agency Responsible	Relevance to Project
Kyoto Protocol	Ratified – 28/03/2002	Reduce greenhouse gases especially carbon dioxide for the 39 industrial/ developed countries by an average pf 5.2% by 2012.	DFA and DEC	NA – GhG for construction of the Project will be limited in time scale and time. Potentially Applicale – for operation, due to production of GhG from burning natural gas to produce electricity
Montreal Protocol	Ratified - 27/10/1992	Allows phase out of substances that deplete the ozone layer according to a fixed schedule.	DFA and DEC	NA
Vienna Convention for the Protection of the Ozone Layer	Ratified - 27/10/1992	Frameworks for international reductions in the production of chlorofluorocarbons.	DFA and DEC	NA
Paris Agreement (within the UNFCCC)	Ratified – 21/09/2016	Deals with GhG emissions mitigation, adaptation and finance, starting in 2020.	DFA and DEC	Potentially Applicable – for operation, due to production of GhG from burning natural gas to produce electricity

ANNEX E Indigenous Peoples Planning Framework

ANNEX E Indigenous Peoples Planning Framework (IPPF)

1 Introduction

Country-level social analysis undertaken during appraisal of the Naoro-Brown HPP in Gulf Province, and during the rapid appraisal of two gas-to-power project options in Southern Highlands Province suggests that groups meeting the four defining characteristics of OP 4.10 Indigenous Peoples (IP) are found in these regions of Papua New Guinea (PNG). This includes numerous self-identifying groups with distinctive institutions, with patterns varying between districts within these provinces.

Subcomponents of Component 1 of the proposed new Energy Utility Performance and Reliability Improvement Project (EUPRIP) (the "Project") will need to be screened in accordance with OP 4.10 to determine if IP communities are present within a subproject's area of influence. As project information on the subproject sites for the new (Phase II) project was lacking prior to preparation of the ESMF, the following Indigenous Peoples Policy Framework (IPPF) is based on the Phase I project and, therefore, may need to be revised once the new Phase II project is further defined.

2 Potential Issues and Impacts Relating to Indigenous Peoples Communities

The ubiquitous nature of IP communities in PNG combined with the geographic spread of potential subprojects suggests that these communities have the potential to be present in subproject areas. The potential positive and negative social impacts on IP communities are similar to those for non-indigenous populations. With the exception of the Naoro-Brown HPP, the specific siting of which is known for most of its main facilities and for which a preliminary ESIA is nearing completion, the locations for other potential subprojects, including the two potential gas-to-project locations, are only broadly identified. Surveys to confirm specific subproject footprints and their concomitant potential IP interactions have yet to be completed for other least cost power development options of Component 1, urgent rehabilitation / upgrade options covered under Component 3. However, it is conceivable that they may be located in IP community homelands. If the majority of beneficiaries of a subproject are IP the elements of an Indigenous Peoples Plan (IPP) will be incorporated into overall subproject design.

These elements include:

- identifying issues relating to the particular IP community via a social assessment process;
- undertaking free, prior and informed consultations and reviewing outcomes to determine broad community support;
- ensuring equitable access to culturally-appropriate benefits for the IP community;
- actions to avoid, minimize or otherwise mitigate any adverse impacts affecting the IP community;
- accessible and culturally appropriate means to address grievances; and
- monitoring and information disclosure arrangements.

Investments associated with Component 1 least cost development options are likely to meet the four defining criteria for IP communities in PNG under the *Environmental and Social Safeguard Instruments for the Pacific Islands Countries* (ESSIP) since most infrastructure related to these options will be sited in rural areas predominantly populated by IP. However, the Component 3 urgent rehabilitation / upgrade options are unlikely to meet the four defining criteria for IP communities, as these works will be undertaken within urban or peri-urban areas which are expected to comprise heterogeneous populations. Notwithstanding, some ancillary infrastructure (e.g., re-routing of MV transmission lines)

may traverse customary/IP community lands beyond the urban boundary in which case OP 4.10 would be triggered.

3 Legal, Policy and Institutional Framework

Should any community within a sub-project area exhibit all of the following then OP 4.10 will be triggered:

- Self-identification as members of a distinct indigenous cultural group that is recognised by other members of the community.
- Collective attachment to geographically distinct habitats or ancestral territories or have access to specific natural resources in these habitats or territories.
- Customary cultural, economic, social, or political institutions that are separate and distinctly different from the dominant surrounding community.
- An indigenous language that is different to the official language of the region.

The relevant subprojects will be planned and implemented in a manner consistent with the principles and procedures of OP 4.10.

4 Implementation Arrangements

The Government of PNG bears official responsibility for ensuring that any IPP (where required) is prepared and implemented. Direct authority for IPP development and implementation is vested in PPL, which will exercise its authority as necessary to coordinate actions with any other agencies or jurisdictions involved in planning or implementation. If an IPP is required for a particular subproject a technical consultant (anthropologist) will be engaged by PPL to develop, implement and monitor the plan.

5 Consultation Arrangements

Initial consultations will be undertaken at the subproject screening stage to establish if / which IP communities are present with the respective area of influence. If IP are present, the consultation process, to be coordinated by the relevant agency, will be undertaken in a free, prior and informed manner that results in a collective expression by IP communities of broad community support for the Project. The consultation process will be conducted in a manner that is:

- free, allowing Indigenous Peoples communities to openly express their preferences or concerns without intimidation or trepidation;
- in a timely manner, such that the preferences or concerns raised by Indigenous Peoples communities may be considered before project design decisions or implementation arrangements are finalized;
- informed in that Indigenous Peoples communities have been provided, and have had sufficient opportunity to consider, relevant information about the Project;
- inclusive, with special consultation arrangements included where necessary to obtain the preferences or concerns of women, the elderly, or others who customarily may not be expected or allowed to participate in community meetings.

A summary (including date, location, approximate number and status of persons in attendance, and summary of issues discussed and any agreements reached) will be prepared and recorded for each consultation meeting.

6 Arrangements for Social Assessment

A social assessment will be undertaken where an IPP is required, with the scope, level of detail, and methodological aspects of the assessment commensurate with the nature and extent of subproject-related impacts and risks. The social assessment will be incorporated in the sub-project ESMP and will include the following elements (as relevant):

- description of the subproject and potential issues or impacts relating to IP communities;
- identification of relevant IP communities and other key stakeholders to be consulted in the social assessment process;
- baseline information on the demographic, social, cultural, economic and political characteristics of relevant IP communities;
- elaboration of a culturally appropriate process for free, prior and informed consultations with IP communities during IPP preparation and project implementation;
- assessment of the potential adverse impacts and benefits likely to be associated with the project based on consultation; and
- summary of preferences and concerns of IP communities relating to project objectives, access and cultural appropriateness of project benefits, mitigation of any adverse impacts, and project implementation arrangements.

7 Broad Community Support

Based on results of consultations and the social assessment process, PPL will determine whether there is broad community support for the identified subprojects among relevant IP communities. This determination generally is based upon collective and often informal expression of supportive views regarding project purposes, plans, and implementation arrangements. This determination does not require unanimity; broad community support may exist even when there is internal disagreement within the community or when there is limited opposition to project purposes or proposed arrangements. The IPP will explain the basis upon which the determination has been made.

8 Outline of an Indigenous Peoples Plan

The scope and level of detail required in the IPP is commensurate with the nature and extent of subproject-related impacts and risks, which, depending on the specific subproject, may range from low (in the case of minor re-routing of MV transmission lines) to high (in the case of the Naoro-Brown HPP and new gas-to-power developments). The IPP will include the following contents:

- project description and summary description of issues relating to Indigenous Peoples;
- a brief summary of relevant issues and findings of the social assessment process;
- a summary of results from consultations and review of determination of broad community support;
- actions to ensure equitable access to culturally appropriate benefits for IP communities;
- actions to avoid, minimize or otherwise mitigate any adverse impacts affecting IP communities;
- cost estimates, budget and financial responsibilities for implementation of the IPP;
- accessible and culturally appropriate means to address grievances raised by IP (individually or collectively);
- monitoring arrangements; and

- arrangements for information disclosure.

9 Disclosure Arrangements

The Government of PNG, through PPL agrees to disclose relevant information regarding project design and implementation arrangements to IP communities and to the broader public. Specifically, results of the social assessment process, the ESMF to which this Annex is included and IPPF, and any subsequently prepared IPP will be made available in a manner, location and language accessible to IP communities. If a draft IPP or IPPF is subject to subsequent revision, the revised documents will also be disclosed in a similar manner.

Disclosure of documents will be facilitated through the World Bank's InfoShop, the PPL website and in hard copy at locations accessible to the relevant IP communities. If necessary, the IPP technical consultant will provide interpretation of the relevant documentation to the IP community during the implementation of the IPP.

10 Monitoring Arrangements

If the IPP contains any specific actions to benefit Indigenous Peoples communities, or measures to mitigate any adverse impacts upon them, a monitoring process will be defined in the IPP to assess the effectiveness of actions or mitigation measures, and to provide a means for ongoing consultation with those communities throughout the implementation period.

11 Grievance Procedure

Arrangements will be established to ensure that IP communities may bring complaints to project management attention, and that PPL responds to complaints in a timely and considered manner. Within IP communities, complaints can be raised by individuals, groups, or by the community as a whole. Specific arrangements for raising and addressing grievances will be defined and described within the relevant subproject IPP. It has been agreed that the grievance procedures will:

- be accessible (e.g., location, language, and socially inclusive) to all community members;
- use local customary arrangements for conflict resolution in an initial stage of review, as appropriate in the project context;
- have a second stage of review at the project management level, with a grievance committee chaired by the CEO of PPL; and
- have defined and disclosed performance standards for replying to grievances received at both initial and project management-level review stages.

Individuals or communities with complaints that have not been resolved to their satisfaction may also seek legal recourse consistent with laws and procedures of the PNG.

ANNEX F PPL Standard Operating Procedure for Acquisition of Customary Land

PNG Power Ltd – Acquisition of Customary Land – Standard Operating Procedure	
Purpose:	PPL at all-time must ensure that management of land acquisition & liaison with associated landowner groups is undertaken transparently and equitably by all parties and results in zero disruptions to the project operations from any local populace.
Process	**Guideline and Commentary**
1. Land & ownership identification	PPL, together with relevant stakeholders that includes the District Administrator, Provincial Lands Office, Village magistrate and Land Mediators, ward councilors and landowners have consultations on site to identify suitable land and legitimate owners of the land.
2. ILG – Incorporated Land Group	PPL will investigate if the legitimate land owner groups have existing ILG. It is PPL's responsibility to facilitate the registration of landowners ILG.
2.2. Preparation of Sketch Map	*PPL will facilitate and prepare a sketch map of the land, including properties such as rivers, mountains plants that are significant that demarcates each clan land boundaries, the sketch map will be strictly used for ILG purposes only.*
2.3. Birth certificates & NID	*PPL should engage officers from Civil & Identity Registry to conduct birth & NID registration for the landowners. The birth & NID registration confirms that the person belongs to that particular clan by birth.*
2.4. Preparation of ILG application	*PPL will facilitate individual clan meetings where each clan will appoint its executives, confirm its members and adopt ILG constitution for the interest of the land group and its members.*
2.5. Submit ILG application for registration	*PPL will then submit all ILG application for registration to the Registrar of ILGs. The application should consist of the following; The constitution, full or complete list of member, not less than 35 members, sketch map of all customary land the land group owns, and records of meeting decisions.*
2.6. Gazette Notice of Application	*The Registrar of ILG will publish a notice of application in the National Gazette and forward a copy to the District Administrator and village court officials. This is done to ensure transparency in the process of incorporation. There is a statutory period of 30 days for any person to raise any objections or so concerning the application for incorporation.*
2.7. Verification Report	*The District Administration is required by law to inspect and verify the information in the application and then report back to the Registrar of ILG at the expiration of 30 days' period. The Registrar of ILG will not issue any certificate of incorporation until and unless he receives the verification report from the District Administrator confirming the information in the application for incorporation.*
2.8. Issuance of ILG Certificate	*At the expiration of 30 days period, and upon receiving verification report from the District Administrator , the Registrar of ILG will then proceed to incorporate the ILG and issue a certificate of incorporation.*
3. Cadastral Survey of the Land	PPL with assistance from a reputable registered Surveyor will conduct a cadastral survey of all the land that is of interest. The survey plan must be verified and registered by the Surveyor General's Office.
4. Land Investigation Report	PPL with Officers from the Customary Land Registration Division will conduct the LIR on the land. The LIR will only be done if the land is being surveyed and survey plan registered. LIR will then be submitted to the Director Customary Land Registration for verification & approval for creation of journal & land file for record.
5. Valuation	PPL and Officers from Valuer General will conduct valuation assessment for the Unimproved Value of Land. The basis of valuation will very much depend on the LIR. Whether the land will be sold for outright purchase or lease.
6. Execution of the Deed of Sale & Title transfer	Based upon the UV assessment, the execution of deed of sale will take place with titling & transfer or lease.

ANNEX G Resettlement Policy Framework (RPF)

ANNEX G Resettlement Policy Framework (RPF) (Including Voluntary Land Donation Protocol)

A. Introduction

The land acquisition process in Papua New Guinea (PNG) is complex. It is anticipated by PPL that no land acquisition will be required for most of the subcomponents associated with the project, as physical works will be confined to Component 1 (Urgent Rehabilitation / Upgrade of PPL Infrastructure. PPL presently owns the land on which the MV network, substations, and control and protection systems are situated. The possible exception to this is where MV transmission lines need to be re-routed to strengthen the grid. However, in most, if not all cases, PPL will avoid relocating systems outside of Government owned land or land owned by substantial land owners with whom equitable negotiations towards either "willing buyer – willing seller", long term leases or "voluntary land donations" (VLD) can be executed (e.g., land owned by major church organisations).[29]

No land acquisition will be required for Component 2 (Implementation of Key Components of PPL's Performance Improvement Plan), Component 3 (Technical Assistance Studies for Least Cost Power Development), or Component 4 (Project Management Support) as no physical works are involved with these three project components under the current project.

Involuntary land acquisition in PNG is extremely time consuming and can lead to social unrest and substantial project delays. Where land is required for the Project, the preference is for PPL to acquire it through voluntary land acquisition, which would necessitate preparation of an Abbreviated Resettlement Action Plan – ARAP (see **Appendix 2** for ARAP Checklist). It is anticipated land can be acquired by negotiated settlement / VLD, as subprojects will be scoped and designed by PPL in close collaboration with the project-affected communities.

However, if negotiated settlement / VLD is not possible, the requirements of this Resettlement Policy Framework (RPF) will need to be implemented.

B. Project Description

The Project will involve four components, with subcomponents, as follows:

Component 1 – US$15.8m for executing urgent rehabilitation / upgrade of PPL infrastructure facilities, implemented through supply and installation contracts, for electricity supply needed to improve service quality to acceptable levels and minimize outages, with investments prioritized by PPL as follows:

- Improvements and upgrades in the MV distribution network – includes installation of new switchgear equipment (re-closers, load breaker switches) and fault indicators in the Medium Voltage (MV) network, and implementation of backup facilities and reinforcements of around 100km of MV network to reduced overload and avoid large voltage drop situations in the Ramu system. This will likely include 50km of urban network reinforcement focusing on Taraka

[29] VLD is not applicable for medium- or large-scale infrastructure projects, particularly in cases where a government agency or entity that has a statutory obligation to provide the infrastructure and/or services for which the land is required.

and Milford areas and 50km of reinforcements in rural areas. The reinforcements consist of mostly replacing conductors in existing lines, with possible small sections of new network (between 0.2 - 1km, using poles).

- Rehabilitation and upgrades in selected substations – support for increasing the transformer capacity installed in selected substations (most likely Milford and Taraka) and for the installation of MV capacitor banks in substations for reactive power compensation.
- Enhancements in control and protection functionality – includes: expanding the SCADA System to additional priority sites; setting up of a national control room (through refurbishment of an existing room still to be determined at PPL Headquarters[30]) and upgrading the protection system.

Component 2 – US$9m to implement key components of PPL's performance improvement plan – provide support for the following key sub-components of the PIP, with contractor support provided through Component 4:

- Incorporation of management tools – enable more efficient, transparent and accountable development of processes and activities in all business areas: operation and maintenance (O&M) of assets for electricity supply and attention of customers' claims; commercial functions; and management of corporate resources. Incorporation of the MIS must be complemented with the improvement and update of their respective databases (customers, assets, etc.) supported by a geographic information system (GIS).
- Protecting and increasing revenues – support implementation of a revenue protection program (RPP) for sustainable reduction of non-technical losses in supply (unmetered consumption) through systematic remote recording and monitoring of consumption of large users through the installation of Automatic Meter Reading (AMR) systems.

Component 3 – US$3.8m (including a possible US$2.2m of GIF reimbursable grant) for technical assistance on least cost power development plan – development and implementation.

The TA studies will support any supplementary planning studies as may be needed to the Least Cost Power Development Plan (LCPDP). It will also provide support for implementation of the plan through the following:

- Assessment of existing hydropower stations rehabilitation:
    - Ramu 1 rehabilitation – diagnosis and assessment of the technical potential to recover its available capacity, preparation of feasibility study and bidding documents for rehabilitation. This will most likely include replacement of electromechanical equipment;
    - Rouna Cascade rehabilitation – assessment of the water flow and optimization of dispatch to maximize the generation of the whole cascade, along with the associated training for the system operators.

[30] Covering room refurbishment, cable trench inlet sealing, room's air-tightness improvement, air-conditioning facility installation, etc.

- Development of the Naoro-Brown HPP by continuing the support previously provided under the Energy Sector Development Project (ESDP) to launch a tender for selecting a developer and taking the project all the way to financial close. The support will include specific transaction advisory support, to be financed by a GIF reimbursable grant (if approved by GoPNG).
- Preparation of a gas-to-power project – PPL to select one of two potential options – expansion of the existing Hides Gas Generation Plant (owned by Porgera JV[31]); and possible greenfield gas generation plant in the vicinity of the existing Kutubu Gas Conditioning Plant. The TA could include complementary technical studies to make the project ready to go to market (such as preparation of pre-feasibility studies). Additional support could also be provided for preparation of bidding documents and transaction advisory services, to be supported by GIF[32].
- Updating potential project database – support PPL to take stock of all available information, updating it as needed – namely as regards to cost estimates.

Component 4 – US$3m for project management support – includes: recruitment of project management, technical, financial management (FM), procurement and social and environmental safeguards experts as the need may be; financing for the preparation of project safeguards studies, audits, office equipment and incremental operating costs; support for project implementation will be provided through this component, namely for the provision of technical advisory services to PPL for project design, implementation and supervision; and implementation of rehabilitation and network upgrade works going forward.

C. Land Acquisition for the project

As noted above, the only physical works for which land acquisition may be required for the Project are associated with possible additional land required to re-route short segments of the MV transmission system that is a subcomponent of Component 1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure.

At present, Component 3 involves only Technical Assessment studies. However, if either of the TAs for the two potential major projects of Component 3 (Noaro-Brown HPP; selected gas-to-power development) result in decisions to proceed to implementation, then both will have the potential to result in loss of income due acquiring lands currently used as gardens, communal timber forests and harvesting forest products. In the event that either or both of these projects proceeds as future PPL projects, then the Bank supported technical assistance will include the preparation of a Resettlement Plan or Abbreviated Resettlement Plan in accordance with OP4.12 – Involuntary Resettlement which assesses the land acquisition requirements and any associated physical and economic displacement impacts and clearly defines how these impacts will be managed in a way which meets the policy requirements of OP4.12. Early indications are that no physical relocation of dwellings would likely result from these two major Project subcomponents, but this will be confirmed by the TA studies and appropriate documentation prepared in accordance with this RPF if impacts are anticipated.

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[31] This could be a brownfield, greenfield or combination of both.

[32] Government has already requested the use of GIF funding for gas-to-power. This request would be confirmed over the next couple of months once the project is firmed up. Furthermore, the World Bank will be able to support sourcing of gas for the project by providing TA to government on definition of the conditions under which the gas will be supplied to domestic customers.

Other subcomponents of the Project are expected to have little or no need to acquire additional land, as the subcomponents will either not involve any physical works, or if physical works are proposed will be undertaken on land currently owned by PPL, or on public rights-of-way (as in the case of rerouting short segments of MV distribution lines). Land required for the two major subprojects of Component 1 would widely be held under customary title. If found to be necessary, it is likely that the land will be acquired through voluntary arrangements with communities. If Voluntary Land Donation is envisaged (i.e., for smaller subprojects such as MV distribution line rerouting if additional land is required), it will follow the VLD protocol developed for the Pacific Islands as documented in the (**Appendix 1**), which was prepared by the World Bank as part of its Environmental and Social Instruments for the Pacific Islands (ESSIP) to address the specific needs of the Pacific Island Countries.

The VLD protocol is used extensively throughout the Pacific to allow the donation of land subject to certain criteria being met. It is particularly effective where the land is held in customary or communal title as the VLD process has meaningful consultation as one of its foundations which, in turn, seeks to ensure that impacts are minor, that alternatives exist and that the land owners are direct beneficiaries of the project. Notwithstanding this, it is possible that involuntary land acquisition (and preparation of a RAP/ARAP) may be required if additional land is needed during project implementation which, for whatever reason, does not meet the requirements of voluntary agreement. This would apply where the landowner is not a beneficiary of the Project and the pre-requisites for negotiated settlement / VLD are not satisfied, or where land acquisition is for some reason restricted and involuntary land acquisition processes need to be applied. Accordingly, OP4.12 (Involuntary Resettlement) has been triggered as a precautionary measure in this case. It is noted, however, that this is considered very unlikely that additional land could not be acquired by negotiated settlement / VLD, as subprojects will be scoped and designed by PPL in close collaboration with the community.

D. Justification for Preparing a Resettlement Policy Framework

The specific locations for siting infrastructure works for the subprojects have not been determined, and will be decided largely based on optimizing project design and outputs, and feedback received during consultations with stakeholders and affected people (APs). Furthermore, a fundamental part of the project identification process will be ensuring that there is a high level of community demand and "ownership" of the Project. The bulk of land required is expected to be private or customary land, including land already held under ILGs. Acquisition of these lands would be through a process of negotiated arrangement culminating in a "willing buyer-willing seller" transaction, lease/easement, or VLD. Any VLD will be based on guidance provided in **Appendix 1**.

A Resettlement Policy Framework (RPF) is, therefore, the appropriate social safeguard instrument, as no physical displacement is envisaged.

If involuntary land acquisition is unavoidable, an Abbreviated Resettlement Action Plan (ARAP) will be developed as per Operational Policy 4.12, Annex A, paragraph 22. In the event an ARAP is required, then it would form part of the agreement between the Government of PNG and the World Bank.

E. Objectives, Definitions and Key Principles

The guiding principles for the project are that involuntary resettlement is to be avoided or minimised. Affected People (APs) should be better off or at least as well off as before the project. All persons affected by the Project are to be consulted throughout the Project, have the opportunity to participate in planning, and to share in project benefits. The project should contribute to sustainable development.

These principles involve a process of: early identification of stakeholders and, in particular of affected Peoples (AP), frank and effective public disclosure of any known impacts; consultation and participation to avoid or mitigate negative impacts identified, and to ensure that no person or impact is overlooked; fair, transparent and timely intervention to support AP during implementation, land acquisition and restoration of livelihoods; and commitment, where possible, to improve upon the status quo, particularly for those who may be vulnerable by reason of poverty, ethnicity, gender, age, disability, or social status.

The over-riding objective is to avoid any resettlement impacts via subproject identification, and effective infrastructure design. To ensure that the projects contribute to the objective of sustainable development, PPL will adopt a comprehensive disclosure and consultation process that includes all stakeholders. The consultation process with AP will reveal all foreseeable impacts, and will elicit AP concepts of how mitigation options and resettlement planning can contribute to their aspirations for sustainable restoration or improvement of their livelihoods. Where loss of land, and/or land-based assets occurs, the aim will be to replace like for like. If this is not possible, compensation will be provided for lost land, assets and income, and the costs of relocation and restoration of livelihoods will be met. Restoration includes not only physical assets, but also social and cultural assets. If there is a risk of disruption of these values, which are often disproportionally encountered by women, the AP will contribute to selection of mitigation and resettlement options to ensure policy objectives are met.

F. Legal and Regulatory Framework

Overview

The legislation governing the acquisition of land in PNG is contained in the *Lands Act* 1996 (LA). The LA defines ownership arrangements, governs the management of land, and sets out procedures for the acquisition and lease of land. Land is defined under the LA as "*an interest in land whether arising out of and regulated by custom or otherwise.*"

Land in PNG is either customary land or registered land (also referred to as alienated land, since it has been alienated from customary ownership). The vast majority of land in the country is still held as customary land and most natural resources (with some exceptions) belong to the landowners under custom. The LA defines customary land as "*. . . land that is owned or possessed by an automatic citizen or community of automatic citizens by virtue of rights of a proprietary or possessory kind that belong to that citizen or community and arise from and are regulated by custom land that is owned or possessed by an automatic citizen or community of automatic citizens by virtue of rights of a proprietary or possessory kind that belong to that citizen or community and arise from and are regulated by custom*", where custom "*means the customs and usages of indigenous inhabitants of the country existing in relation to land or the use of land at the time when and the place in relation to which the matter arises, regardless of whether or not the custom or usage has existed from time immemorial*." Otherwise, "*all land in the country other than customary land is the property of the State, subject to any estates, rights, titles or interests in force under any law.*"[33]

Dealings in land are governed by legislation, primarily the LA. The LA regulates the process of acquiring customary land and converting it into registered land as well as the transfer and lease of registered land. The Minster, on behalf of the State may acquire land either by agreement, or by compulsory process.[34]

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[33] Part II, 4(1) of the Land Act 1996.

[34] Part III, Division 2, 7(a) and (b) of the Land Act 1996.

Two predominant types of estate are provided for under the LA: lease of land held for an estate in fee simple; and fixed term State leases. The lease of land held for an estate in fee simple is akin to a free-hold estate and gives the right to occupy, use and enjoy the land in perpetuity, subject to the performance of any obligations, and subject to any restrictions that may be imposed under law. The PNG Constitution establishes that only a PNG citizen has the right to acquire freehold land, and define the forms of ownership that are regarded as freehold. A State lease provides for the right to occupy, use and enjoy the land and its produce for a fixed period of time (to a maximum of 99 years), subject to payment of any rent or royalty and the performance of any obligations and subject to restrictions that may be imposed.

Customary land

There are a number of characteristics of land under customary tenure that influence the resettlement process associated with involuntary land acquisition. In much of PNG there is no systematic authoritative record of customary ownership or tribal land boundaries. Land use, settlement, and community composition are dynamic in response to a number of social and physical influences. In many areas, including the Project site, broad clans have in recent times divided into smaller sub-clan groups or lineages made up of family units.

Land ownership claims are made through reference to custom, particularly special knowledge of oral histories, custom stories, legends, etc., ancestors and lineages, the whereabouts of boundary markers (such as special landscape features, rocks, special trees, etc.), and the whereabouts of sacred (tambu) places, for example, places with special spiritual significance, ancestors' settlement sites, grave sites, and knowledge of their 'stories'.

Scope of the power of eminent domain

The PNG Constitution provides for the protection against the unjust deprivation of property, indicating that "*possession may not be compulsorily taken of any property, and no interest in or right over property may be compulsorily acquired, except in accordance with an Organic Law or an Act of the Parliament, and unless the property is required for a public purpose.*"[35] GoPNG's powers of involuntary land acquisition (i.e., compulsory acquisition) must comply with the constitutional requirement to protect from unjust deprivation, and the State can resort to extra-judicial means to settle disputes of ownership of customary land that cannot otherwise be reasonably settled by judicial means. As well, the Constitution provides for legislation to regulate certain interests in some or all land by non-citizens.[36]

The GoPNG powers of compulsory land acquisition are set out in Part III, Division 5 of the LA, which gives the Minister of Lands and Physical Planning the power to compulsorily acquire any customary or registered land where it is required for any 'public purpose'. This includes land acquisition for: "*a purpose of public . . . utility, necessity or convenience*"; "*the purposes of or connected with a road, track, bridge or culvert . . .*" and "*the purposes of or connected with the generation or supply of electricity.*"[37]

A customary landowner has no power to sell, lease or otherwise dispose of customary land or customary rights except to other PNG citizens in accordance with custom.[38] Further, it is the duty of

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[35] Section 53(1) of the PNG Constitution.
[36] Section 54(a) and (b) of the PNG Constitution
[37] Section 2(f), (j) and (o) of the Land Act 1996.
[38] Section 132 of Part XX of the Land Act 1996.

the Custodian for Trust Land to protect the interests of customary landowners.[39]

The Minister, on behalf of the State, may acquire customary land by agreement on such terms and conditions as are agreed between the Minister and the customary landowners, but the land is not to be acquired unless it is not required (or not likely to be required) by the customary landowners or by those to whom the land may devolve.[40]

The Minister may lease customary land for the purpose of granting a 'Special Agriculture and Business Lease' for lease-leaseback purposes. No rent or other compensation is payable by the State for such leases.[41]

Legal and administrative procedures for compulsory land acquisition

The compulsory land acquisition process is set out in Part III, Division 5 of the LA, taking into account the additional protections afforded in the Constitution. The legal process is as follows:

1. Landowner Identification –The Minister may apply to the Land Titles Commission or a Local Land Court having jurisdiction over the customary land for a determination of ownership. A diligent search and inquiry is required to identify potential landowners. This is crucial, as there is no comprehensive record or register of customary landowners or land boundaries in most of PNG.

2. Notification to Landowner(s) – The Minister may not acquire land by compulsory process without first serving a 'Notice to Treat' upon each of the owners of the land, or such of them as can, after diligent inquiry, be ascertained. The Notice is essentially a request to sell or surrender the landowners interest in the land to the State.[42]

3. Declaration and Publication – The Minister must also issue a notice in the National Gazette declaring that the land is being acquired by compulsory process for a public purpose specified in the notice.[43]

4. Prior Negotiation – The landowner is required within two months to provide information on the landowners interest in the land and the amount for which he is agreeable to sell his interest. However, the term "negotiation" is not used in the Act. Rather, the wording of the legislation suggests that the landowner identifies an amount for which he is willing to sell the land, which may or not be accepted by the State.

5. Notice to Owner of Acquisition – Where land is acquired by compulsory process, the Departmental Head is required, as soon as practicable after the date of acquisition, to

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[39] Section 134 (a) and (b) of Part XX of the Land Act 1996.
[40] Section 10 (2) and (3) of Division 3 of Part III of the Land Act 1996.
[41] Section 11 (1) and (3) of Division 4 of Part III of the Land Act 1996.
[42] Section 13 (1), (2) and (3) of Division 5 of Part III of the Land Act 1996.
[43] Section 12 (1) of Division 5 of Part III of the Land Act 1996

serve the landowner(s) with a Notice of Acquisition.[44] The identification of landowners above will also assist in this step.

6. Public Notification – The Notice of Acquisition is to be published in a newspaper circulating in the area in which the land is situated.[45]

7. Compensation – The interest of every person in land or a chattel to which a Notice of Acquisition applies becomes, on the date of acquisition, a right to compensation.[46] This is one of the tenets of the Constitution which states that *". . . just compensation must be made on just terms by the expropriating authority."*[47] For compulsory land acquisition, compensation for land will be based on the negotiated price between the seller (customary landowner) and buyer (GoPNG), based on land valuation undertaken by the Valuer General's Office under the *Valuation Act* 1967.

8. Registration of Notification – The Notice of Acquisition for land registered under the *Land Registration Act* 1981, that has been acquired by compulsory process, is registered by the Departmental Head with the Registrar of Titles.[48]

9. Assistance to prepare claims – it is anticipated that the Provincial Secretary for each Province will be available to assist claimants to prepare claims.

10. Access to Legal Advice – the timing of access to independent legal advice that must be provided to customary landowners is not specified in the Constitution but would be relevant to the preparation of compensation claims. The Office of the State Solicitor is available to provide legal aide.

11. Submission of Claims – by persons or groups wishing to claim compensation for their rights and interests taken in the acquisition of the land. Claims must be submitted within 3 months of the acquisition (date of publication in gazette). For customary land these claims in effect should include some evidence of customary ownership as well as any evidence as to value[49];

12. Valuation and Payment of Compensation – The Land Titles Commission (LTC) considers the claims, accepts or rejects them, and makes an offer of compensation. Offers and rejections are to be issued within 3 months of receipt of the claim. While not a specified legal step, it is at this stage that the LTC may seek advice from the Valuer General, or other valuer, to inform the amounts of compensation payable.

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[44] Section 15 (1)(a) of Division 5 of Part III of the Land Act 1996.
[45] Section 15 (1)(b) of Division 5 of Part III of the Land Act 1996.
[46] Section 14 of Division 5 of Part III of the Land Act 1996.
[47] Section 53 (2) of the PNG Constitution.
[48] Section 16 (1) of Division 5 of Part III of the Land Act 1996.
[49] Section 79(1) of the LTA

13. Compensation by Land – Where the land that is acquired is customary land, the LTC may make an offer of land in lieu of cash, with the approval of the Land Board and the endorsement of Cabinet. Landowners may choose to accept either the land or the cash equivalent.

14. Acceptance or Appeal – Claimants have 3 months from the LTC's decision to appeal any rejection, or the amount of compensation offered, to the Land Court or LTC. Where no appeal is lodged landowners are taken to have accepted an offer.

15. Payment of Compensation – Provided there are no appeals in respect of the compensation amount and the offer is accepted, the Department will make the payment to the former landowner; and

16. Notice to Vacate – persons with an interest in the acquired land may continue to use and occupy the land until the LTC gives them a notice in writing requiring them to vacate, but cannot develop the land without the LTC's consent;

17. Alteration of the Land Register – provided that there are no appeals and the declaration has not been quashed, the land may be registered to the Registrar of Titles on behalf of the Government.

Judicial Remedies

The Land Titles Commission was created by the *Land Titles Commission Act* 1962 as a quasi-judicial tribunal, initially to deal with disputes concerning all customary land. Its jurisdiction was very wide and in respect to customary land it had the exclusive jurisdiction to hear all land dispute matters concerning customary land. That jurisdiction was removed through the enactment of the *Land Disputes Settlement Act* 1975 (LDSA) which removed the Land Titles Commission's entire jurisdiction over all customary land and gave it to Local Land Courts, District Land Courts and Provincial Land Courts which were established under the same Statute. The Land Titles Commission now only deals with customary land by invoking Section 4 of LDSA, by the Head of State publishing notices in the National Gazette, which operates to effectively remove the jurisdiction from the Land Courts System created under the LDSA, thereby placing it back under the Land Titles Commission.[50]

The judicial remedy of last resort for matters concerning customary land is the National Court.

Appeals regarding property valuation can be made by filing a notice of appeal with the Clerk of the District Court having jurisdiction over the land in question, within three months of receiving a Valuation Notice. Appeals on decisions made by the Valuer General can be made to the National Court.

Law governing valuation

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[50] http://www.justice.gov.pg/index.php/2015-04-26-07-32-15/land-titles-commission/140-land-titles-commission

Property valuation is undertaken in accordance with Part IV of the *Valuation Act* 1967 (VA) and its accompanying regulation. Basic valuation principles that should be followed include:

- ***'Equivalence' – an owner should be paid no more or less than he suffers as a consequence of the forced sale. The principle of equivalence can include an amount for disturbance or other incidental loss;***
- ***Compensation to have regard for the development potential of the land, where land is undeveloped or under developed;***
- ***Compensation cannot be based on the value of the land to the acquiring body;***
- ***Any increase in value due to the underlying scheme for which the land is acquired must be disregarded (often referred to as the Pointe Guarde Principle).***

In addition to these broad principles, laws governing natural resource usage rights will also be relevant to the valuation of compensation, as customary land rights include rights to some natural resources in accordance with customary law unless inconsistent with national legislation.

The value of profits from commercial timber and other forest produce should be taken into account in the valuation of land as trees are broadly considered 'owned' under custom. When determining the value of such resources to landowners reference must be had to the *Forestry Act* 1991 which regulates the forestry industry and the sale of customary timber rights.

Acquisition of Land by Agreement

The process is administered by the Department of Lands and Physical Planning under the PNG *Land Act* 1996.

This land acquisition approach allows the Customary Landowners and Leaseholders to engage with the State. The landowners are given the opportunity to negotiate with the State and the acquisition is done on agreed terms and conditions.

Acquisition of Customary Land by agreement[51]

To apply for acquisition of customary land, the applicant is required to submit the application in a letter format, as it requires brief discussion of the purpose or proposed development, which the State ought to acknowledge for the purpose of issuance of Instruction for Land Investigation.

The application is lodged with the Departmental Head, the Secretary for his views and directions to the Manager, Customary Land through the Director Land Administration.

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[51] Section (10) of Division 3 of Part III of the Land Act 1996

When submitting an application a sketch plan of land to be acquired must be attached in order to give the Department of Lands and Physical Planning a guide to identify the locality in which the land is located.

The following process is involved before the land is made available for the intended development:

1. Status check is done to verify the current status of the land. This done to ensure that the land is free from other interests pertaining to the land – such interest may be a Mining Lease, Petroleum Development Licence, logging concession area, protected wildlife habitat area or Forest Management Area.

2. When confirmed to be customary land and free from encumbrances, the Manager, Customary Land issues the Land Investigation Instruction Number to the Provincial Administration, Division of Lands where the land is located to conduct Land Investigation and compile a Land Investigation Report.

3. A lands file is created and the Office of the Surveyor General is requested to carry out a Cadastral boundary survey of the customary land to be acquired. However, due to the recent Survey Congress decision to allow private Surveyors to do all field work and Office of the Surveyor General maintains quality and control, the applicant is advised to engage a registered private Surveyor to carry out the survey work and lodge the plans for examination, approval and registration.

4. The Land Investigation Report, upon its completion, must be vetted by the Provincial Administrator who is also required to clearly state his recommendation as to the alienability of the land. The report is then forwarded to the Manager, Customary Land.

5. A request is made to the Provincial Affairs Department with copy of the Land Investigation Report for vetting and issuance of a Certificate of Alienability. The Valuer General is requested by the Manager, Customary Land to determine the Market Value of the land for outright purchase or annual lease rental.

6. Purchase and Lease documents are prepared and sent to the Provincial Administration within whose jurisdiction the land is located to execute the document with the Landowners.

7. The executed document is returned to Headquarters and a Native Land Dealing (NLD) document is prepared and referred to the Office of the Surveyor General for registration and issuance of an NLD number.

Acquisition of Private (Freehold) Land, Alienated Freehold and State Leasehold Land by Agreement

The Minister, or his delegate the Secretary, Department of Lands is required to serve notice on the leaseholders informing them of the government intentions to acquire part of, or the whole of their title land.

The leaseholders are given the opportunity to negotiate with the State through its agent, the Department of Lands and Physical Planning, and to agree on the terms and conditions the State must perform in order for the land to be released.

World Bank Policy

World Bank resettlement policy starts from the principle of restoration or improvement of livelihoods at replacement cost, rather than current value, recognizing not only financial and physical assets, but also the environmental, social, and cultural assets of an individual, irrespective of gender, ethnic or social status, in the resettlement context. The Involuntary Resettlement policy (OP 4.12) enjoins avoidance and minimization of adverse impacts not only because it is less costly, but also because it avoids damage to the less tangible and hard-to-value aspects of livelihoods and cultures. World Bank resettlement policy has a positive objective of sustainable development, with particular regard for the vulnerable.

Legal Gap Analysis

The gaps between PNG laws and OP 4.12 requirements on land acquisition and resettlement have been identified and necessary gap-filling measures developed to meet the requirements of OP 4.12 as summarized below in **Table 1**.

Table 1 – Legal Gap Analysis

PNG Laws	World Bank Safeguard Policies	Gap-Filling Measures
PNG has no formal resettlement policy or statute. Therefore, there are no provisions to prepare Resettlement Plans based on meaningful consultations with APs, including the poor, the landless, elderly, women, and other vulnerable groups.	OP 4.12 requires that Resettlement Plans must be prepared based on consultations with APs, and that poorer and vulnerable people are also consulted and informed of their entitlements and resettlement options.	Abbreviated Resettlement Action Plans (ARAPs) will be prepared in consultation with APs, including vulnerable groups, and disclosed by PPL; translated or summary versions will be available at the provincial, district and local level. Local clan leaders whose members are affected will also receive a copy of the ARAP.
There are limited provisions to improve or at least restore the livelihoods of all APs.	It is necessary to improve or at least restore livelihoods of APs by a range of strategies targeted at APs. Nobody is to be worse off as a result of the development project.	Where such impacts will be experienced, ARAPs will include measures for improvement or at least restoration in living standards of APs to pre-project levels.
Limited provisions to provide assistance/compensation to APs who lose access to non-land assets	Requires that APs are compensated for all losses, including non-land assets, at full replacement cost.	The project will follow the principle of replacement cost for compensation of affected assets.
There is no requirement for the monitoring and assessment of resettlement outcomes.	OP 4.12 requires that resettlement outcomes be monitored and assessed.	ARAPs will include indicators and baseline data to monitor impacts on living standards of APs. The monitoring reports will also be disclosed including to APs.

G. Approach to land acquisition

The RPF applies to the Project, including any activities that may be considered "linked". Consultation and Grievance Redress Mechanism (GRM) requirements apply irrespective of land acquisition method applied. In most cases it is anticipated that the land required for project delivery will be obtained via VLD or negotiated arrangements – generally "willing buyer-willing seller" or long term leases; in which case specific requirements will apply. An ARAP will only be needed in the unlikely event of involuntary land acquisition being required for activities funded by the project.

Involuntary land acquisition may be required for additional land required during project implementation if the landowner is not a beneficiary of the project and the pre-requisites for negotiated settlement/VLD are not satisfied, or where land acquisition is for some reason restricted and involuntary land acquisition processes need to be applied. As noted previously, this scenario is considered very unlikely as projects will be scoped and designed by PPL in close collaboration with the community.

These approaches and their key characteristics are shown in **Table 2** below.

Table 2 – Land access arrangements and key characteristics

Land access arrangement	Key characteristics and documentation requirements
Voluntary Land Donation (VLD)	• Minor impacts <10% impact on any individual household or land user • Documents to demonstrate compliance with VLD protocol (see Appendix 1 of this RPF): o Establish informed consent of the person(s) donating the land. Power of choice is a fundamental foundation of VLD o Land owner(s) donate the land for the purposes of the project which would benefit the community o Determine and document the appropriateness of VLD in the context of Project. o Due diligence on owners and users of land donated. o Full consultation and disclosure. o Document the legal transfer of land donated. o Grievance Redress Procedure and Mechanism. o Any differential impacts (where negative impacts are unequally shared) would not exist, or would be very minor and compensated
Negotiated arrangements – generally "willing buyer-willing seller" or long term leases	• No significant impacts • Documentation to demonstrate: o Establish informed consent of the person(s) donating the land. Power of choice is important o Land owner(s) provide a legally binding agreement such as a lease or right of way over the land for the purposes of the project. o May be accompanied by one-off or ongoing payment or other compensation for the provision o Due diligence on owners and users of land to ensure correct parties are a part of the negotiated agreement o Full consultation and disclosure (possibly without financial terms) o Documentation of negotiated arrangement required. o Grievance Redress Procedure and Mechanism.
Involuntary Land Acquisition	• No projects supported by the Bank project will create significant resettlement. However, significant environmental impacts may result from both the Naoro-Brown HPP and the selected gas-to-power development if suitable mitigation is not applied. • Detailed ARAP to be prepared which documents:

	○ Description of the project activity causing involuntary resettlement and explanation of efforts to avoid or minimize involuntary resettlement associated with the project (alternative project designs considered). ○ Range and scope of potential adverse resettlement impacts. ○ Socioeconomic survey and baseline census survey information. ○ Review of relevant laws and regulations relating to land acquisition and involuntary resettlement (see section above on legal and regulatory framework for more details). ○ Description of asset valuation procedures and specific compensation rates (or alternative measures) for all categories of affected assets. ○ Other assistance measures, if any, necessary to provide opportunities for livelihood restoration for affected persons. ○ Assistance to affected commercial enterprises. ○ Eligibility criteria for compensation and all other forms of assistance. ○ Relocation arrangements, if necessary, including transitional support. ○ Resettlement site selection, site preparation, and measures to mitigate impacts on host communities, if necessary. ○ Restoration or replacement of community infrastructure and other services. ○ Land donation arrangements and documentation requirements, if relevant. ○ Organizational arrangements for implementation. ○ Consultation and disclosure requirements and arrangements. ○ Resettlement implementation schedule. ○ Costs and budget. ○ Monitoring arrangements. ○ Grievance procedures. ○ Summary entitlements matrix.

H. Preparing ARAP

If involuntary land acquisition is required for the project, an ARAP will be prepared to document the matters identified in **Table 2** above.

- The ARAP(s) will be prepared having regard to the following: Responsibility for preparation, implementation and monitoring of ARAPs (including responsibility for meeting all associated costs with their implementation), in accordance with this RPF, rests with PPL.
- As necessary, PPL will coordinate actions with any other agencies involved to ensure timely and effective ARAP implementation.
- Preparation of the ARAP begins as soon as it is determined that involuntary land acquisition is essential to complete any of the project activities and shall be finalized prior to the commencement of any works to carry out said project activities. PPL will carry out, or cause to be carried out, a census survey to identify and enumerate Affected Persons and to identify and inventory land and other assets to be required. The census survey must cover 100% of the APs. The census survey also establishes whether any affected persons are significantly affected by loss of productive land, whether any commercial enterprises are affected, or whether any households will be required to physically relocate.
- The ARAP will be prepared in accordance with the policy, principles and planning and implementation arrangements set forth in this RPF. The ARAP is to be based on accurate baseline census and socioeconomic survey information, and establishes appropriate

mitigation measures (e.g., compensation at full replacement cost for loss assets, transitional assistance for relocation, and transitional assistance for livelihood restoration, and transitional assistance for commercial enterprises) for all relevant categories of adverse impacts.

I. Communal Land Acquisition – Guiding Principles

Given the prevalence of customary (communal land) in PNG, the following guidance is provided for the preparation of ARAPs for this project:

1. The World Bank's Voluntary Land Donation protocol (see Appendix 1) is to be applied in full where land donation is anticipated to allow project delivery.[52]

2. Alternatives to land acquisition are considered. Especially where replacement land is scarce or non-existent, or where customary land tenure is deemed inalienable, negotiated agreements for long-term lease, even for alternative infrastructure siting, should be considered.

3. Where communal land must be acquired, collective compensation may be appropriate. Under such conditions, compensation is used solely for appropriate community purposes, or is distributed equitably among community members. The ARAP describes arrangements for usage of collective compensation.

4. Individual users and occupants of acquired communal land are identified in the census prepared for the ARAP and the ARAP describes mitigation measures or negotiated agreements providing for restoration of their livelihoods or living standards.

5. Where replacement land does not exist, it will be impossible to establish a technical valuation for replacement cost. The ARAP will describe alternative means used for valuation. This may include negotiated agreement with affected communities.

6. If relevant, the ARAP describes any changes that may occur regarding land use and tenurial arrangements for remaining communal land in project-affected areas.

7. The ARAP describes a process by which conflicting claims to ownership or use rights will be addressed.

J. Entitlements

Criteria Defining Affected Persons (APs)

Eligibility of an individual entitlements under this RPF will relate to their:

- Loss of land, whether an owner, lessee or informal occupant.
- Loss of trees or other plants, whether on owned, leased or informally accessed land.
- Loss of land-based improvements – houses, shelters, business buildings, also irrespective of the ownership status of the land.

[52] Note: PPL has indicated that VLD is not generally used by it to acquire land for projects. Instead, PPL focuses on acquiring customary land through voluntary, consensual (willing seller/willing buyer) agreement.

- Loss of access to commons and reserves, e.g., road reserves, whether or not legally encroached, and restricted areas.

Eligibility for loss of non-land assets, whether temporary or permanent, will be recognized for project-induced impacts on:

- An individual's business or income.
- Soil or water quality changes that impact the individual's livelihood activities in the direct or indirect impact area.
- Air, light or noise pollution, or restrictions on access to social or economic resources that impact property values and amenity.
- Access to resources due to quarrying operations.
- Any other assets or elements of livelihoods recognized in PNG law and in WB World Bank Operational Policy that may be discovered during disclosure and consultation.

Persons demonstrating that they will suffer losses from any of these causes as at the cut-off date for entitlements will be regarded as eligible for resettlement assistance. Losses from encroachments or activities commenced after the cut-off date for the respective projects will not be eligible.

Table 3 summarizes eligibility and entitlements for APs.

Table 3 – Entitlement Matrix

Type of Impact	Entitled Person(s)	Entitlements
Temporary use of land.	Legal/ customary landowners/land users	Will only occur with agreement with landowners/APs. Affected landowners/APs will be paid rent on terms negotiated and agreed with them. The land will be returned to respective landowners/APs after its restoration.
Permanent acquisition of land	Legal owner(s)/customary landowners	Landowners will be provided equivalent size and quality of land, or cash compensation at replacement cost.
	Informal settlers (e.g., on land acquired for ROW) with no rights that can be legalized	APs will be provided compensation for their damaged non-land assets (e.g., crops, trees, and structures) on project-affected land.
Loss of crops and trees	All APs irrespective of their legal status	APs will be given notice to harvest crops and trees before site clearance or removal from required land. If APs are not able to harvest, they will be paid cash compensation at replacement cost. In case of perennial crops and trees, the compensation will also include loss of income for a period until new crops or trees produce an equivalent income
Loss of structures (e.g., roadside markets)	All APs (whether having legal title to land or not)	APs will be provided compensation at replacement cost without deductions for depreciation or salvaged materials and assistance in finding an alternative site. It will be ensured that replacement structures are ready to move before relocation of existing structures. In case business activities are disrupted, the business owners will be provided disruption allowance for the duration of business being disrupted.

Type of Impact	Entitled Person(s)	Entitlements
Displacement of community structure (if any)	Community representatives as identified by the social impact assessment	Affected structures will be restored in consultation with community or the affected community will be provided with cash compensation at replacement value without deductions for any materials salvaged. Community will be assisted in dismantling and relocating structure/property.
Impacts on vulnerable APs	Vulnerable AP households identified by social assessment.	Vulnerable households will receive (i) priority employment in project construction and maintenance works; and (ii) additional cash allowance to purchase foodstuffs during the period of income disruption. Amount to be confirmed in the RP for each road/bridge.
Unforeseen impacts	Concerned affected persons	These will be determined as per the principles of the RF

K. Implementation Arrangements

Implementation arrangements such as a time-bound implementation schedule of all activities relating to all land acquisition shall be included at the development of an ARAP. Finalization of land and asset transfer (as relevant) as well as any associated payments (such as where there is a "willing buyer-willing seller" arrangement and/or for fixed assets etc.) should be completed at least one month prior to land acquisition. If there is a delay of one year or more between land or asset valuation and payment of compensation, compensation rates will be adjusted for inflation purposes.

Process for negotiation of Voluntary Land Donations (VLD) and Long Term Leases

Clear parameters are defined in the VLD protocol in **Appendix 1**. If PPL chooses to use the VLD process for acquiring land, it will ensure that the requirements of the protocol are met for any land acquired via VLD. Where land is leased via negotiation, PPL will need to ensure the following matters are considered and documented:

- Establish informed consent of the person(s) donating the land. Power of choice is important;
- Land owner(s) provide a legally binding agreement such as a lease or right of way over the land for the purposes of the project (see **Appendix 3** for land donation commitment letter template);
- May be accompanied by one-off or ongoing payment or other compensation for the provision;
- Due diligence on owners and users of land to ensure correct parties are a part of the negotiated agreement;
- Full consultation and disclosure (possibly without financial terms);
- Documentation of negotiated arrangement required; and
- Grievance Redress Procedure and Mechanism.

Budget and Costs

PPL bears responsibility for meeting all costs associated with involuntary land acquisition. Any ARAPs require a budget with estimated costs for all aspects of their implementation. All APs are entitled to compensation or other appropriate assistance and mitigation measures, regardless of whether these persons have been identified at the time of resettlement planning, and regardless of whether sufficient mitigation funds have been allocated. For this reason, and to meet any other unanticipated

costs that may arise, the ARAP budget shall include contingency funds, i.e., at least 10% of estimated total costs. Compensation must be paid promptly and in full to the APs. No deductions from compensation will occur for any reason. The ARAP is to describe the procedures by which compensation funds will flow from PPL to the APs.

Approval of ARAP(s) by the World Bank

All ARAPs will need to be submitted to the World Bank for its clearance and review – and full entitlements delivered - prior to any project works commencing on the land (or affecting any other aspect such as livelihoods) to which the ARAP applies

Disclosure and consultation on the RPF

Consultation will need to be carried out during the preparation of the Project as a follow-up to the ESMF and RPF, including discussion with key stakeholders including PPL, other government ministries, local administrators, and members of potential subproject communities. The various issues associated with accessing land for the purposes of project delivery – especially the focus on identification and design of projects so that any land impacts would be avoided - discussed. The ESMF including land aspects will be formally submitted to and disclosed on the World Bank's InfoShop and on PPL's website, and hard copies will be available at PPL (or other appropriate) offices in project areas.

Disclosure and consultation on the ARAP

To ensure that the projects contribute to the objective of sustainable development, PPL will adopt a comprehensive disclosure and consultation process that includes all stakeholders during project implementation. The consultation process with APs will reveal all foreseeable impacts, and will elicit AP concepts of how mitigation options and resettlement planning can contribute to their aspirations for sustainable restoration or improvement of their livelihoods. In the unlikely event of loss of land, and land-based assets, the aim will be to replace like for like, and if this is not possible, to compensate for lost land, assets and income, and meet the costs of relocation and restoration of livelihoods. Restoration includes not only physical assets, but also social and cultural assets. If there is a risk of disruption of these values, which are often disproportionally encountered by women, the APs will contribute to selection of mitigation and resettlement options to ensure policy objectives are met.

The ARAP must describe measures taken to consult with affected persons regarding proposed land acquisition, transitional assistance, relocation arrangements, and other arrangements, and summarizes results of those consultations. PPL will also be required to disclose the ARAP – both the draft and final versions – to the affected persons and the general public in the project area, in a language and location accessible to them. Disclosure of the draft ARAP should occur at least one month prior to World Bank review. Disclosure of the final ARAP occurs following World Bank acceptance.

L. Monitoring Arrangements

Monitoring arrangements will be established in the ARAP to assess the effectiveness of ARAP implementation in a timely manner. Monitoring includes review of progress in land acquisition, payment of compensation, provision of transitional assistance, and functioning of project grievance procedures. The ARAP should establish the frequency of monitoring activities. Monitoring should be conducted by an individual, firm, or community organization that is not directly affiliated with PPL. Any issues or problems associated with ARAP implementation that are observed in the monitoring process will be reported to PPL and the World Bank project team.

Prior to project completion, the monitoring process will assess whether livelihoods and living standards of affected persons have been improved, or at least restored. If these objectives have not been achieved, PPL identifies plans and implements supplemental measures necessary to achieve satisfactory outcomes.

M. Grievance Procedures

During the course of the project it is possible that affected persons or communities may have concerns with the project's social or environmental implementation occurring during construction and possibly during operation.

Any ARAP or other documentation prepared to meet the requirements of this RPF will include details of the specific GRM process applying to that activity. This GRM process will need to ensure that any concerns are addressed quickly and transparently, and without retribution to the affected parties.

World Bank funded projects are required to implement a GRM to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the project's performance, including concerning environmental and social impacts and issues. The mechanism ensures that: (i) the basic rights and interests of every affected person by poor environmental performance or social management of the project are protected; and (ii) their concerns arising from the poor performance of the project during the phases of design, construction and operation activities are effectively and timely addressed.

In the early stages of engagement, project stakeholders and affected communities must be made aware of:

- how they can access the GRM;
- who to lodge a formal complaint too;
- timeframes for response;
- that the process must be confidential, responsive and transparent; and
- alternative avenues where conflicts of interest occur.

The grievance process is based upon the premise that it imposes no cost to those raising the grievances; that concerns arising from project implementation are adequately addressed in a timely manner; and that participation in the grievance process does not preclude pursuit of legal remedies under national law. Local communities and other interested stakeholders may raise a grievance at any time to SP or the World Bank's Inspection Panel.

Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. Information on how to submit complaints to the World Bank's corporate GRS is available at http://www.worldbank.org/GRS. Information on how to submit complaints to the World Bank Inspection Panel is available at www.inspectionpanel.org.

APPENDIX 1 – VOLUNTARY LAND PROTOCOL

Voluntary Land Donation Protocol

1. Background

This Voluntary Land Donation Protocol (VLDP) has been prepared by the World Bank for the purpose of due diligence. For cases where communities and/or individual landholders have offered to donate their land for the project because it is of benefit to the broader community, the World Bank's Voluntary Land Donation Protocol (VLDP) should be followed. The project team is to exercise their best judgment where voluntary land is offered and conduct due diligence to avoid adverse impacts and reputational risks. Donations are based on the premise that the project benefit will offset or outweigh the loss of the land donated.

VLD is only suitable for projects where the landowner and/or community wish to 'gift' land parcels or small areas for small-scale community infrastructure that will be of direct benefit to the donor's community.

2. When VLD is Applicable

Voluntary donation of land by beneficiary households is acceptable where:

- It has been verified the donation did not result from any form of coercion or manipulation and is offered in good faith;
- The donation does not severely affect the living standards of the community and/or individual landholder responsible for the donation (i.e. impacts are marginal based on percentage of loss and minimum size of remaining assets);
- Alternatives and the viability of other locations or sites have been considered;
- The donation does not result in the displacement of households or cause loss of income or livelihood;
- The landholder/s making the donation will directly benefit from the project;
- Consultation has been conducted in an open and transparent manner and to a degree that the landholder/s can make an informed choice;
- The land is free from disputes regarding ownership or tenure;
- Land transactions are supported through the transfer of titles;
- Full and proper documentation of all consultations, meetings, grievances and actions taken to address grievances has been reviewed and made available;
- Where impacts are minor and other alternative sites are not viable.

3. When VLD is NOT Applicable

VLD is not applicable under the following scenarios:

- Medium/large-scale infrastructure particularly in cases where a government agency or entity that has a statutory obligation to provide the infrastructure and/or services for which the land is required
- Where inadequate consultation with donors results in lack of understanding about the terms and conditions of the donation;
- In lieu of formal procedures for land acquisition where these do not exist;
- Where donor property owners, landowners or customary rights holders do not support, or will not directly benefit from, the Project;
- Where conflicts over land exist, including customary collective ownership;

- Conflicting land titling that make it difficult to establish with certainty who has a right to own, donate and use a specific parcel of land;
- Where donors did not provide their informed consent and were subject to political or social pressure and coerced into making the donation.

4. Process for Voluntary Land Donation

This section provides guidance on the process for VLD, namely on how to:

- Determine and document the appropriateness of VLD in the project context;
- Verify the requirements of the donation and the formalization of the donation;
- Carry out due diligence on the owners and users of land donated;
- Ensure appropriate consultation and disclosure;
- Establish informed consent of the person donating the land; and
- Establish grievance redress mechanism.

This section outlines the process that should be followed once the threshold considerations set out in Section 1 have been considered, and it has been determined that it is appropriate for the land to be provided to the project by voluntary donation.

It is necessary to follow a clear process for the donation, and to prepare and maintain documents that demonstrate such process. Each step set out below should be addressed in the context of the specific project, and fully documented.

(i) Determine and document that VLD is appropriate in the circumstances of the project.

The team should record the reasons why it thinks that the donation of land is appropriate for the project. In certain cases, only some of the land the project requires will be donated or alternatives to land donation exist. The project team should identify (in as much detail as possible):

- What the land will be used for;
- How much land the project will require on both a permanent and temporary basis;
- How much of the land will be donated;
- What alternatives to donation exist (e.g., right of use, right of way);
- The terms of the donation;
- The identities of the parties who intend to donate;
- The beneficiary of the donation; and
- Any details that are relevant to why donation may be appropriate.

(ii) Verify the requirements to transfer, and formalize the transfer of, the land

It is important to understand the process that should be followed to transfer the land, and appropriate ways to formalize the transfer so as to achieve certainty for both the transferee of the land and the project. In many countries this will require consideration of the legal and administrative requirements but also, particularly in the case of customary land, local and community processes. In some cases these will constitute two different but parallel (and overlapping) systems and a process will have to be established to ensure that the requirements of each system are satisfied. An important consideration will be how transparent the process and the decision making process actually is, and what can be done to enhance the process.

(iii) Conduct due diligence on who owns and uses the land

Given the specific issues surrounding land ownership and use in the PICs, it is important that the project team carries out careful due diligence to understand the type of land rights that exist in the project area, and to identify any particular issues relating to land ownership and use. Thereafter, a more specific due diligence must be conducted on each parcel of land proposed for donation to identify:

- The owner or owners of the land;
- The users of the land, or any parties that occupy the land (either physically or through ownership of an asset or conduct of livelihood or business activities on the land);
- Any competing claims of ownership or use;
- Structures and assets on the land;
- Any encumbrances on the land.

It is important to: (a) identify the right that is being transferred (an ownership right, a use right, a right of way, etc.); and (ii) check whether the transferee actually has the right s/he claims to have. In many circumstances where careful due diligence has not been carried out, significant conflict has arisen at a later stage when another party claims that they have the same or a competing right. In some circumstances – but not all – the transferee will have documentary evidence of such right. Where no such evidence exists, the due diligence can establish rights by speaking with local community officials and neighbours.

(iv) Disclosure and Consultation

The decision to donate must be taken on the basis of a full understanding of the project and the consequences of agreeing to donate the land. Accordingly, the parties that will be affected by the donation (the owners and users of the land) must be provided with accurate and accessible information regarding what the land will be used for, for how long, and the impact the donation will have on them and their families. It is important that prior written notification indicating the location and amount of land that is sought be provided and that its intended use for the project is disclosed.

Where the intention is to deprive the parties affected by the donation of the land permanently, or for a significant length of time, this must be made clear. It should be noted that in many communities the concept of alienation of land is uncommon and difficult to understand, and care needs to be taken to ensure that the implications of this are fully understood. It is also important to decide who else should be consulted about the proposed donation; for example, spouses and older children.

There should be a clear agreement as to which party will pay the costs associated with the donated land. This could include measurement costs, documentation and notarial fees, transfer taxes, registration fees. It should also include the costs of re-measuring/re-titling the transferee's remaining land and any new documentation relating to it.

(v) Establishing Informed Consent

It is crucial that the project team is confident that the decision to donate was taken in circumstances of *informed consent or power of choice.* As discussed earlier, this means being confident that the owner(s) or user(s) of the land understand:

- What the land is going to be used for, by whom and for how long;
- That they will be deprived of the ownership or right to use the land, and what this really means;
- That they have a right to refuse to donate the land;

- Whether there are alternatives to using this land;
- What they will need to do to donate the land (e.g., execute documents, get spousal consents, pay taxes);
- The effect of the donation on their family, and what they can do if they (or their family or heirs) want the land back.
- The exact demarcation of land boundary for the project's use;
- Whether there are proposals which would allow other land to be used;
- What they will need to do to donate the land;
- The intergenerational effect of the donation on their family, what they can do if they (or their family or heirs) want the land back.

The terms and conditions of the land donation must be mutually agreed upon and detailing in a written agreement.

(vi) Documentation

It is necessary to distinguish between: (a) the agreement to donate the land; and (b) the document that carries out and evidences the legal transfer of the land. While it is important to have evidence of an intention and agreement to donate the land, it is equally important to ensure, where required and appropriate, that the land is legally transferred. While the process relating to the legal transfer of the land is frequently complicated and time consuming, it must be addressed. [In specific circumstances, for example where the land is being transferred to the community, it may not be necessary to legally transfer the land. However, experience indicates that lack of formal transfer can create significant uncertainty in the future, which impacts on the sustainability of the infrastructure and services, and can have a negative effect on community relations.]

To ensure that any land provided for the siting of subprojects is contributed voluntarily, in accordance with the requirements of the ESMF, two representatives of the landowners (family or clan) are asked to sign a Land Commitment Letter (see below). This certifies that the land is voluntarily donated for the purposes of the subproject and for the benefit of the community. The signature of the Letter is witnessed (as attested by their signature) by a suitable project representative.

The project team should:

- Identify the appropriate documentation, including the agreement to make the transfer and any legal documentation that may be required;
- Ensure that the agreement:
    - Refers to the consultation has taken place;
    - Sets out the terms of the transfer;
    - Confirms that the decision to transfer was freely made, and was not subject to coercion, manipulation, or any form of pressure;
    - Attaches an accurate map of the land being transferred (boundaries, coordinates);
    - Sets out who will bear the costs of the transfer (e.g., notarial fees, taxes, title issues) and documenting the residual land rights.
- Ensure that all necessary parties sign the documents, including obtaining consent from spouses and children over a certain age;
- Ensure that the transfer and title is registered or recorded; and
- Ensure that the land remaining after the donated land is excised is properly titled, registered or recorded.

It is also important to maintain a record of the process that has been followed. Such documents could include the following:

- The notification indicating the location and amount of land that is sought and its intended use for the project, with a record of when and where this was made public;
- Records of the consultations that were held and what was discussed;
- A copy of the due diligence that was conducted;
- Copies of each of the formal statements of donation, establishing informed consent as described above, and signed by each owner or user involved;
- Copies of all documents, registrations or records evidencing the legal transfer of the land; and
- A map, showing each parcel of land.

The Project implementing agency should maintain a record with documentation for each parcel of land donated. Such documentation must be available for World Bank review, and for review in relation to any grievances that may arise.

(vii) Grievance Arrangements

Grievances may be referred to customary conflict mediation arrangements where they are not directly affiliated with traditional leaders who are a party to the donation process.

APPENDIX 2 – CHECKLIST FOR ABBREVIATED RESETTLEMENT ACTION PLAN

A complete ARAP will have the following minimum contents:

Contents of the ARAP	Yes	No	Remarks
Introduction - Rationale of Bank support to the project described (country/sector context) - Amount of Bank financing and co-financing described - Bank-supported activities described			
Project Description and Components - Project development objective, components, geographic coverage and typology of subprojects described - Project location, including related activities well described - Map/maps of project area/area of coverage, components, etc., presented			
Objectives, definitions and key principles of the ARAP provided			
Legal, Policy and Regulatory Frameworks - OP 4.12 presented and with rationale for triggering fully explained/described - Country policies, laws, rules and regulations applicable to land and involuntary resettlement presented and fully explained - Relevant international agreements host country entered into that are applicable to the project presented and fully explained - Gap analyses between host country laws and regulations vis-à-vis the Bank policies and gap filling measures fully described in the ARAP			
Census survey and asset inventory - Detailed presentation of the findings of the socio-economic studies conducted (e.g., current occupants of the affected area)			
Institutional and implementation arrangements - Implementation clearly spelled out - Delineation of responsibilities for implementing resettlement clearly described - Capacity building measures explained in detail			
Monitoring and evaluation arrangements - Explained in a clear manner			
Resettlement packages and eligibility criteria - Presented in detail (including valuation methodology)			
Grievance Redress Mechanism - Mechanism/s to receive complaints, grievances and facilitate resolution in a fully transparent way clearly described			
Public Consultation and Disclosure - Consultation processes and disclosure of information, instruments, etc. clearly presented and details provided			

Contents of the ARAP	Yes	No	Remarks
Budget and costs - Estimate of budget and costs clearly detailed - Authorities responsible for providing the budget clearly identified			

APPENDIX 3 - LAND DONATION COMMITMENT LETTER TEMPLATE

Date: …….

Village, Province: ……..

I/We …….. [name(s)] acknowledge, I am/we are the rightful representative (s) of the land located at
…….

I/we confirm, I/we have the right under custom law, with agreement of community leaders, to gift this land for the purpose of ……. and sign this letter as a commitment of our voluntary donation that will benefit our whole community.

I/we declare that:

I/we have the right to transfer rights to use or access this land;

I/we understand that all residents will have access to this site and in order to maintain the asset/infrastructure;

I/we commit ourselves in upholding the contents and spirits of this agreement for so long as it remains in force;

I/we understand this donation is a gift that will benefit our whole community and understand no compensation payments will be made now or in the future;

I/we understand that dishonoring this agreement could result in project termination.

Details of the land (size in sqm, location of village, structure, type –unused, bush, garden)

……
……

For the purpose of: (specify activity)

……..

……..

For the duration of: (specify commencement date and duration)

……..

…….

*Natural Resources Donation (optional) [*This may require a separate agreement form depending on the context, quantity being donated, and number of resource owners]*

I/We ……are the rightful resource owner(s) (e.g. sand, gravel, rocks, timber) located at ……that area also being donated to the project.

I/We commit to donating …….as a contribution for the project.

Signed:

Position	Signature	Name
Male Household Head		
Female Household Head		
Landowner^		
Clan or landowner representative (if applicable)		
Resource Owner (1)*		
Resource Owner(2)*		
Village Chief		
Govt/Project Representative		
Witness		

^(append list of all customary owners if relevant)

ANNEX H Land Use Agreement

ANNEX H Land Use Agreement

A Land Use Agreement (LUA) may be required where (i) activities require access on a permanent or temporary basis to certain sites on customary land; (ii) no suitable alternative sites exist; (iii) customary land owners have agreed for the land to be used for a specific purpose for the benefit of the whole community; and (iv) any other situation where it may be deemed the most appropriate instrument for the local context.

It is important that absentee landowners are engaged, and that a suitable witness (non-clan member) signs the agreement.

The process used to enter into the LUA is as follows:

- Share the rationale for the Project and its proposed siting, and seek the granting of access of the necessary land by landowning clan or household;
- Village representatives of the community, organize a meeting with the representatives of the specific clan/s who have customary ownership of the proposed land or access-way;
- Any person with fixed physical assets on the land/proposed site, but not considered a landowner, is involved in the meetings and their rights are taken into consideration;
- The meeting would discuss the proposed project with the landowning clan or household to reach an understanding that the Project is for the benefit of the whole community and access of land (either permanent or temporary) is required;
- The payment of access fees should be discussed and agreed in writing (if applicable);
- The landowners would be clearly notified that the agreement to allow land access should be completely voluntary and the specific timeframe of access should be mutually agreed;
- If agreement to proceed is reached, then a LUA will be entered into between the clan, the other clans and the leader of the community;
- The LUA should be endorsed by the Village Chief or equivalent;
- The signed LUA will be submitted as part of the project proposal;
- The LUA is submitted to the local magistrate or equivalent for certification.

If all landowner parties are in disagreement about the land or condition of LUA, or if landowners are excluded from the initial discussion then the Project will not proceed and the grievance process must be followed where relevant.

The following is an example of a LUA form that may be suitable to use for the Project.

LAND USE AGREEMENT TEMPLATE

Project: ……. Province: …….

Location: ……

Land Parcel: ……

Land Title Reference: …….

Dear Sir/Madam,

1) We, the undersigned being the representatives of the ……. hereby acknowledge that …….have the right under the customary law to make decisions on the land known as ……..for the purpose of …….with the rights to the receive the proceeds of any development or other conducted on the said land. We certify that all members of the village agree to the truth of this certificate and that we are the persons authorized to sign it.
2) We, the undersigned being the representatives of ……clan of …….Village, …….Province, ……hereby declare that:
    a) We have the right under customary law to allow access or use of the land ……for the purpose of ……..(project name) and agree to allow access to …….. to support the project (entity).
    b) That we undertake not to interfere in any manner on any activities or developments undertaken by our …….on the said parcel of land;
    c) We commit ourselves in upholding the contents and the spirit of this agreement for so long as it remains in force;
    d) We will undertake efforts to convey the contents of this agreement to members of the ……..village/s or clan/s and to ensure that they so honor it.

Infrastructure

Details of infrastructure funded by Govt:

……

……

Ongoing Maintenance

Responsibility of landowner (detail of specific infrastructure)

…….

…….

Time frame/scheduling arrangements

…….

…….

3) SIGNATORIES

I/We hereby sign confirming that the above is true and correct:

Party	Name	Signature	Date
Landowner			
Village Representative			
Project Representative			

4) WITNESSES

We, the undersigned being representatives of ……..clan (who share the land boundary with ……..clan) hereby declare that the Customary Law, we are rightful owners of the land known as ……located at ……Village …….Province and that it has the right by customary law to transfer/lease the said parcel of land.

Project Partner	Name	Organization
PNG Power Representative		
Province Officer		
Local Representative		

Made under our hands these agreements:

This…….day of …….20…..at …….

Village ……..Province…….in ……

Submitted to:……

On this …….day of …….20…at……..

ANNEX I Examples of PPL Call Centre Posters

ANNEX I Examples of PPL Call Centre Posters

PNG POWER Ltd
To report any emergencies in relation to electricity supply, you can contact the following after hours telephone numbers or contact points in your respective centres.
PNG POWER LTD
CALL CENTRE NUMBERS
7090 8000, 303 6100
7653 5261, 7653 52 72
Email: callcentre@pngpower.com.pg
For more information, please contact:
Corporate Relations Group
Ph: 324 3110 Fax: 325 5382
Email: corporate_relations@pngpower.com.pg
www.pngpower.com.pg

NATIONAL CALL CENTRE
7090 8000
7500 8000
callcentre@pngpower.com.pg
For more information, please contact:
Corporate Relations Group
Ph: 324 3110 Fax: 325 5382
Email: corporate_relations@pngpower.com.pg
PNG POWER Ltd
www.pngpower.com.pg

ANNEX J Draft Stakeholder Engagement and Consultation Plan

Annex J

PNG Energy Utility Performance and Reliability Improvement Project

Stakeholder Engagement and Consultation Plan Draft (Rev 0)

PNG Power Limited

February 2019

Acronyms and Abbreviations

AMR	Automatic Meter Reading
CEPA	Conservation and Environment Protection Authority
EIR	Environmental Inception Report
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EUPRIP	Energy Utility Performance and Reliability Improvement Project
GIS	Geographic Information System
GoPNG	Government of Papua New Guinea
HPP	Hydropower Project
IAP2	International Association of Public Participation
IFC	International Finance Corporation
LCDP	Least Cost Development Plan
NGO	Non-Government organization
OP/BP	Operational Policy / Bank Procedure
PMU	Project Management Unit
PNG	Papua New Guinea
PPL	PNG Power Limited
SCADA	Supervisory Control and Data Acquisition
SECP	Stakeholder Engagement and Consultation Plan

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Appendix 1 Summary of ESMF Workshop – Gateway Hotel, Port Moresby – 26 Feb 2019

Appendix 2 Naoro-Brown HPP Consultation Dates

1 Introduction

This document is the Stakeholder Engagement and Consultation Plan (SECP) for the PNG Energy Utility Performance and Reliability Improvement Project (EUPRIP) (the 'Project').

The purpose of this document is to explain the approach and methods to be used by PPL for communication, information dissemination and stakeholder engagement for the Project, including the Project's pre-construction and construction and operation phases. A subsequent SCEP for the operation of the Project will be prepared at the appropriate time.

1.1 Project Description

The Project will involve four components, with subcomponents, as follows:

Component 1 – US$15.8m for executing urgent rehabilitation / upgrade of PPL infrastructure facilities, implemented through supply and installation contracts, for electricity supply needed to improve service quality to acceptable levels and minimize outages, with investments prioritized by PPL as follows:

- Improvements and upgrades in the MV distribution network – includes installation of new switchgear equipment (re-closers, load breaker switches) and fault indicators in the Medium Voltage (MV) network, and implementation of backup facilities and reinforcements of around 100km of MV network to reduced overload and avoid large voltage drop situations in the Ramu system. This will likely include 50km of urban network reinforcement focusing on Taraka and Milford areas and 50km of reinforcements in rural areas. The reinforcements consist of mostly replacing conductors in existing lines, with possible small sections of new network (between 0.2 - 1km, using poles).
- Rehabilitation and upgrades in selected substations – support for increasing the transformer capacity installed in selected substations (most likely Milford and Taraka) and for the installation of MV capacitor banks in substations for reactive power compensation.
- Enhancements in control and protection functionality – includes: expanding the SCADA System to additional priority sites; setting up of a national control room (through refurbishment of an existing room still to be determined at PPL Headquarters[53]) and upgrading the protection system.

Component 2 – US$9m to implement key components of PPL's performance improvement plan – provide support for the following key sub-components of the PIP, with contractor support provided through Component 4:

Incorporation of management tools – enable more efficient, transparent and accountable development of processes and activities in all business areas: operation and maintenance (O&M) of assets for electricity supply and attention of customers' claims; commercial functions; and management of corporate resources. Incorporation of the MIS must be complemented with the improvement and update of their respective databases (customers, assets, etc.) supported by a geographic information system (GIS).

Protecting and increasing revenues – support implementation of a revenue protection program (RPP) for sustainable reduction of non-technical losses in supply (unmetered consumption) through systematic remote

[53] Covering room refurbishment, cable trench inlet sealing, room's air-tightness improvement, air-conditioning facility installation, etc.

recording and monitoring of consumption of large users through the installation of Automatic Meter Reading (AMR) systems.

Component 3 – US$3.8m (including a possible US$2.2m of GIF reimbursable grant) for technical assistance on least cost power development plan – development and implementation.

The TA will support any supplementary planning studies as may be needed to the Least Cost Power Development Plan (LCPDP). It will also provide support for implementation of the plan through the following:

- Assessment of existing hydropower stations rehabilitation:
    - Ramu 1 rehabilitation – diagnosis and assessment of the technical potential to recover its available capacity, preparation of feasibility study and bidding documents for rehabilitation. This will most likely include replacement of electromechanical equipment;
    - Rouna Cascade rehabilitation – assessment of the water flow and optimization of dispatch to maximize the generation of the whole cascade, along with the associated training for the system operators.
- Development of the Naoro-Brown HPP by continuing the support previously provided under the Energy Sector Development Project (ESDP) to close any key remaining gaps (technical, commercial, legal, safeguards) that would allow bringing the project to market for competitive bidding through technical assistance.

- Preparation of a gas-to-power project – PPL to select one of two potential options – expansion of the existing Hides Gas Generation Plant (owned by Porgera JV[54]); and possible greenfield gas generation plant in the vicinity of the existing Kutubu Gas Conditioning Plant. The TA could include complementary technical studies to make the project ready to go to market (such as preparation of pre-feasibility studies). Additional support could also be provided for preparation of bidding documents and transaction advisory services, to be supported by GIF[55].
- Updating potential project database – support PPL to take stock of all available information, updating it as needed – namely as regards to cost estimates.

Component 4 – US$3m for project management support – includes: recruitment of project management, technical, financial management (FM), procurement and social and environmental safeguards experts as the need may be; financing for the preparation of project safeguards studies, audits, office equipment and incremental operating costs; support for project implementation will be provided through this component, namely for the provision of technical advisory services to PPL for project design, implementation and supervision; and implementation of rehabilitation and network upgrade works going forward.

[54] This could be a brownfield, greenfield or combination of both.

[55] Government has already requested the use of GIF funding for gas-to-power. This request would be confirmed over the next couple of months once the project is firmed up. Furthermore, the World Bank will be able to support sourcing of gas for the project by providing TA to government on definition of the conditions under which the gas will be supplied to domestic customers.

1.2 Project Proponent

The Government of Papua New Guinea (GoPNG) has received a credit from the World Bank for preparation of the Project. The Project will be implemented by PNG Power Limited (PPL).

1.3 Project Environmental and Social Management Framework (ESMF)

Since the locations of some of the key subcomponent sites have yet to be confirmed, an Environmental and Social Management Framework (ESMF) has been prepared as required under the World Bank's Operational Policy / Bank Procedure (OP/BP) 4.10 Environmental Assessment. The purpose of the ESMF is to ensure that all components of the Project meet the environmental and social safeguard policies of the World Bank and laws and regulations of PNG. The ESMF identifies at an overview level the potential environmental and social impacts that may accrue as a result of the Project.

The Project will be supported by US$30 million in IBRD financing blended with reimbursable Global Infrastructure Fund (GIF) grant(s), and possibly other, as yet to be determined, funding sources.

1.4 Project Development

The development of the Project will be led by PPL, with project implementation likely to be undertaken under a series of supply and service contracts (for the smaller subcomponents) and design-build contracts (for the larger gas-to-power project).

PPL, with support provided by specialist consultants, will be responsible for the development of environmental and social safeguard instruments. Implementation, oversight and monitoring of environmental and social management plans (ESMP) will be the responsibility of the various contractors assigned to construct the Project, in accordance with the requirements of the GoPNG and/or World Bank. World Bank will only have input up to the procurement process, after which the developers will be expected to meet the requirements documented in their respective contracts and GoPNG legislation.

2 Regulations and Requirements

The SCEP will adhere to local PNG requirements and also the requirement of the World Bank.

2.1 PNG Requirements

The key PNG requirements relevant to communication and stakeholder engagement for energy projects in PNG include[56]:

- PNG *National Constitution* – National Goal 2(9) calls for 'every citizen to be able to participate, either directly or through a representative, in the consideration of any matter affecting his interests or the interests of his community'.
- *Organic Law on Provincial Governments and Local-level Governments 1998* ss.115-6 – requires all three levels of government to liaise fully with the landowners in relation to the development of the natural resources.
- *Environment Act* 2000 – requires an environmental impact statement to be prepared which contains an adequate description of the nature and extent of physical and social environmental impacts that are likely to result from the carrying out of a proposed activity. To undertake these studies relies on substantial field work and communication with project area communities.
- Guidelines for the Preparation of EIS for Hydropower Development from the Department of Environment (DEC Publication No 0/2013 Version 1 September 2013) – applicable to Naoro-Brown HPP component of the new Project – explains the substance of the monitoring program for the life of the project, including activities, mitigation measures, responsibility, cost, parameter delineation, frequency, and responsibility to be identified. The guidelines also propose possible secondary monitoring roles. This indicates an ongoing requirement for community consultation.
- *Land Act* 1996 ss.13-14 – requires the State to identify all individual owners of land subject to compulsory acquisition for purposes of compensation.
- Relevant requirements for other sectors (Oil and Gas, Mining) – consultation with appropriate landowner representatives in the context of Development Forum and negotiation of Compensation Agreements.

2.2 World Bank Policies, Standards and Guidelines

World Bank safeguards that will apply to the Project include:

- ***OP/BP 4.01 – Environmental Assessment***
- ***OP/BP 4.04 – Natural Habitats***
- ***OP/BP 4.10 – Indigenous Peoples***
- ***OP/BP 4.11 – Physical Cultural Resources***

[56] Source: Cardno. 2018. Draft Information Communication Strategy (ICS) for Naoro-Brown HPP.

- ***OP/BP 4.12 – Involuntary Resettlement***
- ***OP/BP 4.36 – Forests***
- ***OP/BP 4.37 – Safety of Dams***

2.2.1 Good Practice Manual in Effective Public Consultation & Disclosure

The IFC's Good Practice Manual Doing Better Business through Effective Public Consultation and Disclosure (1998) outlines issues to consider while undertaking public consultation and disclosure, as follows:

- Written and oral communication in local languages and readily understandable formats;
- Accessibility by relevant stakeholders to both written information and to the consultation process;
- Use of oral or visual methods to explain information to non-literate people;
- Respect for local traditions or discussion, reflection and decision-making;
- Care in assuring groups being consulted are representative, with adequate representation of women, vulnerable groups, ethnic or religious minorities, and separate meetings for various groups where necessary; and
- Clear mechanisms to respond to people's concerns, suggestions and grievances.

2.2.2 Stakeholder Engagement: Good Practice Handbook

The Stakeholder Engagement Good Practice Handbook for Companies doing Business in Emerging Markets (2007) confirms the shift to a broader, more inclusive and continuous process of engagement between companies and stakeholders, particularly project affected persons, which encompasses a range of approaches, throughout the entire life of the Project.

A key element of good practice stakeholder engagement is the comprehensive initial identification and mapping of stakeholders to understand who is involved in your project. This process can be completed at a high level or in very deep detail, but must be undertaken at the beginning of the project and often reviewed at the beginning of each new phase. Stakeholders need to be prioritised to ensure effective and efficient use of time and resources. This is discussed further in Section 4.

2.3 PPL Policies

At present, PPL does not have its own written policies regarding stakeholder engagement and consultation. Rather, it follows the processes defined by lenders such as the World Bank, ADB and IFC. PPL also obtains input through its Call Centre, and uses print, radio and television media to advise the public on various energy related issues.

3 Summary of Previous Stakeholder Engagement Activities

3.1 PPL Stakeholder Engagement Activities Conducted to Date

With the exception of the Naoro-Brown HPP, consultation for the new Project has only recently been initiated. A workshop was held with available key stakeholders in Port Moresby on 26 February 2019, at which the draft ESMF was presented and discussed.

A list of meeting participants is included in **Appendix 1**, which also includes the PowerPoint presentation delivered at the workshop and the key issues raised by workshop participants (also summarized by topic in section 3.2 below).

Stakeholder consultations on the proposed Naoro-Brown HPP (see **Appendix 2**) have been ongoing since 2016. This includes numerous meetings at the village level leading up to, and as part of, the ESIA process, as well as meetings with CEPA officials and NGOs.

3.2 Summary of Stakeholder Issues Raised on Draft ESMF

Key issues by topic that were raised by participants at the 26 February 2019 workshop in Port Moresby are as follows:

Climate change initiatives – close collaboration required with other sectors and stakeholders – need for a broader energy conversation between parties.

SCADA System (subcomponent of Component 1) – Support expressed for upgrading to improve reliability of the electricity system.

Safety and Technology Management Plan – develop as part of Component 2.

Vegetation Management Plan (VMP) – develop to prevent system outages that occur due to large trees falling across lines, bamboo growing high enough to short out lines, etc.

Theft Reduction Program – needed to curtail theft of electricity that negatively affects PPL revenues.

Reliability Maintenance Plan (RMP) – acquire computer-based maintenance software and develop RMP to facilitate prioritization of system defects, schedule parts and equipment orders, etc.

Ramu II – Carry out a TA study for Ramu II (not in current scope).

PNG's Carbon Neutrality Targets – CCDA should develop a system of monitoring to determine emissions reductions toward meeting the targets.

Hides Gas-to-Power – will timing coincide with completion of Chinese funded HV transmission line from Mt. Hagen to Tari?

Benefit Sharing Mechanism – needed as part of any gas-to-power project. Also need to consult with industry in the potential project area. Needed at national, district, ward and project levels.

Stakeholder Consultation – an essential project element. FPIC guidelines used by REDD+ (and others) should be followed. "If the project is going to go ahead, consultation is the key".

Resettlement and Surrender of Customary Land – social media linking GoPNG and WBG compulsory land acquisition (not supported by WBG). WBG does not hold land as collateral. WBG safeguard process in place to ensure clear benefits flow to Affected People.

Land Acquisition versus Asset Valuation – processes to be followed.

Land Acquisition - PPL lands office with lands officers liaise closely with the Department of Lands and works closely with landowners to ensure positive outcomes.

Project Implementation – WBG is supporting initial project development . . . implementation will be the responsibility of PPL, on behalf of the GoPNG and the people of PNG.

Rural Electrification – is this part of the Project (currently not in project scope).

Environmental and Social Safeguards – Question of what safeguard issues are routinely encountered by WBG in PNG and other areas in the region.

4 Project Stakeholders

A diversity of stakeholders, including, government agencies and community organisations that could be directly or indirectly affected by, or that could influence, the Project have yet to be identified and listed. This will be done once specific locations for each component / sub-component of the Project are known. For the present, the list of stakeholders consulted on the Draft ESMF is as shown above.

Stakeholders will be identified through discussions with PPL staff, and referrals provided by CEPA, DPE, DLPP and through contacts made with local level government (LLG). Stakeholders in the local project-affected communities will continue to be identified through invitations sent out through social media, print, radio and television media. A stakeholder registry will be developed by PPL for the various project subcomponents. Additional stakeholders will continue to be added to the register as they are identified or identify themselves. Stakeholders' contact details will be incorporated into PPL's Project Database.

4.1 Project-affected People

PPL will identify landowners and other project-affected peoples by category, including for larger project components (e.g., gas-to-power project) landowners located in the project-affected area, those located in the wider impact area, and absentee landowners.

Information that will be collected includes:

- Stakeholder group, including clan name
- Contact name, leader or ILG representative
- Land area of interest, Infrastructure owned or controlled
- Comments, issues, concerns (including potential conflicts between individuals or groups)

Based on experience gained on the Naoro-Brown HPP, interest in land may be held by absentee landowners. Therefore, PPL will identify which clans have absentee landowners, how many there are, where they reside and how to contact them. It will be important to discern whether the interests of absentee landowners align (or not) with the interests of their respective clan members who continue to reside within the project-affected area(s).

4.2 Government Agencies

National, provincial and local government agencies identified in **Table 1** have an interest in the Project and will, therefore, be consulted where appropriate.

Table 1 National, Provincial and Local Government Agencies with Interests in the Project

Agency	Responsibility	Key Relevance to the Project
Provincial Governments (e.g., Southern Highlands, Central, Gulf)	Provincial Government is an arm of the national government but financial authority rests with the Governor, and acting on behalf of the Governor, the provincial administrator. The resources available to the provinces have been diminished since the introduction of the District Development Authority Act 2014 (see below).	A source of further baseline data. Relevant for the provision of government infrastructure and services, land investigation, community programs and land courts.
Conservation and Environment Protection Authority (CEPA)	Responsible for administering the Environmental Impact Statement (EIS) assessment and approval process under the Environment Act 2000.	Approval of the EIS - which will consider social impacts.
Department of Petroleum and Energy (DPE)	Principal regulator of the country's energy sector. It has responsibility for policy, strategic direction and planning in the energy sector. DPE is the implementing agency for Component 1 of the PNG Energy Sector Development Project.	Sets PNG energy industry policy.
Department of Lands and Physical Planning	Administers all alienated land (State and Freehold) in PNG and facilitates customary land registration at the discretion of the customary landowners.	To assist and participate in completion of land studies, including mapping clan boundaries. To facilitate the land acquisition arrangements
Department of Provincial and Local Government Affairs	Administers the Organic Law and supervises the performance of provincial governments and any associated Special Purpose Authorities.	Support provision of Provincial and LLG staff to participate in the ESIA and other studies as appropriate.
Department of National Planning and Monitoring	Central agency advising government on matters relating to strategic development policy, development planning and programming, aid coordination and management and the monitoring and evaluation of national development.	Relevant for government involvement in community programs.
Local Level Government Organisations	District Development Authorities now exist in PNG, since their introduction in early 2015. All public servants in the district, including police, teachers and health workers, and LLGs, will come under the District Authority, which is headed by the Member of Parliament and has as its Chief Executive Officer what was previously referred to as the District Administrator.	A source of further baseline data. Relevant for the provision of government infrastructure and services.
PNG Power Limited (PPL)	PPL is a State-Owned Entity and the power authority responsible for generation, transmission, distribution and retailing of electricity throughout Papua New Guinea and servicing individual electricity consumers.	Will lead the development of the Project and will be responsible for implementing E&SS.

4.3 Non-Government Organisations (NGOs)

The following NGOs will be contacted to determine whether, individually, they have an interest in being consulted on the overall project or specific components / subcomponents. Their interest may be dependent on specific locations or phases of development:

- Eco Custodian Advocate
- CELCOR Inc.
- PNG National Research Institute
- Individual Community Rights and Advocacy Forum (ICRAF)
- PNG Eco-forestry Forum
- Foundation for People and Community Development (FPCD)
- Habitat for Humanity
- Young Women's Christian Association (YWCA)
- Nature Conservancy
- Conservation International
- UPNG Anthropology Department
- CELCOR
- INA - CIMC

4.4 Stakeholder Prioritisation and Register

PPL will prepare a stakeholder register to track involvement of all stakeholders with whom it consults or who provide input to the Project. The register will also assist in prioritizing stakeholder interests so that PPL's focus can be directed accordingly during project preparation and implementation. The register will be developed as a searchable Excel workbook, and will be regularly updated as new stakeholders express an interest in the project.

The following information will be included in the Stakeholder Register:

- Stakeholder name
- Affiliation (e.g., individual, company, government, NGO, landowner, PPL staff, other)
- Contact details
- Interest or role in the Project (including supportive of the Project, or not)
- Resident or business operator in the project area
- Interest by project phase (e.g., feasibility, environmental and social assessment, detail design, construction, operation)

- Areas of interest (e.g., benefits, livelihoods, environment, compensation, infrastructure)
- Prioritization (important; influencer; maximum versus minimum engagement)
- Contact history

Regarding prioritizing stakeholder input, the World Bank recommends scoring importance (the level of impact or how affected a stakeholder is by the project) and level of influence (influence on the project or decisions affecting the project) on a high/low system using a four-quadrant matrix as shown in **Figure 1**. Alternatively, the International Association of Public Participation (IAP2) Spectrum of Participation can be used for determining the minimum level of engagement (also shown in **Figure 1**).

Figure 1 **Importance and influence matrix (World Bank) and IAP2 Spectrum of Participation**

DEGREE OF INFLUENCE

High influence ← → Low Influence

DEGREE OF IMPORTANCE

High Importance ↑ Low importance

Box A **Stakeholders who stand to lose or gain significantly from the project AND whose actions can affect the project's ability to meet its objectives** The project needs to ensure that their interests are fully represented in the coalition. Overall impact of the project will require good relationships to be developed with these stakeholders.	**Box B** **Stakeholders who stand to lose or gain significantly from the project BUT whose actions cannot affect the project's ability to meet its objectives** The project needs to ensure that their interests are fully represented in the coalition.
Box C **Stakeholders whose actions can affect the project's ability to meet its objectives BUT who do not stand to lose or gain much from the project** They may be a source of risk; and you will need to explore means of monitoring and managing that risk.	**Box D** **Stakeholders who do not stand to lose or gain much from the project AND whose actions cannot affect the project's ability to meet its objectives** They may require limited monitoring or informing of progress but are of low priority. They are unlikely to be the subject of project activities or involved in project management.

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decision.	To work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and issues are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and incorporate your advise and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
EXAMPLE TOOLS	• Fact sheets • Websites • Open houses	• Public comment • Focus groups • Surveys • Public meetings	• Workshops • Deliberate polling	• Citizen Advisory committees • Consensus-building • Participatory decision-making	• Citizen juries • Ballots • Delegated decisions

5 Stakeholder Engagement Program

This section discusses the objectives of the Stakeholder Engagement Program, what information and in what format it will be disclosed, and methods that will be used to communicate project information to each of the stakeholder groups that will be identified as the Project evolves. The methods for obtaining the views of women, youth and the elderly, as well as other potentially marginalized groups area also identified.

5.1 Communication Objectives

The communication objectives for the Project are as follows:

- Keep stakeholders informed in relation to their specific interest in the Project through provision of accurate and timely project information;
- Communicate the need to maintain strong social and environmental performance in accordance with project development objectives;
- Disseminate information in ways and locations that make it easy for stakeholders to access and understand it;
- Supplement technical studies with relevant information obtained from stakeholders;
- Achieve strong participation from a broad section of project area communities, including women, youth, and elderly
- Manage stakeholder expectations regarding various components / subcomponents of the Project;
- Provide information in advance of consultation activities and decision-making; and
- Keep stakeholders informed about how information they have provided has been used (e.g., provide summary baseline surveys results to people who participated in the surveys).

5.2 Approach to Stakeholder Engagement

The following approach to communication and stakeholder engagement will be followed by PPL for the Project:

- Seek to bring people together, promote participation, share information and gather information based on appropriate engagement methods;
- Respect local traditions, languages, timeframes, and decision-making processes;
- Establish two-way dialogue that gives both sides the opportunity to exchange views and information, listen, and have their issues heard and addressed;
- Use a single source of approved communication material in all stakeholder engagement;
- Strive to present technical concepts and information clearly and concisely;
- Address diversity of audience learning styles: visual, auditory and kinaesthetic/tactile; and

- Undertake appropriate briefing and preparation of all staff involved in community communications and media relations.
- Present PPL as an organization committed to responsible and transparent behaviour based on genuine community communication.

5.2.1 Stakeholder Preferences

An important consideration in developing approaches to stakeholder engagement is how stakeholders wish to be engaged. Therefore, time and effort should be made to ask stakeholders about their communications and engagement preferences, including:

- Language: What language should facilitators speak? In what language should written materials be presented?
- Advance notice: For face-to-face consultations, how much advance notice is requested to ensure participation?
- Gender: How would women like to be consulted? Do they feel comfortable being involved in group sessions that involve women only? Do they need a female facilitator? Does the female facilitator need to speak a particular language? What about young women?
- Written materials: How comfortable are stakeholders with written materials? Are some communications required in English for some official purposes? Are others needed in local dialects (e.g., Tok Pisin)? Or do some stakeholders have limited literacy and require less writing and more visual / drawings and illustrations? Does effort required in explaining complex concepts in simple ways? Consider who, other than engineers, can assist in this task.

Based on previous stakeholder consultations on the Naoro-Brown HPP, PPL has learned the following:

- Government departments require letters and other documents be provided in English;
- Community members prefer face-to-face presentations in their speaking language (Tok Pisin) over any other form of engagement. They appreciate the ability to ask questions and get responses directly;
- The percentage of women that participate in village level stakeholder events is very low, but increased when women are provided the opportunity to participate in separate women-only community meetings, facilitated by females.
- Written communications need to easy to be read. There may be mixed levels of literacy in the villages, so the language (English, Tok Pisin, other) matters less than illustrations and figures that clearly communicate and help explain the wording of the message(s). Messaging on technical / scientific issues needs to be simplified for the audience.

5.3 Project Planning Phase

Stakeholder input will be sought on project location, design and planning, including input on feasibility studies.

5.4 Environmental and Social Assessment Phase

Depending on the scale of a given subproject, environmental and social assessments may be required. For example, it is anticipated at a Level 3 (i.e., full ESIA) assessment will be required for a selected gas-to-power project. The purpose of stakeholder engagement will be to raise awareness regarding the scale and scope of

assessment, seek input on potential Valued Environmental Components (VECs), and identify issues of concern.

Again, given the scale of a given subproject, stakeholders may also be involved in providing input to environmental baseline studies and socio-community studies (e.g., household surveys, village level surveys, key informant interviews, absentee landowners studies, etc.)

5.5 Construction Phase

At present, the Project is only at an early concept stage, so specific construction information is not available. Throughout the construction phase, stakeholders will be informed of issues that may affect them, including information pertaining to construction scheduling, traffic management and safety, public health and safety, road closures and improvements, and other matters related to infrastructure use.

5.6 Documents for Disclosure

It is a requirement of the World Bank that documents pertaining to environmental and social safeguard instruments be disclosed to the public. Documents to be disclosed will include, but not necessarily limited to the following:

- Environmental and Social Management Framework;
- Stakeholder Engagement and Consultation Plan;
- Resettlement Policy Framework;
- Environmental Inception Report (EIR), and Environmental and Social Impact Assessment (ESIA) [Note: for larger subprojects like gas-to-power developments, or large hydropower projects];
- Environmental and Social Management Plans (ESMP); and
- Other projects deemed appropriate for disclosure.
- Documents will be disclosed on both the World Bank's external website as well as PPL's website.

6 Schedule

The schedule for undertaking stakeholder consultation will be developed based on the overall project, component / subcomponents of the Project, and different phases of project preparation and implementation.

Initial stakeholder engagement will commence with consultation on the draft ESMF. This will involve high-level consultation on the project concept with input sought from national level government regulators and NGOs.

As project components and sub-components are refined (e.g., project elements/activities, locations, timing), engagement will be shifted to also include local level government agencies and project-affected people located in areas where project works are likely to occur.

For larger project components (e.g., gas-to-power project), engagement will commence at the local level once a suitable project concept and location have been agreed by PPL. Consultations will be carried out through pre-construction, construction and early operation phases.

It is anticipated that schedules will be fluid and require updating as the Project evolves.

7 Resources, Responsibilities and Management

This section identifies the staff and other resources that will be assigned to managing and implementing the SECP.

7.1 Management

The PPL Project Management Unit (PMU) for the EUPRIP will be responsible for overall management of the SECP, with specialist input provided by PPL's Lands and Community Affairs Department, and Corporate Affairs team.

7.2 Materials Development and Secretariat services

Consultation materials, including pamphlets, posters, diagrams, maps, and other written materials, as well materials used in social, print, radio and television media, will be developed by the PMU with support from the Lands and Community Affairs Department, Corporate Affairs, and specialist consultants, if needed.

PPL track issues of concern among community constituents including the media, regulatory agencies, government, social groups and NGO's in relation to the project. PPL's Call Centre will be used to obtain input from stakeholders who wish to communicate via telephone or email.

PPL employees will be presented with consistent key messages, speaking points, and Frequently Asked Questions on various issues related to Project with technical input provided by the PMU, Lands and Community Affairs, and specialist communications consultants, where appropriate.

7.3 Stakeholder Engagement and Consultation Activities

Stakeholder engagement and consultation will be carried out by a team lead by the PMU, with input provided by technical specialists, and communications staff from PPL's Lands and Community Affairs Department. PPL's Call Centre will provide a supporting function to the team.

7.4 External Relations

PPL's External Affairs team will be responsible for communicating with local and regional media.

8 Monitoring and Reporting

PPL will maintain an active database of all public consultation and disclosure documentation collected throughout the Project, which will be available for public review upon request.

Evaluation will be qualitative as well as quantitative, using interviews and focus groups as well as questionnaires and desktop reviews, and will take place on a regular basis as well as at project milestones. Regular evaluations will be undertaken internally. It is also anticipated that the World Bank will conduct periodic evaluations as an external reviewer. The results of on-going evaluation will made available to stakeholders by various means and will be used as a basis for revising the SECP where necessary.

8.1 Record Keeping

An important aspect of stakeholder engagement and consultation is keeping accurate records of activities. PPL will use the following record keeping approach:

- An electronic and hard copy filing system will be used to store information pertaining to all stakeholder engagement activities – PPL will establish a document room (physical and virtual) where all documents relevant to the Project will be saved.
- Issues raised at meetings will be recorded in meeting notes and the notes provided to attendees for verification at regular intervals [Note: this is an IFC requirement as well as a good-practice principle].
- Attendance registers will be completed at all meetings and, as far as possible, digital photographs and/or video recordings will be made at meetings, with the agreement of meeting participants.
- A comprehensive record will be kept for reporting purposes of all:
- Meetings (dates, venues, attendees, objectives, etc.)
- Events such as launches, open days, etc. (dates, venues, attendees, objectives, outcomes)
- Comments, commitments, compliments, grievances and responses to these.
- Times and content of media advertisements, radio and television broadcasts will be recorded.

APPENDIX 1 Summary of ESMF Consultation Workshop
Gateway Hotel, Port Moresby – 26 February 2019

Participants

No.	Name	Organisation	Role / Title
1	Mr. Kero Tom	PNG Power Limited	Senior Manager Strategic Partnership and IPP Development
2	Ms. Donnia Bomai	PNG Power Limited	Project Manager EUPRIP
3	Mr. Jimmy Yareba	PNG Power Limited	Business Analyst
4	Mr. Gerard Fae	World Bank	Infrastructure Lead
5	Mr. Ross Butler	World Bank	Senior Social Safeguards Specialist
6	Ms. Dodi Doiwa	World Bank	Program Officer
7	Mr. Scott Hanna	World Bank	Senior Environmental and Social Safeguards Consultant
8	Mr. Iosia Kaitolele	PNG Department of Lands and Physical Planning (DLPP)	Lands Officer
9	Mr. Tobias Toumne	PNG Consultation Monitoring and Implementation Council (CIMC)	Project Officer
10	Ms. Sonia Baine	PNG Climate Change and Development Authority (CCDA)	REDD+ Officer
11	Ms. Emily Pomoh	PNG Climate Change and Development Authority (CCDA)	A/Senior Mitigation Officer
12	Mr. Mimando Baro	PNG Climate Change and Development Authority (CCDA)	Mitigation Officer
13	Mr. Benside Thomas	PNG Conservation and Environment Protection Authority (CEPA)	Manager Terrestrial Protected Areas
14	Mr. David Kau	PNG Conservation and Environment Protection Authority (CEPA)	Biodiversity Conservation
15	Mr. Marin Teine	PNG Treasury Department	A/Assistant PIB
16	Ms. Verolyne Daugil	PNG Treasury Department	Economist
17	Mr. Samson Wek	PNG Treasury Department	Economist
18	Mr. Simon Augustine	PNG Independent Consumer and Competition Commission (ICCC)	Manager Electricity and
19	Mr. William Greene	Multiconsult (Norway)	Senior Advisor
20	Mr. Shivcharn Dhillion	Multiconsult (Norway)	Senior Consultant

Presentation

The following PowerPoint presentation was made to workshop participants:

Energy Utility Performance & Reliability Improvement Project (EUPRIP)

Environmental & Social Management Framework (ESMF)

Workshop: Gateway Hotel, Port Moresby

26 February 2019

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Workshop(Agenda

1. Introductions
2. Safety Moment
3. EUPRIP ESMF Presentation
4. Questions and Discussion
5. Conclusions
6. Buffet Lunch

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Workshop(Purpose

- To present the proposed new World Bank supported Energy Utility Performance and Reliability Improvement Project (EUPRIP)
- To identify Environmental and Social Safeguard activities and instruments, particularly the Environmental and Social Management Framework (ESMF) document
- To obtain input from government and NGO stakeholders for the purpose of finalising the ESMF

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Project(Purpose

- Meet the growing demand for electricity in PNG
- Strengthen existing generation and distribution system
- Provide Interim (transition) step to clean renewable energy
- Provide cheaper energy source than diesel
- Provide locally-sourced energy (not imported)
- Facilitate development of other energy sources, including renewables

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Development(Stage(&(Funding(

- World Bank Pre-appraisal Stage
- Project will be supported by US$30 million in IBRD financing blended with reimbursable Global Infrastructure Fund (GIF) grant(s), and possibly other, as yet to be determined, funding sources.

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Project(Descrip<on(

- Project comprised of 4 project components, with various sub-components (sub-projects)
  - Component 1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure
  - Component 2 – Implement Key Components of PPL's Performance Improvement Plan
  - Component 3 – Technical Assistance on Least Cost Power Development Plan
  - Component 4 – Project Management Support

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Component(1(–(Urgent(Rehab(/(Upgrade(of(PPL(Infrastructure(

- Provide priority upgrades and repairs to existing generation, transmission and distribution systems
  - MV network upgrades and strengthening (e.g., re-closers, switches, voltage regulators, MV line rerouting)
  - Improvements to substations (e.g., capacitors, transformers)
  - Upgrade / expansion of control and protection system; upgrade control centre at PPL
  - Install meters to improve service quality

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PPL Linesman at work on MV distribution system

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Component(2(–(PPL(Performance(Improvement(Plan(

- Incorporate management tools
  - Management information system (MIS)
  - Supported by improvements / updates to respective databases (customers, assets, etc.)

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Component(3(–(Technical(Assistance(on(Least(Cost(Power(Development((

- TA to assess rehabilitation of existing hydropower stations (Ramu 1; Rouna Cascade)
- TA to support procurement of Naoro-Brown HPP
- TA to assess potential Highlands gas-to-power project
- Updating PPL project database

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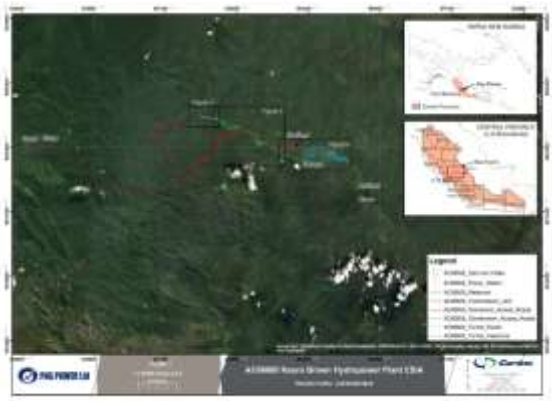
Proposed location of Naoro-Brown HPP and Ancillary Facilities



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Existing Hides Gas-to-Power Plant

Existing Kutubu Central Gas Processing Plant

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Component(4(–(Project(Management(Support

- Support to PPL for recruitment of:
  - Financial Manager (
  - Procurement expert
  - Environmental and social safeguards experts
- Prepare of project safeguard studies
- Finance audit, office equipment and incremental operating costs

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World(Bank(Safeguard(Policies(

- OP4.01 – Environmental Assessment
  - Project is Category A on basis that TA advisory work (Component 1) will cover investments having potential to create significant adverse impacts (i.e., Naoro-Brown HPP)
  - Other policies triggered include:
  - OP4.04 – Natural Habitats
  - OP4.10 – Indigenous Peoples
  - OP4.11 – Physical Cultural Resources
  - OP4.12 – Involuntary Resettlement
  - OP4.37 – Dam Safety

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E&S(Safeguard(Instruments(

Component	Sub-Project	Safeguard Instrument
Overall Project		ESMF
1 – Urgent Rehabilitation / Upgrade of PPL Infrastructure	MV Network	E&SA, CoEP, ESMP, ARAP
	Substations	
	Control and Protection	
	Metering	N/A
2 – PPL Performance Improvement Plan	(no physical works)	N/A
3 – Technical Assistance on Least Cost Power Development Plan	TA to assess rehabilitation of existing hydropower stations (Ramu 1; Rouna Cascade)	ToR
	TA to support procurement of Naoro Brown HPP	
	TA to assess potential Highlands gas-to-power project	
	Updating PPL project database (no physical works)	N/A
4 – Project Management Support	(no physical works)	N/A

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Purpose(of(ESMF(

- Required under WBG OP/BP 4.01 – Environmental Assessment
- Ensures all components of the Project meet the environmental and social safeguard policies of the World Bank and laws and regulations of PNG
- Primarily to manage impacts associated with Component 1 of the Project – the only component that will include project funding for physical works

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Scope(of(ESMF(

- Introduction
- Purpose and Scope of ESMF
- Project Description
- Potential Environmental and Social Impacts
- Legal, Policy Framework and Regulatory Requirements
- World Bank Safeguard Policies, Screening and Instruments
- Gap Analysis
- Measures to Address E&S Issues
- Grievance Redress Mechanism
- Public Consultation and Disclosure
- Institutional Roles, Responsibilities and Capabilities
- Budget Provision

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Scope(of(ESMF(–(Cont'd(

- Key Appendices
  - Indigenous Peoples Planning Framework (IPPF)
  - Resettlement Policy Framework (RPF)
  - Draft Stakeholder Engagement and Consultation Plan
  - Example Environmental and Social Screening Matrix
  - Template for Typical ESMP

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Regulatory(Approvals(

- Component 1 – minor physical works, some of which may require approval by CEPA
- Component 2 – no physical works
- Component 3 – no physical works at present, however:
  - Level 3 EIS in preparation for Naoro-Brown HPP per PNG *Environment*Act**
  - Highlands Gas-to-Power – anticipate need to prepare Level 3 EIS if TA deems project to be viable
- Component 4 – no physical works

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Environmental(and(Social(Issues(

- Primarily associated with Component 1 activities:
  - Vegetation – trimming and clearing for clearance of overhead lines
  - Noise and vibration - installation of equipment at substations; installing power poles and lines
  - Accidental spills of lubricants and solvents – installing substation electromechanical equipment
  - Dust, potential drainage and excess soil disposal – excavating holes for MV power poles
  - Demolition and construction waste - upgrading substations; potential asbestos issue if encountered at PPL headquarters
  - Traffic congestion – transporting equipment; installing re-routing MV transmission lines

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Land(Acquisi<on(

- Generally, sub-projects of Component 3 will involve physical works carried out on existing land owned by / leased to PPL, or on public rights-of-way
- Additional land may be required for short sections of MV line re-routing (0.2km to 1km)
- Land will be acquired through voluntary acquisition, in which case Abbreviated Resettlement Action Plan (ARAP) may be required

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Consulta<on(&(Disclosure(

- Consultation on the ESMF marks the 1st round of consultation
- ESMF will be disclosed on World Bank and PPL external websites
- Additional consultations will be undertaken for specific sub-projects for which physical works will be undertaken, as defined by PPL

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Conclusion(

- Input from today's participants will be incorporated into the final ESMF document
- As noted in the previous slide, the ESMF will be posted to the World Bank and PPL external websites

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Ques< ons(and(Discussion(

Key Issues Raised by Participant

1. Climate change initiatives have been advanced in PNG, with draft REDD+ and implementation guidelines nearing completion. Suggestion made that PPL review these documents and work in close collaboration with other sectors and stakeholders – need for a broader energy conversation between parties.

2. Re: Component 1 – Support expressed for upgrading PPL's SCADA system to improve reliability of the electricity system. Comment that a full rollout of SCADA should occur down to the distribution level.

    a. Re: Component 2 PPL needs to develop a safety and technology management plan to ensure full PPL coverage. Safety Technical Management Plans (STMP) need to be prepared across PPL to ensure a comprehensive approach to safety. Concern expressed that there has been a declining emphasis on safety and standard operating procedures (SOP).

    b. PPL needs to develop a comprehensive Vegetation Management Plan (VMP) to prevent system outages that occur due to large trees falling across lines, bamboo growing high enough to short out lines, etc.

    c. PPL needs to develop and implement a Theft Reduction Program to curtail theft of electricity that negatively affects PPL revenues.

    d. PPL needs to develop better operational maintenance practices to improve its preventative maintenance. A more proactive approach is required to replace the current perceived system of reacting to system failures. Suggestion made for PPL to acquire computer-based maintenance software and develop a Reliability Maintenance Plan (RMP), which would facilitate prioritization of system defects, schedule parts and equipment orders, etc.

3. GoPNG is in the process of legislation to protect water resources around project sites. This may affect Naoro-Brown HPP.

4. Treasury Department will work closely with PPL to obtain stakeholder input.

5. Re: Component 3 – Suggestion that a TA study for Ramu II also be included. WBG noted that it has to be invited by GoPNG and has not been asked to include Ramu II. This may be something that ADB is addressing.

6. PNG's program for meeting carbon neutrality targets mentioned (50% by 2030; 100% by 2050). PPL commented that it is working to meet these. Suggestion that CCDA should develop a system of monitoring to determine emissions reductions toward meeting the targets. Observation made that CCDA has trouble obtaining data from various sectors and may need to see legislation enacted to make this a reporting requirement.

7. Question regarding whether the Chinese funded HV transmission line between Mt. Hagen and

Tari will be completed in time for a possible Hides gas-to-project generating facility to tie into it. WGB impression is that the timing would support this.

8. Comment that there will need to be a benefit sharing mechanism as part of any gas-to-power project. Also required is identification of conservation areas, commercial areas (forestry, etc.) to avoid legal issues – need to consult with industry in the potential project area.

9. Comment that consultation is essential and that FPIC guidelines used by REDD+ (and others) be followed. Communities need to be fully informed and voices of those who are perhaps more marginalized be heard. "If the project is going to go ahead, consultation is the key".

10. Mention made by WBG of grievance redress mechanism (GRM). Benefit sharing raised as an important issue by participants, including at national, district, ward and project levels.

11. Issue raised regarding resettlement and surrender of customary land, with social media portraying GoPNG being in collaboration with WBG with the issue going viral on Facebook to the extent that people are being asked not to register their land as this will allow the "World Bank to take their land". WBG commented that it does not, as a rule, support compulsory land acquisition. WBG is both a lending institution and a development institution, that makes sure funding is applied with appropriate safeguards. WBG does not hold land as collateral and, in that sense, does not act like a commercial bank. WBG safeguard process explained to ensure clear benefits flow to Affected People.

12. Issue of land acquisition versus valuation of assets and crops. WBG clarified that these are negotiated . . . that there is a difference between "access to land" and "land acquisition". The Component 3 TA work will comprise a feasibility study. If land is a show-stopper then the project won't proceed.

13. Clarification by PPL that the EUPRIP is not a WBG project. Rather, WBG is supporting initial project development, but its implementation will be the responsibility of PPL, on behalf of the GoPNG and the people of PNG. PPL noted that it has a lands office with lands officers that liaise closely with the Department of Lands and works closely with landowners to ensure they are happy with the outcomes of land negotiations, "and we are all Papua New Guineans and we know the relationship with land . . . ".

14. Issue of rural electrification was raised. PPL noted that it does not have the financial resources to invest in rural electrification if it is unable to collect revenue. Another participant noted that most rural electrification occurs in close proximity to the established grid, and that it is more difficult to provide electrification in stranded / off-grid areas. There is program support from GoPNG and others to develop and license off-grid rural electrification systems.

15. Question of what safeguard issues are routinely encountered by WBG in PNG and other areas in the region. WBG mentioned a number of examples.

Appendix 2 Naoro-Brown HPP Consultation Dates

Date	Purpose / Group	Location(s)
2016 (actual date not known)	Initial contact meeting with project-affected people of Madilogo and Edevu	Madilogo village
31 May 2017	Present project concept to project-affected people of Edevu and Madilogo villages	Edevu Village
19 May 2017	Present project concept to CEPA and obtain direction regarding preparation of EIR and EIS	Port Moresby
27 Nov 2017	Present ESIA plan to project-affected people of Madilogo, and Edevu	Madilogo Village
22 May 2018	Present draft EIR to CEPA	Port Moresby
24 May 2018	Present draft EIR to NGO and GoPNG regulators (CEPA; National Museum)	Port Moresby
27 May to 01 June 2018	Community meetings and household surveys in project-affected area	Agulogo, Binige, Ebologo, Edevu, Gaunaba-Edevu, Madilogo, Naoro 1, Naoro 2

ANNEX K Example Environmental and Social Screening Matrix

ANNEX K Example Environmental and Social Screening Matrix

SCREENING QUESTIONS	Adverse Impacts		Potential Impact Rating[57]			REMARKS
	Yes	No	L	M	H	
A. Subproject Siting Is the Subproject area adjacent to or within any of the following environmentally sensitive areas?						
• Cultural heritage site						
• Protected area						
• Wetland						
• Mangrove						
• Estuarine						
• Buffer zone of protected area						
• Special area for protecting biodiversity						
B. Potential Environmental and Social Impacts Will the Subproject cause . . .						
encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?						
encroachment on precious ecosystems (e.g. sensitive or protected areas)?						
alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?						
damage to sensitive coastal/marine habitats by construction of submarine cables?						

[57] **Low Impact Rating** = projects or sub-projects that involve activities causing limited or minor environmental and social impacts, but do not involve land acquisition, from activities that may be repetitive in nature, will generally require standard Codes of Environmental Practice.

Moderate Impact Rating = projects or sub-projects that involve activities causing moderate levels of environmental or social impacts, including limited land acquisition with economic (but not physical) resettlement, will generally require environmental and social management plans (ESMP) and/or abbreviated resettlement action plans (ARAP), appropriate to the level of impacts.

High Impact Rating = project activities involving significant environmental and social impacts will require development of terms of reference for detailed assessment studies.

SCREENING QUESTIONS	Adverse Impacts		Potential Impact Rating[57]			REMARKS
	Yes	No	L	M	H	
deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps, and chemicals used in construction?						
increased local air pollution due to rock crushing, cutting, and filling?						
risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during subproject construction and operation?						
• chemical pollution resulting from chemical clearing of vegetation for construction site?						
• noise and vibration due to blasting and other civil works?						
• dislocation or involuntary resettlement of people?						
• disproportionate impacts on the poor, women and children, Indigenous Peoples, or other vulnerable groups?						
• social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?						
• hazardous driving conditions where construction interferes with pre-existing roads?						
• creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?						
• dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?						
• environmental disturbances associated with the maintenance of lines (e.g. routine control of vegetative height under the lines)?						
• facilitation of access to protected areas in case corridors traverse protected areas?						
• disturbances (e.g. noise and dust)						
• population influx during subproject construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?						

SCREENING QUESTIONS	Adverse Impacts		Potential Impact Rating[57]			REMARKS
	Yes	No	L	M	H	
• social conflicts if workers from other regions or countries are hired?						
• poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?						
• risks to community safety associated with maintenance of lines and related facilities?						
• community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?						
• risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel, and other chemicals during construction and operation?						
• community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the subproject (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout subproject construction, operation, and decommissioning?						
C. Land Acquisition and Access Issues Questions regarding land acquisition and access for the Subproject include:						
• will there be land acquisition?						
• is the site for land acquisition known?						
• is the ownership status and current usage of land to be acquired known?						
• will existing rights-of-way (ROW) be used for transmission line or distribution line easements?						
• will there be loss of shelter and residential land due to land acquisition?						

SCREENING QUESTIONS	Adverse Impacts		Potential Impact Rating[57]			REMARKS
	Yes	No	L	M	H	
• will there be loss of agricultural and other productive assets due to land acquisition?						
• will there be losses of crops, trees, and fixed assets due to land acquisition?						
• will there be loss of businesses or enterprises due to land acquisition?						
• will there be loss of income sources and means of livelihoods due to land acquisition?						
• will people lose access to natural resources, communal facilities and services?						
• if land use is changed, will it have an adverse impact on social and economic activities?						
• will access to land and resources owned communally or by the state be restricted?						
D. Indigenous Peoples Issues						
• are there socio-cultural groups present in or use the subproject area who may be considered as "tribes" (hill tribes, schedules tribes, tribal peoples), "minorities" (ethnic or national minorities), or "indigenous communities" in the subproject area?						
• are there national or local laws or policies as well as anthropological researches/studies that consider these groups present in or using the subproject area as belonging to "ethnic minorities", scheduled tribes, tribal peoples, national minorities, or cultural communities?						
• do such groups self-identify as being part of a distinct social and cultural group?						
• do such groups maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories?						

SCREENING QUESTIONS	Adverse Impacts		Potential Impact Rating[57]			REMARKS
	Yes	No	L	M	H	
• do such groups maintain cultural, economic, social, and political institutions distinct from the dominant society and culture?						
• do such groups speak a distinct language or dialect?						
• have such groups been historically, socially and economically marginalized, disempowered, excluded, and/or discriminated against?						
• are such groups represented as "Indigenous Peoples" or as "ethnic minorities" or "scheduled tribes" or "tribal populations" in any formal decision-making bodies at the national or local levels?						
• will the subproject directly or indirectly benefit or target Indigenous Peoples?						
• will the subproject directly or indirectly affect Indigenous Peoples' traditional socio-cultural and belief practices? (e.g. child-rearing, health, education, arts, and governance)?						
• will the subproject affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)?						
• will the subproject be in an area (land or territory) occupied, owned, or used by Indigenous Peoples, and/or claimed as ancestral domain?						
• will the subproject activities include physical displacement from traditional or customary lands?						
• will the subproject activities include establishing legal recognition of rights to lands and territories that are traditionally owned or customarily used, occupied or claimed by Indigenous Peoples?						

SCREENING QUESTIONS	Adverse Impacts		Potential Impact Rating[57]			REMARKS
	Yes	No	L	M	H	
• will the subproject activities include acquisition of lands that are traditionally owned or customarily used, occupied or claimed by Indigenous Peoples?						

Source: Adapted from ADB 2017

ANNEX L Template for Typical ESMP

ANNEX L TYPICAL ESMP TEMPLATE

A. Executive Summary
B. Policy, Legal and Administrative Framework
   1. PNG Environmental Law and Regulations
   2. PNG Environmental Assessment Process
   3. World Bank Safeguard Policy Requirements
   4. Institutions
   5. Extent of ESMP
C. Description of the project
   1. Project Background
   2. Project Component and Activities
   3. Implementation Arrangement and Schedule
   4. Project Benefit and Justification
D. Anticipated Environmental Impacts and Mitigation Measures
   1. Impacts and Mitigation Measures for Pre-construction Activities
   2. Impacts and Mitigation Measures for Construction Activities
   3. Impacts and Mitigation Measures for Operation
   4. Impacts and Mitigation for Decommissioning
   5. Cumulative Impacts
E. Analysis of Alternatives
F. Consultation and Information Disclosure
   1. Stakeholders/Community Consultations
   2. Information Disclosure
G. Grievance Redress Mechanism
H. Environmental and Social Management Plan
   1. Environmental Management Plan
   2. Social Management Plan
   3. Implementation Arrangement
   4. Budget and Resources
I. Conclusions and Recommendations

Environment and Social Management Plan Summary Matrix

Project activity/ stage	Potential impact	Proposed mitigation measures	Mitigation Cost	Institutional Responsibility	Implementation Schedule

Environmental Monitoring Plan Summary Matrix

Environmental Features	Aspect to be monitored	Time and Frequency of Monitoring	Location	Monitoring Cost	Responsibility party for implementation