ANNEXES

ANNEX 1 COUNTRY CONTEXT

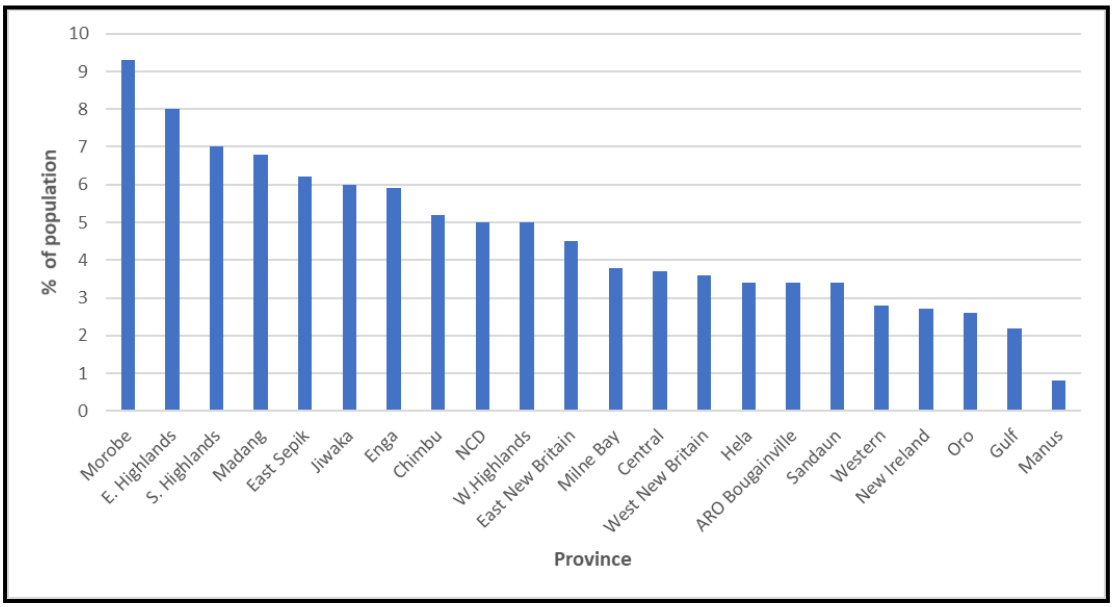
The National Energy Access Transformation Project will be implemented across the country. Component 1 will be carried out in and around the existing Port Moresby, Ramu and Gazelle grids, and select existing mini-grids; subcomponent 2.1 will be undertaken at some of the 57 potential micro-grid sites identified and possibly other locations, subcomponent 2.2 will be undertaken across Papua New Guinea (focussing on currently underserved and rural populations); and Component 3 will investigate potential HHPs that would connect to (and therefore be in the vicinity of) the existing Port Moresby, Ramu and Gazelle grids.

This section therefore provides an overview of the socio-economic and environmental context of PNG in general. When subprojects are confirmed, more detail on the specific socio-economic and environmental context and impacts will be captured in respective instruments prepared.

Population

The population of PNG was estimated at 8.8 million in 2019 with its population growth rate varying between 2 and 2.4% over the last 25 years[1]. PNG is a 'young' population with 41% of the population being under 15, and only 2.9% of the population being over 64[2]. The population is strongly ruralised, with 85% of people living in rural areas[3]. The population distribution across the 22 province-level divisions: 20 provinces, the Autonomous Region of (ARO) Bougainville and the National Capital District (NCD) is shown on Figure 1.

Figure 1: PNG Population Distribution by Province (Source: 2021 Census Data)



[1] World Bank 2021. World Bank Open Data. World Bank Group.

[2] National Statistics Office - NSO (2011). Household Income and Expenditure Survey (HIES) 2009-10. Accessed 1 February 2018 from https://www.nso.gov.pg/index.php/projects/household-income-expenditure-survey. Viewed March 2021.

[3] Department of Foreign Affairs and Trade (DFAT) 2017. DFAT Country Information Report Papua New Guinea. DFAT, Canberra

Economy, Income and Employment

The economy of PNG is dominated by two sectors:

- the agricultural, forestry, and fishing sector that engages most of PNG's labour force (the majority informally), and
- the minerals and energy extraction sector that accounts for most export earnings and GDP.

An economic update provided by the WB in September 2022 concluded that[4]:

- The economy is back to growth following a sharp contraction in 2020, with a 1% growth rate recorded in 2021.
- Higher commodity prices have contributed to higher inflation.
- The modest headline economic growth in PNG has translated in meagre per capita income growth in the past four decades.
- The considerable natural resources wealth has not been channelled into broad-based and sustained productivity growth.
- PNG's future growth and quality of life hinge on improving human capital, given the growing young population.

From the mid-2000s, PNG experienced strong economic growth with real GDP per capita growing by 3% per annum. Economic growth peaked in 2014 with the start of exports from ExxonMobil's PNG LNG Project. The extractive industries have been the main driver of economic growth and continue to account for an increasing share of exports and output. Natural resources were estimated to account for 47 percent of GDP in 2015. Mining and petroleum now comprise 24 percent of GDP, almost as much as all other primary sectors combined. However, the mining and petroleum industry account for only seven percent of total employment. The 'informal economy' likely supports more than 80% of the population. Given the high rural population the agricultural, forestry and fishing sector engages most of the labour force. Subsistence livelihoods account for at least 75 % of the population. On average, women are half as likely as men to hold a job in the formal sector and earn less than half of the pay reported by men.[5]

The poverty rate is around 40 percent for rural populations and 27 percent for urban populations, although the impact of poverty in rural areas is reduced by strong subsistence food production.[6] Despite this, high levels of malnutrition and stunting are an issue in rural PNG.[7] There is often a general assumption that because most people have access to land, that they have subsistence food crops and the ability to

[4]https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099020009142275189/p1793220e4e59d0e08ebb05316324bc183

[5] Pryke, J and Barker, P (2017). A bumpy road: societal trends in Papua New Guinea - PNG Country Assessment. Lowy Institute for International Policy, Sydney

[6] World Bank 2021. World Bank Open Data. World Bank Group.

[7] Pryke, J and Barker, P (2017). A bumpy road: societal trends in Papua New Guinea - PNG Country Assessment. Lowy Institute for International Policy, Sydney

generate a cash income.[8] However, the vulnerability of PNG's households is seen during disaster events that generate food shortages and starvation and the lack of roads in many areas prevents people from selling their excess food crops to generate a cash income. Remoteness and the inaccessibility of roads appear to be the primary determining factors of village income levels and poverty. Communities over an hour's travel time to the nearest roads have been found to have double the poverty rate of those immediately adjacent to roads, after adjusting for other income determinants.[9]

Access to Electricity

Access to on-grid electricity in PNG remains below 15 percent, which is among the lowest in the world. PNG has significant endowment of hydropower, natural gas, solar, wind, and geothermal resources. However, these resources are unexploited and underutilized. For example, PNG has the potential to generate 15,000 MW of hydropower, but to date less than 250 MW has been harnessed. While LNG exports account for approximately 18 percent of GDP, natural gas is not extensively used for power generation; instead, the country imports petroleum products to generate over half of installed capacity.

The main grid (operated by PPL) comprises the Port Moresby, Ramu and Gazelle grids. In addition, there are 26 isolated smaller grids operated by PPL, although some of these regional grids are served by independent power producers (IPPs) who are under a power purchase agreement (PPA) with PPL. Local authorities also operate approximately 150 small, rural electricity systems (i.e., mini-grids).[10] Most of the smaller PPL-operated grids and mini-grids rely on diesel for generation. There are also a number of private mini-grids that have been built by industrial companies for their use and for the benefit of nearby communities and business centres.

Access to electricity is concentrated around the main urban centres of PNG, while access in rural areas remains limited, particularly access to grid-electricity (Figure 2). Approximately 55 percent of households have access to some type of off-grid electricity, although most of this is limited to solar lanterns (Figure 3). Female headed household are twice as likely to not have access to electricity as compared to male-headed households[11]. An analysis of electricity market in PNG by USAID[12] noted that one of the issues facing the standalone solar market is the high cost of transportation to the end consumer, making products in remote areas expensive and suppliers less likely to service these areas. The high transportation costs would increase the cost of products for consumers in rural areas, however, this is where such products are most needed due to lack of grid access and where people are most unlikely to be able to afford them as income levels in such areas are significantly less than urban areas (as discussed in the previous section).

[8] Government of Papua New Guinea (GoPNG) (2015) Draft National Food Security Policy (NFSP) 2016-2025, Department of Agriculture and Livestock.

[9] ADB (2016). Poverty Analysis Summary. Country Partnership Strategy: Papua New Guinea 2016-2020.

[10] Isaka, Mofor, and Wade, "Pacific Lighthouses: Papua New Guinea. As cited in USAID (2022). PNG Electrification Project. Off-grid market assessment.

[11] Koo and Rahman (2021). Multi-Tier Framework Survey Results. Presentation prepared for the World Bank Group.

[12] USAID (2022). PNG Electrification Project. Off-grid market assessment.

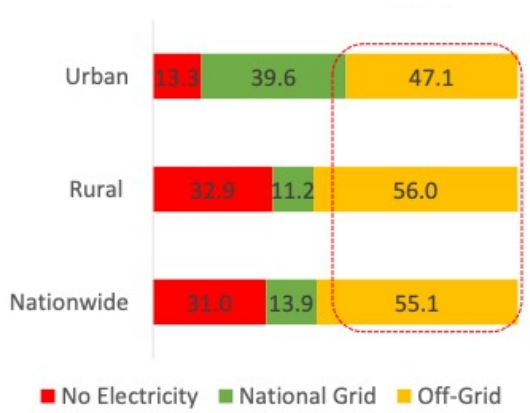


Figure 2: Main source of electricity[13]

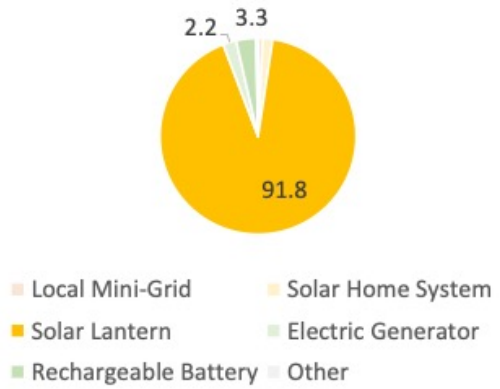


Figure 3: Breakdown of off-grid energy solutions (%)[14]

Health

Life expectancy in PNG has been increasing, but at 67 years (64.8 for males and 69.3 for females), is still the lowest in the region[15] and simple-to-manage conditions such as tuberculosis (TB), pneumonia, and diarrhoea dominate morbidity[16]

Poor water supply and sanitation and hygiene practices contribute to the prevalence of communicable diseases such as diarrhoea and cholera which are major causes of illness and death, especially in young children. Malnutrition is a problem with around 28% of children underweight and 5-15% are wasted (have low weight-for-height). Women die in childbirth at 80 times the level in Australia.

PNG has the highest HIV positive rate, and among the highest rates of sexually transmitted infections in the Pacific.[17] The rate of TB is also the highest in the Pacific and multi-drug resistant tuberculosis is also prevalent. TB is a leading cause of death in PNG. The use of tobacco and alcohol are also problems.[18]

Access to health services is low with the health sector facing several major challenges. These include a critical shortage of medical staff, frequent shortages of essential medicines and supplies, and leadership and management capacity limitations at all levels of the health system[19]. PNG's health delivery system is

[13] Koo and Rahman (2021). Multi-Tier Framework Survey Results. Presentation prepared for the World Bank Group.

[14] Koo and Rahman (2021). Multi-Tier Framework Survey Results. Presentation prepared for the World Bank Group.

[15] Pryke, J and Barker, P (2017). A bumpy road: societal trends in Papua New Guinea - PNG Country Assessment. Lowy Institute for International Policy, Sydney.

[16] Department of Foreign Affairs and Trade (DFAT) 2017. DFAT Country Information Report Papua New Guinea. DFAT, Canberra.

[17] Department of Foreign Affairs and Trade (DFAT) 2017. DFAT Country Information Report Papua New Guinea. DFAT, Canberra.

[18] World Vision 2013. Papua New Guinea Health and Human Wellbeing. World Vision Australia.

[19] Department of Foreign Affairs and Trade (DFAT) 2017. DFAT Country Information Report Papua New Guinea. DFAT, Canberra.

decentralised, with health services fragmented between national and provincial authorities - bottlenecks persist.

PNG has less than 400 doctors in total and only 51 doctors work outside Port Moresby.[20] Health facilities are scarcer and access to healthcare is much worse in rural areas than urban areas. UNDP reports that 40% of health/sub-health centres and rural health posts have no electricity or essential medical equipment. Transportation to medical facilities in remote areas is a major challenge.

Education

The estimated literacy rate in PNG is 62.9 percent for adults over 15 (2014 data). Men (68.9%) had a markedly higher rate than women (57.3%) – this gender disparity also applies to children (DFAT 2017). Girls have lower participation in education than boys, particularly at higher levels of education and the drop-out rates are higher. Because girls and young women are less likely to complete basic or secondary schooling, they are less likely to qualify and be selected for post-school training. There is also a huge disparity in literacy rates between urban (86%) and rural (52%) areas and in school enrolment.[21]

Only half of the current adults have had a basic school education - the average number of years of schooling achieved by adults is 4.7.[22] PNG introduced free tuition for primary school students in 2012, which boosted the enrolment rate. However, education is not compulsory in PNG and about half of all primary school-aged children are still out of school, with fewer girls going to school than boys.

Various factors contribute to poor school student retention rates. From the household-community side factors include a lack of parental support and community responsibility towards the education of children, security, and tribal fighting. In-school factors include cost, lack of educational materials and school infrastructure, poor teacher attitude and attendance, remoteness/distance to school and negative pupil behaviour. When children live far away from school, they only have the options of walking a long distance (often several hours), staying with relatives, or not going to school at all.

Gender Issues

Gender inequality is a major issue in PNG as indicated by the country's ranking of 161 out of 189 counties on the UNDP's Gender Inequality Index (189 being the worst).[23] This index measures gender inequalities in three key areas of human development - reproductive health (e.g., maternal mortality ratio), empowerment (e.g., secondary education levels); and economic status (e.g., labour market participation rate).

Women throughout PNG have a high risk of community discrimination due to long-standing traditional values and gender roles that limit their ability to fully participate in a wide range of activities. Areas of gender inequality include:

[20] Anker Research Network 2020. Anker Living Income Reference Value for Rural Papua New Guinea. https://globallivingwage.org/wp-content/uploads/2021/01/Rural-PNG-LI-Reference-Value-1.pdf.

[21] Department of Foreign Affairs and Trade (DFAT) 2017. DFAT Country Information Report Papua New Guinea. DFAT, Canberra.

[22] UNDP 2020. Human Development Report 2020 The Next Frontier: Human Development and the Anthropocene. Briefing note for countries on the 2020 Human Development Report. http://hdr.undp.org/sites/default/files/hdr2020.pdf.

[23] UNDP 2020. Human Development Data Center. http://hdr.undp.org/en/composite/GII.

- Education participation and attainment
- Employment participation, wage levels, and financial literacy (e.g., bank account ownership)
- Political participation
- Health outcomes
- Travel, security, and likelihood to experience violence.

While the constitution provides for gender equity and equality customary law, recognised by the constitution, discriminates against women in relation to rights and property. Most elected officials in PNG are male and there were no women elected to the National Parliament in 2017. This makes it one of only five countries in the world with no female members of parliament - only seven women have ever been elected to the PNG parliament.[24]

This situation is characteristic of most tribes being patrilineal and of the culture in PNG. Barriers to boosting female participation in politics include a predominant 'big man' culture; widespread family and sexual violence; the absence of a unified, national women's movement; and a lack of campaign finance, mentoring, internships, and media experience.[25]

Women and girls are more vulnerable to HIV infection and other sexually transmitted infections. Women's lack of power and rights in sexual relations and the high risk of gender-based violence increases the likelihood of HIV transmission.[26]

There is a social stigma against lesbian, gay, bisexual, trans- or intersex (LGBTI) people in PNG. This has led to a 'don't ask, don't tell' mentality in the country. While there are several prominent PNG figures who are understood to be homosexual, it is very rare for this to be acknowledged publicly.[27]

Within PNG, family and sexual violence is endemic, with some of the highest rates of violence against women and children in the world, although national data is not available. A 1992 PNG government survey found that domestic violence occurred in about two-thirds of all households. Gender-based violence in PNG appears to be widely accepted and culturally condoned.[28] Much of the family and sexual violence in rural communities is linked to the consumption of alcohol and drugs, such as marijuana, by men and boys. A key trigger of gender-based violence incidents can be disagreement about the way money was spent, which primarily affects women in relationships, most of whom are engaged in informal employment.

Despite their vital contribution to the household, women generally have restricted control over household decisions. Women take an increased responsibility of earning money, but men often make the decisions

[24] Pryke, J and Barker, P (2017). A bumpy road: societal trends in Papua New Guinea - PNG Country Assessment. Lowy Institute for International Policy, Sydney

[25] Department of Foreign Affairs and Trade (DFAT) 2017. DFAT Country Information Report Papua New Guinea. DFAT, Canberra

[26] World Vision 2013. Papua New Guinea Health and Human Wellbeing. World Vision Australia.

[27] World Bank 2012. Papua New Guinea Country Gender Assessment 2011-12. World Bank, Washington.

[28] World Bank 2012. Papua New Guinea Country Gender Assessment 2011-12. World Bank, Washington.

about spending family income. Men also typically make decisions about the use of household assets and land resources.

Indigenous People, Culture and Land

PNG has a rich cultural diversity, with one of the most heterogenous indigenous populations in the world with at least 850 languages and hundreds of cultural and language groups. PNG has four regions: Highlands (40% of the population), Islands (15%), Momase (25%), and Southern (20%). Regions are often seen as secondary administrative divisions to the province-level divisions – although each is diverse. Ethnic geographical identities in PNG include:

- Highlanders (from the Highlands region)
- Coastal or Papuans (Southern Region)
- Tolais (Islands Region)
- Bukas (Island Region)
- Niugini Islanders (Islands Region)
- Sepiks (Momase Region)
- Madangs (Momase Region)
- Morobeans (Momase Region)

Tok Pisin and Hiri Motu have developed as common languages along with English. Tok Pisin is mostly used as a business language in the Highlands, Momase, and Islands regions while Hiri Motu is a common and effective business language in the Southern region.

Both patrilineal and matrilineal societies exist in PNG whereby land (the most important asset) is passed down through the male line and female line respectively. In matrilineal societies, mainly in the Islands region and Milne Bay Province, women own the land and therefore are responsible for land decisions in their clans. This ownership of land gives these women a relatively higher status in their communities than women in patrilineal societies.[29]

In patrilineal societies, which make up about three-quarters of PNG, men own the land and make all decisions about land - a woman hardly speaks up in public about land decisions. In patrilineal societies, a woman only owns land if there are no male children in her family. In this situation, she will be the custodian of the land while there are no male family members alive.[30]

[29] Koian 2020. Women in patrilineal and matrilineal societies in Melanesia. http://milda.aidwatch.org.au/sites/default/files/Rosa%20Koian.%20Women%20in%20patrilineal%20and%20matrilineal%20societies%20in%20Melanesia.pdf.

[30] Koian 2020. Women in patrilineal and matrilineal societies in Melanesia. http://milda.aidwatch.org.au/sites/default/files/Rosa%20Koian.%20Women%20in%20patrilineal%20and%20matrilineal%20societies%20in%20Melanesia.pdf.

Customary land makes up 97 percent of all land in PNG. It is not possible to buy customary land and the process for use of customary land by non-landowners is complicated. Land ownership is understood to be one of the greatest barriers to large-scale infrastructure development across all sectors in PNG[31].

Waste Management

The PNG government recently released the Papua New Guinea National Environmental Management Strategy 2021–2025[32], and this includes a section on waste management. The strategy includes actions around enacting waste management-related legislation as there is limited legislation to manage waste in the country and, as such, waste management operations are often informal and unregulated[33]. A National Waste and Chemical Management Policy, 2020-2030, was also recently released by CEPA.

A total of 36 private contractors operate the municipal solid waste (MSW) collection system of Port Moresby, under arrangements with the Waste Management Division of the National Capital District Commission. MSW is collected twice a week on average, with contractors providing their own equipment and labour. Most contractors use small, open-topped vehicles for the collection of wastes. Some contractors also collect commercial MSW, although many commercial generators either contract alternative private haulers or haul their MSW to the disposal facility themselves. The geographic area served by the system is large, but there are no transfer stations. Records of collection coverage and collection efficiencies are currently unavailable[34].

Although uncontrolled dumpsites and dumping grounds are reported to exist within the city limits, the only official municipal disposal facility for the disposal of Port Moresby's waste is the Baruni dumpsite. Commencing operations several decades ago, the dumpsite comprises open dumping of piles of wastes within a confined, relatively narrow valley on the city's outskirts. The facility is unfenced, although government workers are employed to maintain security and order. The dumpsite lacks engineered environmental protection systems, such as for basal lining or leachate and landfill gas collection. The wastes are completely uncovered and exposed to the elements. Scavengers scour the waste mounds to recover recyclable materials and set fire to the wastes to extract metals from waste components. The internal haul roads are poorly maintained, and the waste placement methodology is disorganized[35].

In addition to the municipal disposal facility, there is a private waste management facility on the outskirts of Port Moresby - the Roku Integrated Waste Management Facility, owned by Total Waste Management. The facility has a Level 3 Environment Permit and able to accept a variety of waste streams, including hazardous wastes. The first cells of the engineered landfall at the facility are scheduled for completion in 2023. There are no facilities in PNG that can recycle solar PV panels and batteries.[36]

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[31] USAID (2022). PNG Electrification Project. Off-grid market assessment.

[32] https://png-data.sprep.org/system/files/PNG%20NEMS%20Print.pdf

[33] WHO (2009). *Environmental and Social Safeguards for National Capital District and Western Province*

[34] ADB (2014). *Solid Waste Management in the Pacific. Papua New Guinea Country Snapshot.* Asian Development Bank Publication Stock No. ARM146612-2 June 2014

[35] ADB (2014). *Solid Waste Management in the Pacific. Papua New Guinea Country Snapshot.* Asian Development Bank Publication Stock No. ARM146612-2 June 2014

[36] USAID (2022). PNG Electrification Project. Off-grid market assessment.

Biophysical Environment

PNG comprises of the eastern half of the island of New Guinea, as well as numerous smaller islands, mainly to the north-east of New Guinea. The country is characterized by rugged terrain, with steep mountains, dense forests, and fast-flowing rivers.

A series of high mountain ranges run along the centre of PNG, including the Owen Stanley Range and the Bismarck Range. The highest peak in Papua New Guinea, Mount Wilhelm, is located in the Bismarck Range and stands at 4,509 meters tall[37]. In addition to mountains, PNG has a varied landscape that includes low-lying coastal plains, coral reefs, and volcanic islands.

There are numerous rivers in PNG, many of which are fast-flowing and turbulent due to the rugged terrain and high rainfall. The major rivers in PNG include Sepik River, Fly River, Ramu River and Purari River.

The dense tropical forest that covers much of the country is home to a diverse range of flora and fauna, including over 200 species of mammals, more than 700 species of birds, and countless species of insects and other invertebrates. PNG also has extensive coral reefs, which support a vast array of marine life.

A summary of the protected areas in PNG is provided in Table 1 and includes 55 designated and 2 proposed protected areas. These areas are also shown on Figure 4.

Table 1: Summary of the protected areas in PNG[38]

Type of protected area	Designated areas	Proposed
Conservation Area	2	-
Locally Managed Marine Area	6	-
Marine Managed Area	1	-
National Park	4	-
Natural Reserve	1	-
Natural Reserve - National Park	1	-
Protected Area	2	-
Provincial Park	1	-
Ramsar Site, Wetland of International Importance	2	-
Reserve	1	-
Wildlife Management Area	31	2
Wildlife Sanctuary	3	-

[37] https://www.pngtrekkingadventures.com/mount-wilhelm-climb

[38] https://pipap.sprep.org/country/pg

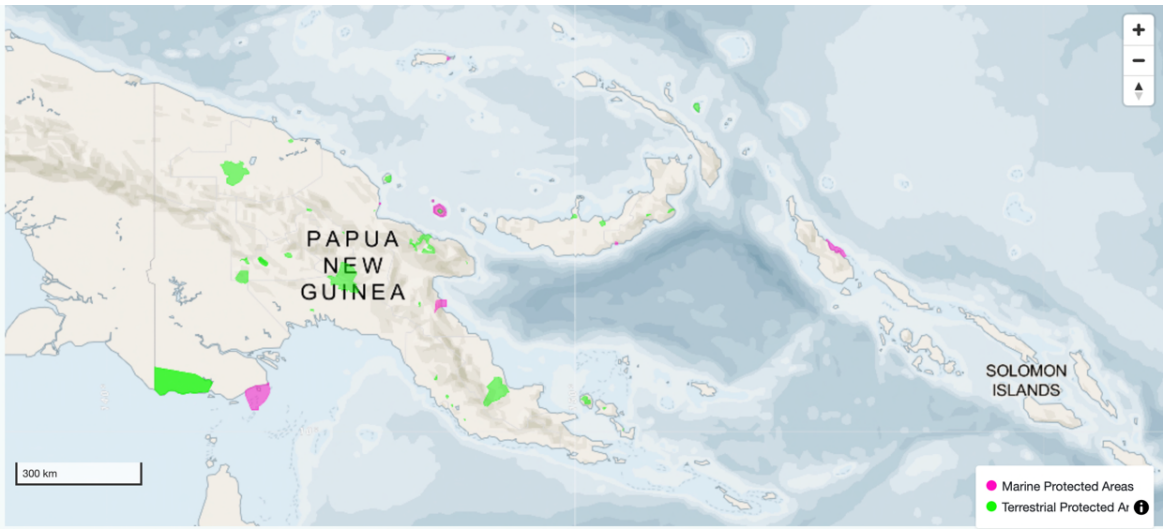


Figure 4: Protected areas in PNG

Natural Hazards and Climate Change

PNG is one of the most at-risk countries to natural disasters and climate change. It is vulnerable to several hazards, including floods, droughts, earthquakes, landslides, and volcanic activity. Some of these are expected to increase in frequency, magnitude, and intensity due to climate change. Most areas of PNG experience flooding during the monsoon season. The highlands in particular have a long history of severe floods. In the coastal plains, floods cause erosion and heavy sedimentation that impact agricultural productivity and downstream settlements. In the lowlands, coastal ecosystems such as mangroves, estuaries, and coral reefs endure damage due to heavy silt loads and debris brought in by flood events. About 18 percent of total landmass is permanently inundated or regularly flooded.

Landslides are a common occurrence in the high mountainous regions of PNG (due to steep mountain ranges, high seismicity, and high annual rainfall) and frequently damage vital infrastructure (which is a cost burden for the country to repair), upland forests, and the homes and gardens of thousands of residents.

As PNG is located in the 'Ring of Fire', earthquakes are also a high-risk hazard and Disaster Risk Index 2017 is seven (the highest is ten), indicating that PNG is highly exposed to earthquakes, while both tropical cyclone and drought are 2.5, indicating that PNG is less vulnerable to those natural hazards compared with other countries in the Pacific region.

Greenhouse Gas Emissions

The World Bank[39] provides the following statistics on greenhouse gas emissions for PNG:

- Total CO_2 emissions (2019 data) (kt): 7,580
- CO_2 emissions (2019 data) (metric tonnes per capita): 0.8
- Total CO_2 emissions from liquid fuel consumption (2016 data) (kt): 5,823

[39] https://data.worldbank.org/country/papua-new-guinea

ANNEX 2 SUMMARY OF DRAFT E&S SCREENING ASSESSMENT – MINI-GRIDS

The International Finance Corporation (IFC) engaged GHD Limited to undertake an environmental and social screening assessment[40] as part of preliminary due diligence on the implementation of select mini-grid projects across Papua New Guinea based on the World Bank Group's Performance Standards and other good international industry practice, such as the World Bank Group's Environmental, Health and Safety Guidelines. The purpose of the assessment was to 'evaluate the potential environmental and social constraints associated with the development of the project and identify applicable E&S laws and preliminary impact avoidance, mitigation, and management measures to de-risk the project, commencing with project design through construction and operation'. A summary of the results of the assessment is provided below.

The potential mini-grid projects investigated were at Alotau, Kavieng, Kimbe, Lorengau, and Wewak. The proposed scope of the projects includes installation of solar PVs, batteries, and upgrade of existing power generation infrastructure. The focus of the assessment was on the potential sites (2 to 3 sites per mini-grid) for installation of solar PVs, as determined by the IFC. The assessment of the proposed sites relied upon literature and data reviews, and information collected during site visits.

Risk screening assessment was carried out for the sites based on selected environmental and social indicators:

- Environmental indicators: natural habitat, critical habitat, water resources, inundation, fire risk.
- Social indicators: land tenure, physical displacement, economic displacement, proximity to settlements, presence of cultural heritage.

The results of the risk screening assessments for each indicator were then used in a multi-criteria analysis to provide an assessment of the preferred sites for each project. The results of the multi-criteria analysis are provided in the following table.

ID	Location	Site name	Environmental Constraints		Social Constraints		Overall E&S Constraints		
			Rank	Rating	Rank	Rating	E&S Rank	Site Ranking	Site Rating
1	Alotau	**Gehua (Site 1A and Site 1B)**	1	Low	1	Low	2	1	Low
4	Alotau	**Ukaka**	2	Moderate	2	Moderate	4	3	High
5	Kavieng	**Pawa Haus**	2	High	1	Moderate	3	2	High
6	Kavieng	**Rawal**	1	Moderate	2	High	3	2	High
7	Kimbe	**Kapore**	1	Moderate	1	Moderate	2	1	Moderate
8	Kimbe	**Ambusa**	2	High	2	High	4	2	High
9	Manus Island	**Los Negros (Site 1A)**	2	High	1	Moderate	3	1	Moderate
10	Manus Island	**Lost Negros (Site 1B)**	2	High	2	High	4	2	High
11	Manus Island	**Lorengau**	1	Moderate	3	High	4	2	High
12	Wewak	**Wirui**	2	High	2	High	4	2	High
13	Wewak	**Haripmor**	1	Moderate	1	Moderate	2	1	Moderate

The results of the multi-criteria analysis show a preferred site for development in each location:

- Alotau: Gehua Site 1A or Gehua Site 1B
- Kavieng: Rawal

[40] GHD Limited. 2023. Screening Assessment Draft – PNG Small Grids. Report prepared for International Finance Corporation. August 2023.

- Kimbe: Kapore
- Lorengau: Los Negros Site 1A
- Wewak: Haripmor

The multi-criteria analysis revealed that the environmental and social constraints for the development of a site for solar PV are the least at Alotau (with a site option with rating of 'low' available), then Kimbe, Manus and Wewak (with a site option with rating of 'moderate' available) and the greatest at Kavieng (with only sites option with rating of 'high' available.

Refer to original report for detailed site descriptions, further information on the assessment methods and results (including critical habitat screening), assessment of contextual risks and a review of regulation, policies and legislation.

ANNEX 3 POTENTIAL MICRO-GRID SITES IDENTIFIED IN MINI-GRID BOOK

The sites identified in the mini-grid[41] book have been investigated for power supply through solar and the information in the table below reflects this. These sites may also be investigated for power supply through hydropower technology. These sites are also shown on Figure 1 of the ESMF.

Province	Micro-Grid Name	No. of Potential Consumers	DC Array Size (kW)	LV Length (km)	MV Length (km)	Cost ($) /Consumer
West New Britain	West New Britain-366	199	65	1	0	964
Morobe	Morobe-287	181	60	1	0	981
East New Britain	East New Britain-87	266	92	2	0	1,014
New Ireland	New Ireland-313	198	65	2	0	1,030
Central	Central-42	705	230	4	1	1,035
West New Britain	West New Britain-367	162	54	2	0	1,039
East New Britain	East New Britain-89	153	51	2	0	1,043
Central	Central-51	173	57	2	0	1,047
Central	Central-45	186	61	2	0	1,060
Gulf	Gulf-148	160	53	2	0	1,082
East New Britain	East New Britain-81	158	53	2	0	1,084
Gulf	Gulf-160	171	57	2	0	1,086
Western	Western-430	171	57	3	0	1,088
Central	Central-57	1,854	594	19	4	1,092
Milne Bay Province	Milne Bay Province-238	213	75	3	0	1,093
Central	Central-33	193	63	3	0	1,110
Central	Central-23	155	52	2	0	1,111
Gulf	Gulf-147	156	52	3	0	1,112
Central	Central-58	348	118	6	0	1,113
Gulf	Gulf-157	251	87	4	0	1,113
Central	Central-28	1,085	350	12	3	1,113
Western	Western-424	220	77	3	0	1,131
Gulf	Gulf-163	187	62	4	0	1,133
Gulf	Gulf-162	163	54	3	0	1,144
East New Britain	East New Britain-92	168	56	3	0	1,150

[41] Although these sites are referred to as mini-grids in the "mini-grid book", such sites are classified as micro-grids for the purposes of this Project as their proposed capacity is less than 1 MW.

Province	Micro-Grid Name	No. of Potential Consumers	DC Array Size (kW)	LV Length (km)	MV Length (km)	Cost ($) /Consumer
Morobe	Morobe-293	228	80	4	0	1,152
Northern (Oro)	Northern (Oro)-337	198	65	4	0	1,152
Western	Western-418	168	56	3	0	1,154
Eastern Highlands	Eastern Highlands-127	158	53	3	0	1,158
Sandaun	Sandaun-399	155	52	3	0	1,159
West New Britain	West New Britain-364	158	53	3	0	1,161
Bougainville	Bougainville-15	171	57	4	0	1,172
Gulf	Gulf-156	223	78	4	0	1,173
Morobe	Morobe-246	154	51	3	0	1,173
East New Britain	East New Britain-82	154	51	3	0	1,173
Central	Central-56	156	52	3	0	1,174
Western	Western-410	170	56	4	0	1,176
Milne Bay Province	Milne Bay Province-227	151	50	3	0	1,180
East New Britain	East New Britain-88	191	63	4	0	1,181
Manus	Manus-220	172	57	4	0	1,182
East Sepik	East Sepik-98	173	57	4	0	1,184
Central	Central-34	636	209	7	2	1,185
Gulf	Gulf-144	685	224	9	2	1,186
Jiwaka	Jiwaka-174	158	53	4	0	1,189
Bougainville	Bougainville-17	155	52	4	0	1,191
Western	Western-429	213	75	4	0	1,193
Central	Central-46	158	53	4	0	1,194
East Sepik	East Sepik-103	121	40	3	0	1,195
West New Britain	West New Britain-380	596	196	9	2	1,202
Morobe	Morobe-288	179	59	4	0	1,203
Gulf	Gulf-154	823	267	11	3	1,204
Central	Central-26	1,613	517	26	6	1,208
Central	Central-52	1,027	332	16	4	1,217
West New Britain	West New Britain-361	209	74	5	0	1,220
Morobe	Morobe-291	179	59	5	0	1,221
East New Britain	East New Britain-72	207	73	5	0	1,222
Western	Western-412	2,380	759	33	13	1,228

ANNEX 4 OTHER POTENTIALLY RELEVANT LAWS, REGULATION AND POLICY

National Park Act 1978. 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. 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 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.

Fauna (Protection and Control) Act 1974. 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 fulfils the requirements of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES).

Forestry Act 1991. 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 20 m from rivers (within 50 m 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.

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.

ANNEX 5 LABOUR MANAGEMENT PROCEDURE

1. Introduction

This Labour Management Procedure (LMP) has been prepared for the World Bank (WB) funded Papua New Guinea (PNG) National Energy Access Transformation Project (NEAT or the 'Project') to provide direction to the Project on ensuring that measures are in place to manage risks associated with employment under the Project, including measures to support appropriate working conditions and relationships, occupational health and safety practices, and prevention strategies for sexual exploitation and abuse and sexual harassment.

The LMP has been prepared in accordance with:

- GoPNG legislation including the *Employment Act 1978*.
- WB's Environmental and Social Standard (ESS) 2 (Labour and Working Conditions)
- WB Group Performance Standard (PS) 2 (Labour and Working Conditions)

ESS2 and PS2 both cover (a) working conditions and management of worker relationships; (b) protecting the workforce; (c) workers' access to a grievance redress mechanism; and (d) OHS measures.

An overview of national legislation, ESS2 and PS2 is provided in Attachment 1.

2. Project description

The objective of the Project is to increase access to renewable energy and enhance the reliability of electric supply. The National Energy Policy for 2017-2027 outlines an ambitious target of 70 percent electrification by 2030.

The Project is expected to consist of four components:

- Component 1: Rehabilitation, resiliency enhancement of PPL infrastructure, on-grid electrification, and mini-grids.
- Component 2: Renewable energy micro-grids and rural energy market development.
- Component 3: Energy sector institutional development support.
- Component 4: Project management.

The mini-grids subprojects under subcomponent 1.3 will be developed by a private entity (a concessionaire) and therefore the PSs will be adopted for mini-grid subprojects, in lieu of the WB ESSs[42]. All other subprojects will follow the WB ESSs.

Refer to the ESMF main report for full project description.

[42] as per the requirements set out in the WB Operational Procedure 4.03 'Performance Standards for Private Sector Activities'

3. Overview of labour use on the project

3.1. Type of Project Workers

The scope of application of this LMP depends on the type of employment relationship between the Borrower and the project worker. The term 'project worker' (as defined in ESS2 and PS2) refers to direct workers, contracted workers, primary supply workers and community workers[43].

3.1.1. Direct workers

Direct workers – Government

Direct workers (government) comprise civil servants employed by the Implementing Entity, provincial governments or district authorities. All direct workers (government) will remain subject to the terms and conditions of their existing public sector employment agreements, although terms and conditions may be altered to accommodate project delivery requirements.

Note: Under ESS2, provisions for occupational health and safety (ESS2 paragraphs 24 to 30) including those specifically related to COVID-19, as well as measures to protect the workforce in terms of child labour and forced labour (ESS 2 paragraphs 17 to 20) apply to civil servants.

Direct Workers – Other

These workers are contracted to the Project on a full-time and part-time basis by the Project Implementation Units (PIUs). These workers will be subject to all the relevant provisions of this LMP. These workers include:

- Staff assigned to the PIUs established for the Project.
- Specialist individuals appointed to undertake specific Project activities, such as the development of training material, delivering training, etc.

Most direct workers (other) will be required for the duration of the Project, with consultants to the PIUs being engaged on an ad hoc basis as required.

Direct Workers – Concessionaire

These workers are employed by the concessionaire that will be implementing the mini-grid subprojects. This also includes the existing government employees (e.g., currently employed by PPL) working at the mini-grids. Such workers will be subject to all the relevant provisions of this LMP.

3.1.2. Contracted workers

Contracted workers are people employed or engaged through third parties to perform work related to core functions of the project. For NEAT this will include:

- workers hired by contractors or subcontractors to complete grid rehabilitation and modernization; grid access expansion (e.g., constructing MV and LV lines)

[43] Community workers are not included in PS2.

- workers of contractors (engaged by the concessionaire) for constructing/upgrading mini-grid infrastructure
- workers of developers constructing/operating renewable energy micro-grids
- workers of companies conducting activities for rural energy market development

These contracted workers will include labourers, electricians, trades people, machinery operators, truck drivers, etc.

Contracted workers on the Project will also include consultants engaged via a firm (by the PIUs using Project funds or concessionaries) to complete feasibility and other studies for the project. These contracted workers will be employed by consulting firms and include scientists and engineers.

Contracted workers will be required for the duration of the physical works and during the undertaking of studies; however, each worker may only be required for several weeks or months.

3.1.3. Primary supply workers / supply chain workers

Where materials or equipment are sourced from suppliers on an ongoing basis to provide directly to the project goods or materials essential for the core functions of the project, the workers engaged by such primary suppliers are deemed 'primary supply workers' (under ESS2) or 'supply chain workers' (under PS2). The number and type of primary suppliers will be determined at the project implementation stage. There are unlikely to be workers who fit the definition of primary supply workers / supply chain workers for most components of the Project as supplies are likely to be procured on a one-off basis rather than ongoing through the Project duration. The suppliers of off-grid solar products may, however, be considered primary suppliers and the use of forced labour in this type of supply chain is a well-documented risk. Primary supply workers would remain subject to the terms and conditions of their existing employment agreement and be covered by Project measures to address OHS issues, and child and forced labour.

Suppliers of solar PVs for the mini-grids and micro-grids may also be considered primary suppliers, depending on the nature of ongoing procurement of solar PVs (e.g., for replacement of non-functioning solar PVs). There are allegations of forced labour risks associated with the polysilicon suppliers which need to be addressed through the procurement processes.

3.1.4. Community workers

Community workers on the Project may include community members who choose to volunteer to support the construction and/or operation of the micro-grids (subcomponent 2.1). Community workers are not envisioned for other components. The community workers have no role in the procurement and management of any contracts. The timing of use of community workers will cover the duration of the Project.

Community workers be covered by Project measures to address OHS issues, and child and forced labour. They will also be subject to a code of conduct.

3.2. Summary of labour requirements

A summary of the Project labour requirements, including estimated number of workers and duration, is provided in Table 1.

Table 1: Summary of labour requirements

Type of project workers	Applicability of LMP	Characteristics of project workers	Timing of labour requirements	Indicative number of workers
Direct workers - government	OHS issues, and child and forced labour only	Existing workers employed by NEA and PPL who will be involved in Project implementation	Duration of project	50
Direct workers - other	Full scope of LMP applies	Staff hired using Project funding (e.g., PIU teams) Individual specialists directly contracted to the PIUs	Duration of project	10
Direct workers - concessionaire	Full scope of LMP applies	Workers employed by the concessionaire, including workers currently employed by PPL at the mini-grid sites	Duration of project	20
Contracted workers	Full scope of LMP applies	Contractors or subcontractors hired for physical works (e.g., trades people, machinery operators, truck drivers) associated with grid rehabilitation/expansion works	Duration of physical works	170
		Workers of construction contractors engaged to construct and/or upgrade the mini-grids	Duration of construction/ operation of micro-grid (approximately 10 years)	80 to 150 per mini-grid that is developed
		Workers of developers constructing/operating renewable energy micro-grids	Duration of construction/ operation of micro-grid (approximately 10 years)	10 to 20 per micro-grid that is developed
		Workers of companies conducting activities for rural energy market development	Duration of rural energy market development grant scheme	5 to 10 per participating company
		Consultants/specialists engaged via a firm to complete feasibility and other studies for the project (e.g., scientists, engineers)	Duration of studies	40
Primary supply workers / supply chain workers	OHS issues, and child and forced labour only	Workers engaged by ongoing suppliers of construction materials and equipment.	Duration of subcomponent 2.2 (and potentially subcomponents 1.3 and	To be determined during project implementation

Type of project workers	Applicability of LMP	Characteristics of project workers	Timing of labour requirements	Indicative number of workers
			2.1)	
Community workers	OHS issues, and child and forced labour only	Volunteers engaged by the micro-grid developer to assist with the construction and operation of the micro-grid.	Construction and operations	20 to 30 per micro-grid that is developed

4. Key project labour risks and mitigation overview

4.1. General

The key labour-related risks associated with the project are:

- **Terms of employment not consistent with national law.** This risk mainly applies to contractors who will employ project workers as they are likely unfamiliar with the labour and working condition requirements and there is a risk that such requirements will not be met.
- **Workers suffer discrimination and lack of equal opportunity in employment.** Vulnerable and disadvantaged people (e.g., women and persons with disabilities) may be subject to increased risk of exclusion from employment opportunities under the Project. Lack of equal pay for equal work for men and women is also a risk.
- **Use of child labour.** Contractors and suppliers may use children for economic or cultural reasons and and/or not verify the ages of potential workers. There is also a risk of child labour being engaged as community workers. The risk of forced labour in the PV supply chain is also a risk.
- **Risks of workplace accidents, or emergencies.** The understanding and management of OHS risks at worksites in PNG is generally poor and this exacerbates the risks of accidents (including those related to electrical safety) and exposure to hazardous materials. Traffic safety in PNG is also an issue with roads often being poorly maintained. Direct workers will travel between project sites and there is need to ensure that vehicles used are equipped with appropriate safety equipment and driven by licenced personnel.
- **Sexual Exploitation and Abuse (SEA), Gender Based Violence (GBV) and Violence Against Children (VAC) to workers and community from Project workforce.** This has been identified as a major potential risk identified for PNG projects generally.

The key labour risks and mitigation for addressing these risks are summarized in Table 2. Details of the policies and procedures (i.e., mitigations) to address these are provided in Section 5.

Table 2: Key labour risks and mitigation summary

Type of project workers	Terms of employment not secured by contractual agreements	Workers suffer discrimination and lack of equal opportunity in employment	Use of child labour contravenes national legislation and international conventions ratified by PNG	Risks of workplace accidents, or emergencies	Sexual Exploitation, Abuse and Harassment (SEA/SH), Gender Based Violence (GBV) and Violence Against Children (VAC) of workers and community
Direct workers – government Public servants employed by NEA or PPL who will be involved in Project implementation	All NEA and PPL workers fall under their respective internal HR protocols which cover: - Employment period, remuneration, tax and insurance payments. - Transparent procurement processes - Equal opportunity employment.		NEA and PPL will not engage any workers younger than 18 years of age on the Project.	OHS measures to be implemented as described in the ESMF. This includes the implementation of existing NEA and PPL procedures (where relevant) and the development and implementation of activity-specific OHS procedures where required.	All NEA and PPL workers fall under their respective internal HR protocols which cover: - Behaviour expectations. - Zero tolerance of sexual harassment.
Direct workers – other PIU team and individual consultants directly contracted to the PIU	The terms and conditions for workers will prepared and include details on pay and working conditions in line with PNG law and ESS2 requirements.	Recruitment procedures will be documented and filed in accordance with the requirements of this LMP.			Codes of Conduct (CoC), including SEA/SH are signed by workers (see Attachment 2 of this LMP) and all workers receive CoC awareness training prior to undertaking project activities. Project GRM addresses concerns raised concerning GBV, SEA and VAC in regard to the Project. Workers have access to contractor GRM for any workplace, contractual or pay and working condition concerns.
Direct workers – concessionaire Workers employed by the concessionaire, including workers currently employed by PPL at the mini-grid sites	The terms and conditions for workers will be prepared and include details on pay and working conditions in line with PNG law and PS2 requirements.		Concessionaire will not engage any workers younger than 18 years of age on the Project.	OHS measures to be implemented as described in the ESMF. This includes the development and implementation of activity-specific OHS procedures for each activity (which will be documented in the ESMP and O-ESMP).	
Contracted workers Contractors or subcontractors hired by third parties to complete project	Contracts for contracted workers are to include details on pay and working conditions in line with PNG law and ESS2 (or PS as applicable) requirements.	Procurement processes to be transparent and reflect equal opportunity employment.	Condition of contract/agreement for third parties will include ban on engaging any workers younger than 18 years of age	OHS measures to be implemented as described in the ESMF. This includes the development and	

Type of project workers	Terms of employment not secured by contractual agreements	Workers suffer discrimination and lack of equal opportunity in employment	Use of child labour contravenes national legislation and international conventions ratified by PNG	Risks of workplace accidents, or emergencies	Sexual Exploitation, Abuse and Harassment (SEA/SH), Gender Based Violence (GBV) and Violence Against Children (VAC) of workers and community
activities Consultants engaged via a firm to complete feasibility and other studies for the project (e.g., scientists, engineers)				implementation of activity-specific OHS procedures for each activity (which will be documented in the C-ESMPs).	
Primary supply workers / supply chain workers	Outside scope of ESS2/PS2	Outside scope of ESS2/PS2	In case of material suppliers, developers / rural energy market development participants shall be required to carry out due diligence to identify if there are significant risks that the suppliers are exploiting child or forced labour or exposing workers to serious safety issues. Concessionaires and developers to obtain declarations and qualification requirements regarding forced Labour from their suppliers of solar panels and solar components.	If there are serious safety concerns with primary suppliers, they should be excluded and other suppliers secured.	If there are serious SEA/SH/GBV or VAC concerns with primary suppliers, they should be excluded and other suppliers secured.
Community workers	Community workers will be provided with terms of engagement which includes reference to age requirements, CoC, safety, GRM, etc.	Selection of volunteer workers to be undertaken on a transparent basis, with work offered to any person who meets necessary experience pre-requisites.	No person under the age of 18 will be used as a volunteer	Supervision by developer and/or contractor and the development and implementation of OHS measures in C-ESMP.	Codes of Conduct (CoC), including SEA/SH are signed by workers (see Attachment 1 of this LMP) and all workers receive CoC awareness training prior to undertaking project activities. Project GRM addresses concerns raised concerning GBV, SEA and VAC in regard to the Project.

4.2. Additional labour risks applicable to subprojects under PS2

There are additional considerations for the subprojects that will be developed in alignment with PS2 (i.e., the mini-grids) as PS2 requires the consideration of the impacts associated with management of the existing workforce and sets out minimum standards for accommodation if provided to workers. PS2 also requires the adoption and implementation of human resource policies and procedures.

4.2.1. Workforce adjustment

Key risk includes workforce restructuring/retrenchment of the existing employees of PPL operating the mini grids due to PPP project. Even if there would be no retrenchment, restructuring within PPL or transfer to private sector may raise concerns among the existing workforce on job security and contractual terms and conditions. During project planning, a specialist labour consultant will be engaged to assess this risk and develop a WB Group Performance Standard 2 (PS2) aligned roadmap for managing labor risks, workforce engagement, restructuring from project, in a manner that is transparent and in consultation with workers and their representatives. A TOR for this scope of work has been prepared by the IFC and includes:

- confirming the labour regime applicable and assessing risks from the labour and working conditions of the workers engaged in each of the existing mini-grids that may be developed by the Project compared with PS2 requirements.
- assessing the potential for collective dismissal by benchmarking the staffing levels with comparable companies in the sector.
- developing a PS2 aligned roadmap for managing workforce engagement and collective dismissal.

The relevant recommendations and mitigations from the assessment will be incorporated into the concessionaire agreement and ESIA/ESMP to be prepared by the concessionaire.

4.2.2. Accommodation

The concessionaire (and/or its contractor) may need to provide accommodation for its workforce, depending on the scale of workforce required and where workers are sourced from.

If accommodation is provided it will need to meet the requirements set out in PS2 and IFC/EBRD guidance document on workers accommodation[44], which are:

- accommodation services must be provided in a manner consistent with the principles of non-discrimination and equal opportunity.
- accommodation services must include minimum space, supply of water, adequate sewage and garbage disposal system, appropriate protection against heat, cold, damp, noise, fire and disease-carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting, and in some cases basic medical services.

[44] https://www.ifc.org/en/insights-reports/2000/publications-gpn-workersaccommodation

- accommodation arrangements should not restrict workers' freedom of movement[45] or of association.

The minimum requirements for accommodation will be included in the concessionaire agreement.

4.2.3. Human resource policies and procedures

The concessionaire will need to adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of this PS2 and national law. Many of the requirements of the polices/procedures are detailed in Section 5 (as they also relate to requirements of ESS2) and Attachment 1, however, this is not an exhaustive list, and the concessionaire will need to ensure that their polices/procedures meet the requirements of PS2.

5. Project-related labour policies and procedures

5.1. Employment principles

The employment of Project workers will be based on the principles of non-discrimination and equal opportunity. There will be no discrimination with respect to any aspects of the employment relationship, including recruitment, compensation, working conditions and terms of employment, access to training, promotion or termination of employment. The following measures will be monitored by the Implementing Entities to ensure fair treatment of all employees:

- Recruitment procedures will be transparent, public and non-discriminatory, and open with respect to ethnicity, religion, sexuality, disability or gender.
- Clear job descriptions will be provided in advance of recruitment and will explain the skills required for each post.
- All workers will have written contracts describing terms and conditions of work and will have the contents explained to them. Workers will sign the employment contract.
- Employees will be informed at least two months before their expected release date of the coming termination.
- Depending on the origin of the employer and employee, employment terms and conditions will be communicated in a language that is understandable to both parties.
- In addition to written documentation, an oral explanation of conditions and terms of employment will be provided to workers who may have difficulty understanding the documentation.

5.2. Terms and conditions of employment

Terms and conditions of direct workers are determined by their individual contracts. Permanent Project staff will have individual agreements (labour contract or service contract) with fixed monthly wage rates. All the recruiting procedures should be documented and filed in the folders in accordance with the requirements of PNG's labour legislation and the ESS2 / PS2. Forty hour per week employment should be

[45] This requirement can conflict with mitigations put in place to minimise security risk to workers and prevention of GBV, SEA and VAC. This should be assessed on a case-by-case basis.

practiced. Requirements and conditions of overtime and leave entitlements are agreed as part of individual contracts.

The implementing entities and concessionaires will ensure that contractors/ third parties are aware of and comply with the labour management and OHS policies and procedures outlined in this LMP. Each contractor/ third party will be required to submit an assessment of environmental and social risks (including labour risks) associated with their activities and risk mitigation measures in accordance with the Project's environmental and social requirements.

At the beginning of employment or, in the case of existing workers, prior to commencing work related to the Project, workers will be provided with information on the following as appropriate:

- The name and legal domicile of the employer.
- The worker's name.
- The worker's job title.
- The date employment began.
- Where the employment is not permanent, the anticipated duration of the contract.
- The place of work, or where the work is mobile, the main location.
- Housing and accommodation provisions and payment required, if any.
- Provisions regarding food and payment required, if any.
- Hours of work, rest breaks, leave entitlements, and other related matters.
- Rules relating to overtime and overtime compensation.
- The levels and rules relating to the calculation of salary, wages, and other benefits, including any rules related to timing of payment and deductions.
- The pension and other welfare arrangements if any applicable to the worker.
- The length of notice that the worker can expect to give and receive on termination of employment.
- The disciplinary procedures that are applicable to the worker, including details of representation available to the worker and any appeals mechanism.
- Details of grievance procedures, including the person to whom grievances should be addressed.
- Any collective bargaining arrangements if any that apply to the worker.

5.3. Age of employment

PNG has ratified both the ILO Minimum of Age Convention (C138) and the ILO Worst Forms of Child Labour Convention (C182). According to PNG's Employment Act 1978, the minimum age of employment is 16 years of age. Children between the ages 11 and 16 may be employed in a family business or enterprise provided they have parental permission, medical clearance, and a work permit from a labour office. Persons under the age of 16 may not be employed in any employment or any place or under working conditions that are injurious or likely to be injurious to the health of the person. Under ESS2 children under the age of 14 cannot be employed, not even in light work.

Given the nature of the Project and required workforce, all direct and contracted workers that work on the Project will be over 18. To ensure compliance, all employees will be required to produce a Tax Identification Number (TIN) as proof of their identity and age. Contractors and subcontractors will be required to receive approval for the specific procedures they will use to verify the ages of job applicants.

If a child under the minimum age is discovered working on the Project, measures will be taken to immediately terminate the employment or engagement of the child in a responsible manner, taking into account the best interest of the child.

5.4. Gender-based Violence, Sexual Exploitation and Abuse, and Sexual Harassment

Papua New Guinea ratified the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1995. By ratifying CEDAW, PNG has made a commitment to ensure that the principles for equality are adhered to and that discriminatory practices including sexual exploitation and abuse and sexual harassment are abolished. Provisions to prevent sexual exploitation and abuse and sexual harassment will be included in the Code of Conduct.

The Government of Papua New Guinea's Public Service Gender Equality and Social Inclusion Policy (GESI) 2013 promotes equity and inclusiveness in the public sector and encourages respectful relations at the workplace is used as a guidance for this project. It calls for the development of workplace gender violence plans which includes best practice responses from management, ways to respond to reports of workplace harassment, referral processes to support agencies, and appropriate discipline or legal actions against perpetrators. Direct workers – Government are already bound by Papua New Guinea's GESI Policy. PPL workers are also bound by PPL internal policies that include GESI.

The Project GRM (which is provided as an annex to the Stakeholder Engagement Plan) includes procedures to deal with complaints related to sexual exploitation, abuse and harassment.

Mandatory GBV induction training will be provided all Project workers within 1 month of commencement of employment on the project. This training will include information on identifying and responding to situations involving actual/potential GBV, SEAH, VAC and HT, using a survivor-centered approach and the roles of responsibilities of all parties in relation to dealing with these situations.

Implementing entities will ensure that all Direct Workers – Government have signed the Public Sector Code of Conduct and any institutional specific codes as required.

All Direct Workers – Other, Direct Workers – Concessionaire and Contracted workers will be required to sign, a Code of Conduct (CoC) (Attachment 2 of this LMP) which outlines acceptable behaviour for the workers and their role, including reference to GBV, SEA/SH.

5.5. Occupational health and safety

The implementing entities and concessionaires will ensure effective methods are put in place for responding to identified hazards and risks, establishing priorities for taking action and evaluating outcomes.

All parties who employ or engage Project workers will actively collaborate and consult with Project workers in promoting understanding of, and methods for, implementation of OHS requirements, as well as in providing information to Project workers, training on occupational safety and health, and provision of personal protective equipment without expense to the Project workers.

Project workers will receive training during induction, thereafter on a regular basis and when changes are made in the workplace, with records of the training kept on file. Training will cover relevant aspects of OHS associated with daily work, including the ability to stop work without retaliation in situations of imminent danger.

OHS management for Contractors is addressed in the C-ESMP. Contractors are required to prepare and implement their C-ESMP which is to be approved by the applicable PIU/concessionaire prior to commencing works. Contractors are to conduct training for all workers on the C-ESMP and on health and safety matters as required by good engineering practice.

Workers are to be provided with appropriate PPE suitable for civil work such as safety boots, helmets, gloves, protective clothes, goggles and ear protection (as appropriate) at no cost to the workers. Workers

are to be provided by the Contractor, with potable water supplies, first aid facilities, a toilet and hand washing facilities at works sites.

Workers are to be covered by workers compensation as per the requirements of the Workers Compensation Act 1978.

In addition, relevant OHS requirements set out in the ESMF will be required to be inserted into bidding documents.

5.6. Workers' rights to refuse unsafe work environments

Workplace processes will be put in place by implementing entities /concessionaires and contractors/third parties for Project workers to report work situations that they believe are not safe or healthy. Project workers can remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their life or health. Project workers who remove themselves from such situations will not be required to return to work until necessary remedial action to correct the situation has been taken. Project workers will not be retaliated against or otherwise subject to reprisal or negative action for such reporting or removal.

5.7. COVID-19 safety

Outside of the construction workforce, much of the work of Project workers, both direct and contracted, will take place in office environments where the advice of the PNG government and the WHO to make workplaces COVID-safe will be followed. Workers are particularly vulnerable to COVID-19 transmission outside of the office such as during community outreach/training and awareness activities and field work associated with environmental and social assessments.

The National Department of Health (NDoH) in partnership with the WHO published the Niupela Pasin Transitioning to a 'New Normal' Handbook. This guidance outlines practices to continue to work and operate safely and maintain physical distancing wherever possible in a COVID19 environment.

6. Contractor/third party management

Contractors/Third Parties to be engaged to deliver the Project will include construction firms, energy developers/operators, renewable energy product suppliers, and specialist consultant firms. They should follow the requirements of the national legislation and measures described in this document concerning labour management.

The implementing entities, developers and concessionaires will be responsible for:

- Ascertaining that the contracted workers are legitimate and reliable entities and have in place labour management procedures applicable to the project that will allow them to operate in accordance with the requirements of ESS2 (PS2 for the mini-grid subprojects).
- Establishing systems for managing and monitoring the performance of contractors in relation to the requirements of ESS2 (PS2 for the mini-grid subprojects), including incorporating the requirements of ESS2 (PS2 for the mini-grid subprojects), into contractual agreements with third parties, together with appropriate noncompliance remedies.

Further, the developers and concessionaires will manage and monitor the performance of contractors/third parties in relation to contracted workers, focusing on compliance with their contractual agreements (obligations, representations, and warranties). Labour management records and reports compiled by contractors/third parties will include:

- A representative sample of employment contracts or arrangements between third parties and contracted workers.
- Records relating to grievances received and their resolution.
- Reports relating to safety inspections, including fatalities and incidents and implementation of corrective actions.
- Records relating to incidents of non-compliance with national law.
- Records of training provided for contracted workers to explain labour and working conditions and OHS for the Project.

7. Community worker management

Community workers may be engaged to assist in the construction of the micro-grids that will service their communities as part of an in-kind contribution to the establishment of the micro-grids. Community workers will be managed by the contractor/third party and fall under the OHS and training systems that the contractor/third party have in place.

The implementing entities will make reasonable efforts to ascertain that contractors/third parties that engage community workers are legitimate and reliable entities and have in place labour management procedures applicable to the project that will allow them to operate in accordance with the requirements of ESS2.

The implementing entities will manage and monitor the performance of contractors/third parties in relation to community workers, focusing on compliance by such third parties with their contractual agreements (obligations, representations, and warranties). This will include labour management records and reports compiled by contractors/third parties which include:

- a representative sample of agreements or arrangements between third parties and community workers.
- records relating to grievances received and their resolution.
- reports relating to safety inspections, including fatalities and incidents and implementation of corrective actions.
- records relating to incidents of non-compliance with national law.
- records of training provided for community workers to explain labour and working conditions and OHS for the Project.

8. Worker's grievance redress mechanism

The GoPNG, through the PNG Public Service Commission, has established a complaints process for aggrieved Officers engaged by the public service to lodge grievances relating to the discipline, selection or terms and conditions of employment connected to the National Public Service of Papua New Guinea. All public servants engaged within the scope of the project will be referred to the commission to lodge their grievances through this process.

In addition, the PIUs and concessionaries will implement a Worker Grievance Redress Mechanism (GRM) for workers undertaking activities under their respective components. Contractors/third parties engaged by the implementing entities/developers/concessionaries will also be required to implement the Worker GRM and report to the implementing entities/developers/concessionaries. Contracted workers can also raise grievances directly with the implementing entities/developers/concessionaries.

The Worker GRM is not an alternative or a substitute to accessing the legal system for receiving and handling grievances. Nevertheless, all workers at all times have the right to access judicial or administrative remedies that are available under the PNG law or through existing arbitration procedures. While all workers always have the right to access the legal system, the purpose of establishing a Worker GRM is to provide an accessible and practical means to mediate and seek appropriate solutions to labour-related grievances, without escalating to higher stages wherever possible.

Highest priority will be given to grievances concerning workplace GBV, SEA/SH or VAC. The SEA/SH Action Plan (included as an annex to the ESMF) contains details on how such cases will be handled.

8.1. Worker Grievance Redress Mechanism for Direct Workers - Other

The implementing entities will allocate sufficient resources within their respective PIUs to implement the Worker GRM which will require:

1. The appointment of a NEA/PPL officer to serve as a Grievance Focal Point (GFP) to file grievances of direct workers (consultants). The complainant may report their grievance in person, by phone, text message, mail or email (including anonymously if required). The GFP will be responsible to coordinate with relevant departments/organisations and persons to facilitate addressing these grievances. If the issue cannot be resolved at the level of the GFP within seven working days, it will be escalated to the Director of NEA or PPL (whichever is applicable). The GFP will review the grievance records monthly and report on the grievances, response time and resolution status in a quarterly report to the WB.
2. The Director of NEA/PPL will aim to resolve the grievance in three weeks or less. The relevant PIU (GFP) will log details of the issue and resultant resolution status.

8.2. Worker Grievance Redress Mechanism for Direct Workers – Concessionaire (and their contractors)

The concessionaire will establish and implement a Worker GRM for their employees to raise workplace concerns. The concessionaire will inform the employees of the grievance mechanism at the time of recruitment and make it easily accessible to them. The mechanism will involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism will also allow for anonymous complaints to be raised and addressed. The mechanism will not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.

Contractors will establish similar mechanisms within their organisations. Grievances that are not satisfactorily resolved under the contractor Worker GRM will be referred to the concessionaire's Worker GRM.

8.3. Worker Grievance Redress Mechanism for contracted workers

The Worker GRM for contracted workers (other than those contracted by a concessionaire) will operate as follows:

1. The complainant may report their grievance in person, by phone, text message, mail or email (including anonymously if required) to the relevant contractor/third party as the initial focal point for information and raising grievances. For complaints that are satisfactorily resolved at

this stage, the incident and resultant resolution will be logged and reported to the relevant PIU GFP.

2. Where the complaint is not resolved, or the response is not satisfactory, the GFP will refer it to the Director of NEA or PPL for further action or resolution.
3. The Director of NEA or PPL will aim to resolve the grievance in three weeks or less. The GFP will log details of the issue and resultant resolution status.

9. Roles and responsibilities

9.1. Project Implementing Entities

NEA and PPL as the Project implementing entities will be responsible for ensuring that project workers engaged to deliver activities are managed in accordance with this LMP.

Each implementing entity will be responsible for:

- Implementing this LMP.
- Ensuring that contractors comply with this LMP.
- Monitoring to verify that concessionaires and contractors are meeting labour and OHS obligations toward contracted workers as required by PNG national legislation and ESS2/PS2.
- Monitoring concessionaires, contractors/third parties and subcontractors' implementation of these Labour Management Procedures.
- Monitoring compliance with OHS standards at all workplaces in line with ESS2/PS2.
- Monitoring compliance with COVID-19 related health and safety measures including making workplaces ready for COVID-19.
- Monitoring and implementing training on LMP, OHS and on mitigating the spread of COVID-19 for all Project workers.
- Ensuring that workplace grievance procedures are operational and that workers are informed of its purpose and how to use it.
- Have a system for regular monitoring and reporting on labour and OHS performance; data collection, monitoring, and analysis of the LMP as part of the Project's M&E activity.
- Preparing and submitting reguarly progress reports on the implementation of the LMP to the WB.

9.2. Concessionaires

Each concessionaire will be responsible for:

- Implementing this LMP as revenant to their scope of work.
- Ensuring that their contractors comply with this LMP.
- Monitoring to verify that contractors are meeting labour and OHS obligations toward contracted workers as required by PNG national legislation and PS2.
- Monitoring contractors/third parties and subcontractors' implementation of these Labour Management Procedures.
- Monitoring compliance with OHS standards at all workplaces in line with PS2.
- Monitoring compliance with COVID-19 related health and safety measures including making workplaces ready for COVID-19.
- Monitoring and implementing training on LMP, OHS and on mitigating the spread of COVID-19 for all Project workers.

- Ensuring that workplace grievance procedures are operational and that workers are informed of its purpose and how to use it.
- Have a system for regular monitoring and reporting on labour and OHS performance.
- Preparing and submitting reguarly progress reports on the implementation of the LMP to PPL.
- Managing workforce engagement, restructuring and collective dismissal (if applicable) with PPL in manner consistent with PS2.

9.3. Contractors/third parties

Contractors/third parties engaged by implementing entities to implement project activities will be responsible for the following:

- Complying with the requirements of the PNG national legislation and this LMP.
- Maintain records of recruitment and employment process of contracted workers.
- Clearly communicate job description and employment conditions to contracted workers.
- Provide workers with evidence of all payments made, including benefits and any valid deductions.
- Providing all contracted workers with workers compensation insurance.
- Maintain records regarding labour conditions and workers engaged under the Project, including contracts, hours worked, remuneration and deductions (including overtime).
- Ensure no child or forced labour is involved in the Project.
- Implement the grievance redress mechanism for workers, maintaining records of any worker grievances including occurrence date, grievance, and date submitted; actions taken and dates; resolution (if any) and date; and follow-up outstanding.
- Have a system for regular review and reporting on labour, and occupational safety and health performance.
- Submitting reports to the PIU (or concessionaires) on the implementation of LMP requirements.

These requirements will be outlined in contractual agreements. When contractor(s) are known after the beginning of Project implementation, this LMP can be updated to include additional details about companies, hired workforce and others, as deemed necessary.

Attachments

Attachment 1: Legal and other requirements

National Legislation

Public Services (Management) Act 2014

The Constitution of the Independent State of Papua New Guinea was adopted in 1975 and guarantees equality of citizens, freedom of assembly and association, and freedom from inhuman treatment and forced labour. *The Public Services (Management) Act (2014*) makes provisions to implement the constitution concerning the management of public finances (including those relating to Provincial Governments and Local-level Governments as required by the Organic Law on Provincial Governments and Local-level Governments). The provisions also relate to the staffing of Provincial and Local Level Governments and the establishment of the Public Service Commission which investigates serious allegations made against Departmental Heads, Provincial Administrators, Chief Executive Officers and Regulatory Statutory Authorities.

National employment regulation

This section provides an overview of labour regulation in PNG.

The main labour legislation is the *Employment Act 1978* and associated Employment Regulation 1980 that govern relations between employers and workers.

Wages and deductions

The Employment Act stipulates that the wages payable to an employee shall not be less than those provided for by registered awards relevant to the employee, and the minimum rates of remuneration for piece-rate work shall not be less than those provided for by registered awards relevant to that work.

Casual employees shall be paid a day's wages at the completion of each day's employment, while piece-rate employees shall be paid wages in proportion to the amount of work performed, either at intervals of no longer than two weeks, or on completion of the piece-rate work, whichever is the earlier. Other employees shall be paid at intervals of no longer than two weeks; or by agreement between the employer and employee, of no longer than one month.

The total amount of deductions from wages may not exceed 50% of the employee's wages. Wage deductions can be made only for cases specified by legislation or with the written consent of the employee. Only the following deductions are permissible:

- Contributions to a provident, medical or pension fund or to any scheme approved by the Secretary.
- Food rations, clothing and other articles in accordance with registered awards.
- Any amount paid to the employee in error as wages in excess of the amount of wages due to him.
- Subject to any direction by the Secretary–an amount or part of an amount of any shortage of money due to the negligence of the employee where his contract of service provides specifically for his being employed in connection with the receipt, payment and custody of money.
- In the case of an employee employed under an attested contract, deferred wages.

- Rental for housing provided.
- Cost of repatriation where the employee is not a citizen.
- Any other prescribed items.
- Any advance paid to the employee.

Working hours

The standard work week is 44 hours over six workdays (eight hours per weekday and four hours on Saturday). The maximum hours of work are 12 hours in one day. Persons under 16 years of age shall not be employed between the hours of 6 p.m. and 6 a.m., and persons of 16 or 17 years of age shall not be employed between these hours, except in an undertaking in which only members of their family are employed. Women must also not be employed between the hours of 6 p.m. and 6 a.m. in any industrial undertaking unless under special circumstances which include women being employed in health or welfare services.

Overtime work

There is no prohibition on excessive or compulsory overtime. Overtime work will be paid at rates between the hourly rate and twice the hourly rate. Specifically, overtime worked on a Sunday shall be paid at twice the hourly rate; on a public holiday at the hourly rate; and at any time, other than a Sunday or a public holiday, at one-and-a-half times the hourly rate.

Rest breaks

Employees must be granted a rest and meal break during the workday. Employees who work eight hours or more in any day shall be allowed one or more meal or rest periods totalling in the aggregate not less than 50 minutes. For every five hours of work, they are entitled to a 40 minutes meal or rest period. Workers are entitled to a weekly rest period of 24 consecutive hours. The maximum permissible work hours may be exceeded in certain circumstances such as accidents and emergency situations and when employees care for the sick.

Leave

Employees are entitled to ten working days of paid recreational leave for each year of continuous service, equivalent to 14 consecutive days paid leave including non-working days. Furthermore, after six months of employment, employees are entitled to paid sick leave at the rate of six days per year.

Pregnant women are entitled to unpaid maternity leave for a period consisting of the number of days necessary for hospitalization prior to giving birth and six weeks following confinement.

Non-discrimination and equal opportunity

The Constitution of PNG guarantees all citizens the same rights, privileges, obligations and duties irrespective of race, tribe, place of origin, political opinion, colour, creed, religion or sex. PNG's Employment Act only prohibits discrimination of women on account of their sex and requires employers to pay women and men the same wages for the same work.

PNG ratified ILO's Discrimination (Employment and Occupation) Convention, 1958 (No. 111) by which it undertakes to promote equality of opportunity and treatment in respect of employment and occupation, with a view to eliminating any discrimination based on race, colour, sex, religion, political opinion, national extraction or social origin.

PNG also signed and ratified the Convention on the Rights of Persons with Disabilities (CRPD) in 2011 and 2013 respectively. The CRPD adopts a broad categorization of persons with disabilities and reaffirms that all persons with all types of disabilities must enjoy all human rights and fundamental freedoms. Signatories recognize the right of persons with disabilities to work, on an equal basis with others. The CRPD prohibits discrimination on the basis of disability with regard to all matters concerning all forms of employment, including conditions of recruitment, hiring and employment, the continuance of employment, career advancement and safe and healthy working conditions. The National Policy on Disability 2015-2025 advocates for the development of new legislation to provide a clear legal framework for protecting the rights of Persons With Disabilities and for the mainstreaming of the rights of Persons with Disabilities in all legislation and policies.

Freedom of association and collective bargaining

While the Employment Act does not include provisions on freedom of association, collective bargaining and the rights of workers to join unions, the right to organize is guaranteed by the Constitution (Article 47). The Industrial Relations Act 1962 aims at improving industrial relations and preventing and settling industrial disputes and the Industrial Organizations Act 1962 regulates the registration and functioning of workers' and employers' associations. Unions have the right to organize and bargain collectively. PNG is also party to ILO's Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87) and Right to Organize and Collective Bargaining Convention, 1949 (No. 98).

Grievance mechanism

While the Employment Act does not include provisions on the resolution of labour disputes or the introduction of grievance mechanisms in workplaces, the settlement of industrial disputes is regulated by the *Industrial Relations Act 1962*.

With no stipulations regarding the introduction of grievance mechanisms in workplaces in PNG's national legislation, employers of Project workers are required to develop and provide a grievance mechanism for all direct workers and contracted workers to raise workplace concerns, as per the ESS2. Workers will be informed of the Worker GRM at the time of recruitment (see Section 8).

Occupational Health and Safety Legislation

The main legal framework for Occupational Health and safety (OSH) is the *Industrial Safety, Health and Welfare Act of 1961* and other industry specific regulations (such as for the mining sector). The *Industrial Safety, Health and Welfare Act of 1961* is generally no longer responsive to a modern labour market. Although the Government prioritized the development of new OSH legislation some years ago, new legislation has not been adopted. The legislation is applicable to factories where manufacturing processes or power generation take place, or buildings or places which are declared factories by the Minister for the purposes of this Act. Hence, the Act regulates issues such as minimum requirements of floor space, ventilation, natural lighting, providing a room for eating, rest rooms, sanitary facilities, a first aid kit and first aid personnel. It also requires employers to notify of disease or injury as a result of employment and it includes specific provisions for dangerous work.

According to the Act, an Industrial Safety Officer may, at all reasonable times and with or without notice to any person, enter any premises or place at which he has reasonable grounds for suspecting that an employee is, or has recently been, employed. Employees can request a workplace inspection if they believe conditions are hazardous. Overall, the PNG Government has a weak influence on occupational health and safety regulations and few inspections take place.

All workers in PNG are required to be covered by workers compensation insurance as per the Workers Compensation Act 1978.

Non-resident Workers

Employment of non-citizens is regulated by the *Employment of Non-Citizens Act 2007*. They will require a work permit issued by the Foreign Employment Division of the Department of Labour and Industrial Relations in accordance with the Employment of Non-Citizens Act and the Employment of Non-Citizens Regulation 2008. Non-citizens can also be engaged as technical advisors by Government agency secretaries the Public Employment (Engagement of Non-Citizen Technical Advisers) Regulation 2015 and the *Public Employment (Non-Citizens) Act 1978*.

Requirements of ESS2 and PS2

The requirements of ESS2 and PS2 are similar and cover the following areas: (a) working conditions and management of worker relationships; (b) protecting the workforce; (c) workers' access to a grievance redress mechanism; and (d) OHS measures.

Working conditions and management of worker relationships include requirements that:

- Project workers are provided with clear terms and conditions of employment, consistent with national legal requirements.
- The principles of non-discrimination and equal opportunity are applied to project workers, and vulnerable project workers are protected.
- The rights of workers to form workers organisations, consistent with national law, are respected.
- The adverse impacts of retrenchment on workers are avoided and or mitigated (requirement of PS2 only).

Protecting the workforce requirements include:

- Provisions to prevent the employment of children below the age of 14 or the national legal minimum, whichever is higher, and restrictions on the employment of children under 18;
- Prevention of forced labour.
- Requirement for direct and contracted workers to have access to a grievance mechanism. The grievance mechanism for contracted workers must be provided by the direct employer and is separate from the project grievance mechanism.
- Minimum standards for project-provided accommodation (requirement of PS2 only).

OHS requirements must address:

- Identification of potential hazards to project workers, particularly those that may be life-threatening.
- Provision of preventative and protective measures, including modification, substitution or elimination of hazardous conditions or substances.
- Training of project workers and maintenance of training records.
- Documentation and reporting of occupational accidents, diseases and incidents.
- Emergency prevention preparedness and response arrangements to emergencies.
- Remedies for adverse impacts, including occupational injuries, deaths, disabilities and disease.

Attachment 2 Minimum Requirements of a Code of Conduct

Applicability – The Project code of conduct applies to the following workers on the Project:

- Direct workers – other
- Contracted workers
- Community workers (i.e., volunteers)

For the purposes of this Code of Conduct, these workers are collectively referred to as "Project workers". Project workers are required to sign this Code of Conduct as a condition of employment.

A satisfactory code of conduct will contain obligations on all direct workers and contracted works that are suitable to address the following issues, as a minimum. Additional obligations may be added to respond to concerns of the work site or to specific project requirements. The code of conduct shall contain a statement that the term "child" / "children" means any person(s) under the age of 18 years.

The issues to be addressed include:

1. Compliance with applicable laws, rules, and regulations.
2. Compliance with applicable health and safety requirements to protect the local community (including vulnerable and disadvantaged groups), the Employer's and Project Manager's personnel, and the Contractor's personnel, including sub-contractors and day workers, (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment).
3. The use of illegal substances.
4. Non-Discrimination in dealing with the local community (including vulnerable and disadvantaged groups), the Employer's and Project Manager's personnel, and the Contractor's personnel, including sub-contractors and day workers (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status).
5. Interactions with the local community(ies), members of the local community (ies), and any affected person(s) (for example to convey an attitude of respect, including to their culture and traditions).
6. Sexual harassment (for example to prohibit use of language or behaviour, in particular towards women and/or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate).
7. Violence including sexual, gender or sorcery-based violence (for example acts that inflict physical, mental or sexual harm or suffering, threats of such acts, coercion, and deprivation of liberty).
8. Exploitation including sexual exploitation and abuse (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favours or other forms of humiliating, degrading behaviour, exploitative behaviour or abuse of power).
9. Protection of children (including prohibitions against sexual activity or abuse, or otherwise unacceptable behaviour towards children, limiting interactions with children, and ensuring their safety in project areas).
10. Sanitation requirements (for example, to ensure workers use specified sanitary facilities provided by their employer and not open areas).
11. Avoidance of conflicts of interest (such that benefits, contracts, or employment, or any sort of preferential treatment or favours, are not provided to any person with whom there is a financial, family, or personal connection).
12. Respecting reasonable work instructions (including regarding environmental and social norms).
13. Protection and proper use of property (for example, to prohibit theft, carelessness or waste).

14. Duty to report violations of this Code.
15. Non retaliation against workers who report violations of the Code, if that report is made in good faith.

The Code of Conduct should be written in plain language, translated to Tok Pisin and other local languages where required, and signed by each worker to indicate that they have:

- received a copy of the code;
- had the code explained to them;
- acknowledged that adherence to this Code of Conduct is a condition of employment; and
- understood that violations of the Code can result in serious consequences, up to and including dismissal, or referral to legal authorities.

A copy of the code shall be displayed in a location easily accessible to the community and project affected people. It shall be provided in languages comprehensible to the local community, Contractor's personnel (including sub-contractors and day workers), community workers, Employer's and Project Manager's personnel, and affected persons.

Note: Code of Conduct templates are provided in World Bank Standard Procurement Documents

ANNEX 6 CHANCE FIND PROCEDURES

Cultural heritage encompasses tangible and intangible heritage which may be recognized and valued at a local, regional, national or global level. Tangible cultural heritage, which includes 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. Tangible cultural heritage may be located in urban or rural settings, and may be above or below land or under the water. Intangible cultural heritage, which includes practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith— that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation and constantly recreated by them in response to their environment, their interaction with nature and their history.

The list of negative activity attributes which would make an activity ineligible for support includes any activity that would adversely impact cultural heritage assets. If items of cultural value are found during works, the following procedures for identification, protection from theft, and treatment of discovered artefacts should be followed and included in standard bidding documents.

Chance find procedures will be used as follows:

(a) Stop the earthworks, construction or land clearing activities in the area of the chance find.
(b) Delineate the discovered site or area (e.g., using temporary fencing or flagging tape).
(c) Prohibit disturbance of the site or collection of items by any person and secure the site to prevent any damage or loss of removable objects. In cases of human remains, arrange for a guard to watch the site until the police, local government and / or PNG National Museum and Art Gallery representative or person with delegated authority take over.
(d) Notify the local government and National Museum and Art Gallery within 24 hours (and police if it is human remains).
(e) Construction work could resume only after permission is given from the National Cultural Commission.

These procedures must be referred to as standard provisions in construction contracts.

Relevant findings will be recorded in quarterly reporting to the World Bank.

Note that Section 9 (1) of the National Cultural Property (Preservation) Act, 1965, states 'A person who, without lawful and reasonable excuse (proof of which is on him) wilfully destroys, damages or defaces any national cultural property, is guilty of an offence. Penalty: A fine not exceeding K200.00.'

ANNEX 7 INDIGENOUS PEOPLES POLICY FRAMEWORK

1. INTRODUCTION

This Indigenous Peoples Policy Framework (IPPF) for the Papua New Guinea (PNG) National Energy Access Transformation Project (NEAT or the 'Project') provides direction to the Project to enhance opportunities for Indigenous Peoples (IPs) to participate in, and benefit from, the development process in ways that do not threaten their unique cultural identities and well-being. The IPPF follows the guidance in the World Bank's Environmental and Social Standard (ESS) 7 (Indigenous Peoples) and World Bank Group's Performance Standard on Indigenous People (PS7) which is materially consistent with ESS7 and applies to subcomponent 1.3.

This IPPF is supported by the following documents:

- Environmental and Social Management Framework (ESMF)
- Stakeholder Engagement Plan (SEP)
- Land Acquisition and Resettlement Framework (LARF)
- Environmental and Social Commitment Plan (ESCP).

2. ADDRESSING ISSUES AND IMPACTS RELATING TO INDIGENOUS PEOPLES COMMUNITIES

PNG is one of the most culturally diverse countries in the world with over 800 languages and over 1,000 distinct ethnic groups. ESS7 defines IPs as a distinct social and cultural group possessing the following characteristics in varying degrees:

- Self-identification as members of a distinct indigenous social and cultural group and recognition of this identity by others; and
- Collective attachment to geographically distinct habitats, ancestral territories, or areas of seasonal use or occupation, as well as to the natural resources in these areas; and
- Customary cultural, economic, social, or political institutions that are distinct or separate from those of the mainstream society or culture; and
- A distinct language or dialect, often different from the official language or languages of the country or region in which they reside.

Most of PNG's population fit the definition of IPs, particularly people who live in rural areas. In urban and peri-urban settings, IPs would typically be people whose ancestral territories have been incorporated into the urban/peri-areas. The locations for most potential subprojects are only broadly identified at this stage, however, 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 most subproject areas.

2.1. Identification and Assessment of IPs

Initial consultations will be undertaken at the subproject screening stage to establish if / which IP communities are present within the respective area of influence. Surveys to confirm specific subproject

footprints and their potential for interaction with IPs will occur once potential subproject locations are confirmed.

An assessment of the risks and impacts to IPs will be conducted and will inform the scope and scale of IP planning. Where IPs are the sole, or the overwhelming majority of project beneficiaries of a subproject, the elements of an Indigenous Peoples Plan (IPP) will be incorporated into overall subproject design - including environmental and social assessment. The majority of NEAT subprojects are expected to fall within this category.

Where a subproject seeks to benefit the broader population, the Borrower will design and implement the project in a manner that provides affected IPs with equitable access to project benefits. The concerns or preferences of IPs will be addressed through meaningful consultation, and a time-bound IPP in accordance with ESS7 and PS7 where applicable, setting out the measures or actions proposed.

2.2. Consultation with IPs

All sub-projects will promote effective project design, build local project support or ownership, and reduce the risk of project-related delays or controversies, through meaningful consultation (ESS7) / informed consultation and participation (ICP) (PS7) with IPs.

All consultations with will be conducted in a manner that:

- **identifies** and **involves** IPs representative bodies and organizations (e.g., councils of elders or village councils, or clan leaders) and, where appropriate, other community members.
- is **free**, allowing IPs communities to openly express their preferences or concerns without intimidation or trepidation.
- is **timely**, such that the preferences or concerns raised by IPs communities may be considered before project design decisions or implementation arrangements are finalized;
- is **informed**, in that IPs communities have been provided, and have had sufficient opportunity to consider, relevant information about the Project and potential E&S impacts affecting them at each stage of the project, prior to any decision making that will affect them.
- is **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.

2.3. Free, Prior and Informed Consent

The requirement to obtain ‘free, prior and informed consent’ (FPIC), applies to subprojects that:

- have adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation
- cause relocation of IPs from land and natural resources subject to traditional ownership or under customary use or occupation
- have significant impacts on IPs cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected IP’s lives.

FPIC requirements of ESS7 (and PS7 where relevant) will be followed. This includes building on and expanding the process of meaningful consultation / ICP through good faith negotiations between IAs (and C1.3 mini-grid concessionaire; C2.1 micro-grid developer) and affected IPs.

Some of the Technical Assistance (TA) activities associated with the Project (e.g., investigations in potential new small hydropower plants) may also result in impacts on IPs. Terms of Reference for TA activities and outputs therefore also need to include consideration of these potential impacts.

3. KEY ELEMENTS OF AN INDIGENOUS PEOPLES PLAN

As outlined above, the scope and level of detail required in the IPP is commensurate with the nature and extent of subproject-related impacts and risks. Key elements of an IPP include:

- Project description and summary description of issues relating to IPs.
- A brief summary of relevant issues and findings of the social assessment process.
- A summary of results from meaningful consultations / ICP and documented FPIC (as required).
- 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.
- Arrangements for information disclosure.

4. DISCLOSURE ARRANGEMENTS

Results of the environmental and social assessment, consultation, and design processes to identify and address specific IP issues/potential impacts and benefits, will be discussed in person with affected IPs and made available in a manner, location and language accessible to IP communities.

Disclosure of documents will be facilitated through the WB website, the PPL and/or NEA website and in hard copy at locations accessible to the relevant IP communities. If necessary, an IPP technical consultant will provide interpretation of the relevant documentation to the IP community during the implementation of the IPP (or relevant document).

5. MONITORING ARRANGEMENTS

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

6. GRIEVANCE PROCEDURE

Arrangements will be established to ensure that IP communities may bring complaints to project management attention, and that NEA and/or 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 (or relevant document). Further details of overall Project Grievance Redress Mechanism (GRM) are included in the SEP.

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 8 SEXUAL EXPLOITATION AND ABUSE AND SEXUAL HARASSMENT ACTION PLAN

1. BACKGROUND

This Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) Action Plan outlines the strategies that NEAT will adopt to mitigate and respond to risks of SEA and SH related to the project in line with the World Bank's *Good Practice Note Addressing SEA and SH in Investment project Financing Involving Major Civil Works*[46].

The Project has assessed SEA and SH risk as "moderate" including risks to the community associated the labour influx from construction work, along with the risk of SEA and SH in the workplace.

2. GENDER-BASED VIOLENCE EXPERTISE

Each PIU will appoint an E&S specialist with experience in gender-based violence (GBV) prevention and response, who will support the implementation of their Action Plan and ensure adherence to World Bank SEA/SH risk mitigation and response strategies.

3. RISK MITIGATION (PREVENTION)

3.1 Procurement

Bidders will be directed to the specific SEA/SH requirements of the project.

3.2 Assessment

All environmental and social assessments for sub-projects/activities will include assessment and management of SEA/SH risk. This will include identifying GBV prevention and response actors in and around the Project area.

3.3 Code of conduct

A code of conduct, that explicitly prohibits SEA and SH, will be signed by all contracted workers, to indicate that they have:

- Received a copy of the code of conduct.
- Had the code of conduct explained to them.
- Acknowledged that adherence to the code of conduct is a condition of employment.
- Understood that violations of the code of conduct can result in serious consequences, up to and including dismissal.

The Codes of Conduct will be available in English, Tok Pisin or Motu, and any language of foreign project employees. Further details of the code of conduct are provided in the LMP.

[46] World Bank, 2020. Good Practice Note: Addressing Sexual Exploitation and Abuse and Sexual Harassment in Investment Project Financing involving Major Civil Works. World Bank: Washington, United States of America.

3.4 Code of conduct induction

All contracted workers will attend an induction session on:

- The SEA / SH components of the code of conduct, and what constitutes a violation of the code of conduct to set clear expectations of behaviour.
- What may happen if they use SEA or SH in violation of the code of conduct.
- How to report SEA or SH / a violation of the code of conduct.
- What local specialist GBV service providers are available to survivors and how to contact them.

3.5 Site Facilities

- Have separate, safe and easily accessible facilities for women and men working on the site.
- Visibly display signs around the project site (if applicable) that signal to workers and the community that the project site is an area where SEA/SH is prohibited.
- As appropriate, ensure public spaces around the project grounds are well-lit.

3.6 Community awareness-raising

Awareness-raising activities for the whole community, ensuring the participation of women, women and men with disabilities, and other groups in the community who are more likely to experience SEA or SH, will be conducted .

At a minimum, awareness-raising will increase beneficiaries and communities understandings of:

- The SEA and SH components of the code of conduct, and what constitutes a violation of the code of conduct.
- How to report SEA or SH / a violation of the code of conduct.
- What local specialist GBV service providers are available to survivors and how to contact them.
- What to expect when making a complaint of SEA or SH to the project.
- The limitations of the grievance mechanism in relation to complaints GBV.

3.7 GBV specialist or service provider

Contractors or Third Parties implementing project infrastructure activities will engage a GBV specialist or service provider who will conduct the project worker induction on the SEA and SH components of the code of conduct and the community awareness-raising on the SEA and SH components of the code of conduct.

The facilitators of the induction and community awareness will have:

- An understanding of the gendered nature of GBV.
- An understanding of the context of GBV in Papua New Guinea.
- Experience delivering training on GBV from a survivor-centred approach.
- Experience upholding and advocating for women's rights and gender equality.
- Experience responding to disclosures of GBV and adhering to a survivor-centred approach.
- At least one woman facilitator in the team.

3.8 Domestic violence and other forms of GBV

The Project will integrate strategies which prevent possible resistance and backlash from men to women's increase employment and empowerment. This will include increasing the support for women's employment in all roles, including those traditionally dominated by males. Such strategies will support

broader effort toward gender equality by focusing on increasing men's support for women's empowerment, including women's access and control over resources and decision-making relating to their income.

4. RISK RESPONSE

Referral to Specialist GBV Service Providers

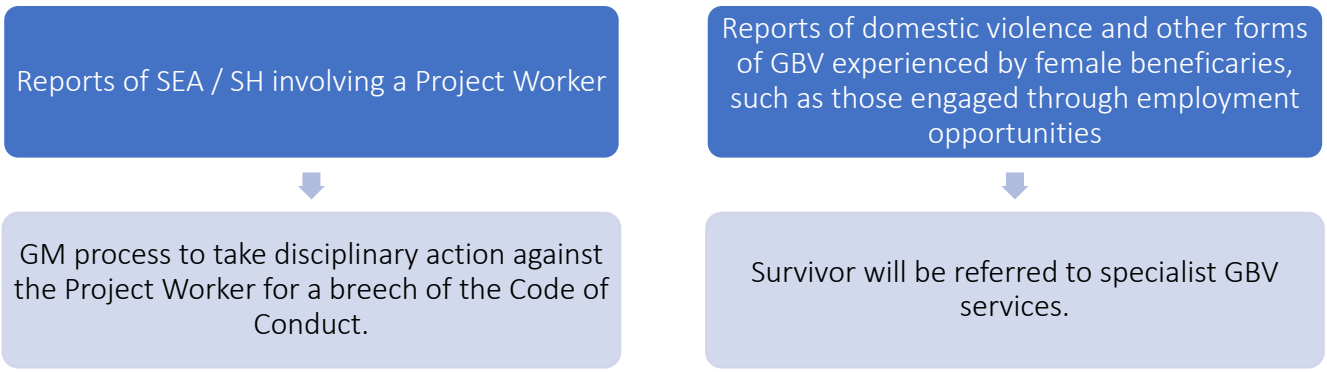
For each project site, a list of specialists GBV service providers will be developed to enable the project to refer any survivors of GBV to services immediately.

For locations where there are limited or no specialist GBV service providers, the project will ensure that there is funding available to transport survivors to specialist GBV service providers in the case of SEA or SH related to the project.

In addition, women who are engaged through the employment opportunities will also be provided about the closest specialist GBV support services (police, health, counselling, safe accommodation). Where possible, the local specialist GBV service, will conduct an awareness session with women who are engaged through the employment opportunities on their right not to experience violence and how to access social and legal GBV services.

5. GRIEVANCE REDRESS MECHANISM

The Project Grievance Redress Mechanism (GRM) will include details of how reports of GBV, including SEA / SH, will be received, resolved, and documented. The following elements will be integrated into the GM to respond to cases of GBV, including SEA / SH:



The following elements will be integrated into the GRM to respond to complaints of SEA / SH involving a project worker:

Principles	The process to receive and respond to complaints of GBV, including SEA / SH, will apply a survivor-centred approach to ensure that the rights of the survivor are upheld. This includes ensuring the survivor's safety, choice, consent and confidentiality and to ensure that the survivor is informed, respected and referred to specialist GBV services. The process will also be accessible, transparent, timely and fair.
Receiving complaints of GBV, including SEA / SH	The GRM must be accessible to survivors of GBV, including SEA / SH. This means: • Having multiple reporting methods and contacts including at least one woman who can receive complaints for each Project Site. • Outlining how third-party reports will be responded to. • Having a referral pathway for each Project Site to refer any survivors to the closest specialist GBV service providers. • Increasing the awareness of communities that will interact with project workers on how to access the GM.

Resolving complaints of GBV, including SEA / SH	The GRM should include a clear process to resolve the complaints of GBV, including SEA / SH, which is survivor-centred. This includes processes to:
	• Assess if the allegation is likely linked to the project.
	• Verify the allegation to:
	  ○ Determine the likelihood that the incident occurred.
	  ○ Recommend disciplinary measures toward the alleged perpetrator.
	
	Ensure the survivor can speak to one person through the process, in most cases the contact person should be a woman.
	
	The GRM will also clearly articulate that reports of GBV will not be resolved using customary practices of conflict resolutions, such of medication and compensation.

Recording complaints of GBV, including SEA / SH	The GRM will outline how information of reports of GBV, and actions taken to resolve the complaint, will be collected and stored confidentiality and ensure the information is not shared outside necessary reporting requirements. The GRM will also include details of required notification to the World Bank Task Team with only the following data to be shared: • The nature of the allegation. • If the alleged perpetrator is, to the survivor's best knowledge, associated with the Project (yes/no). • The survivor's age and/or gender (if available). • If the survivor was referred to services.
Training	Anyone receiving or handling complaints of GBV must receive training so that they do not revictimize and retraumatize survivors or unintentionally cause them harm. Those who have been identified to receive complaints of GBV will complete training to: • Understand the gendered nature of SEA and SH, the GBV requirements in the code of conduct and the GBV pathway in the GRM. • Have the skills to receive complaints of GBV. • Those tasked with resolving incidents of SEA / SH will also complete training to develop their skills to receive, resolve and record complaints of GBV.

6. IMPLEMENTATION AND MONITORING PLAN

Activity	Responsible	Oversight
1. Risk mitigation (prevention)		
1.1. Procurement		
The PIU has included SEA/SH requirements in works contracts and/or grant agreements	PIU	WB
The contractor/third party has provided the PIU with a proposed approach to implementing the SEA/SH Action Plan	Contractor/third party	Relevant PIU
1.2. Code of conduct		
The code of conduct has been signed by all employees of contractors.	Contractor/third party	Relevant PIU
1.3. Code of conduct Induction		
All project workers have attended an induction session on the code of conduct.	Contractor/third party to recruit GBV specialist / service provider to conduct).	Relevant PIU
1.4. Community awareness-raising		
Awareness-raising activities for the affected community(ies) on the code of conduct.	Contractor/third party (to recruit GBV specialist / service provider to conduct).	Relevant PIU
2. Risk response		
2.1. Referral to specialist GBV service providers		
Develop list of specialists GBV service providers.	Relevant PIU	World Bank.
For locations where there are limited or no specialist GBV service providers, ensure that there is funding available to transport survivors to specialist GBV service providers in the case of SEA or SH related to the project.	Relevant PIU	World Bank.
Provide information on GBV support services to women who are engaged through the employment opportunities.	Relevant PIU	World Bank.
2.2. Grievance redress mechanism		
The Project GRM includes a pathway for receiving complaints of SEA / SH.	Relevant PIU	World Bank.
Appoint person(s) responsible for receiving and managing SEA and SH complaints.	Implementing Entities & Contractors.	World Bank.
Train person(s) responsible for receiving and managing SEA and SH complaints on handling SEA and SH complaints.	Relevant PIU	World Bank.

ANNEX 9A E&S SCREENING FORM – GRID REHABILITATION, MODERNIZATION & EXPANSION

This form must be completed for subprojects under subcomponents 1.2 and 1.2 for grid rehabilitation, modernization, and expansion. It should be used to guide to determine the E&S tools required to manage the activity and highlight particular E&S issues that will need to be managed. The form to be completed by PPL NEAT Technical Team with assistance from PPL NEAT E&S Specialist.

The aim of this screening checklist is to draw attention to positive or negative environmental, social or custom impacts that could occur as a result of the proposed project.

The questions are designed to direct attention towards issues that should be considered at the early stages of project planning and during project construction and operation.

Section 1: Overview	**Response**
Project name	
Project location Provide a description and attach aerial imagery of the site identifying any nearby environmental and/or social receptors.	
Province/s	
Villages near the Project	
Type and purpose of project Brief description.	
Name and role of person who completed the screening	
Date and signature	

Screening Questions	Response (Yes/No/N.A.) (please provide brief description)	Remarks
Section 2: Eligibility screening		
Are any activities associated with subproject classifiable as "High" risk pursuant to the World Bank's ESS1 of the ESF? Definition and examples of high-risk activities are provided at the end of this checklist.		If yes, subproject not eligible for financing. If unsure, write unsure. This will be confirmed by the PIU E&S Specialist.
Section 3: Size and scale of the proposed project		
How many villages will be affected by the Project; across how many LLGs, districts?		Please provide number.
What is the footprint of the proposed project including a) brownfields site(s) and b) greenfield site(s)		Please provide number.
Does the Project meet the definition of a Level 3 prescribed activity under Environment (Prescribed Activities) Regulation 2002?		If yes, ESIA is required. If no, ESMP is required.
Section 4: Topography, geology and soils		
Will the project involve destruction, covering or modification of any unique geological or landscape feature?		Describe the nature of change. If the Project is expected to significantly affect the landscape (e.g., large structures that are visible from a distance will be modified), the risk should be included in ESIA/ESMP.
Will the project involve disturbance of previously contaminated soils?		If yes, contaminated soil management should be included in ESIA/ESMP. Please refer to Annex 10A
Will the project involve disturbance of soils that are susceptible to erosion or compaction?		If yes, mitigation measures to prevent erosion should be included in ESIA/ESMP. Please refer to Annex 10A
Section 5: Waste & Hazardous Materials		
Are PCBs present in the waste to be generated?		If unsure, testing of the transformer oil should be undertaken. If yes, management of PCB

Screening Questions	Response (Yes/No/N.A.) (please provide brief description)	Remarks
		should be included in ESIA/ESMP. Refer to Annex 10A for more guidance.
Will waste products be generated during construction or operation? Will any waste products be treated or disposed of offsite?		If yes, management of the waste including the identification of disposal site should be included in ESIA/ESMP. Refer to Annex 10A for more guidance.
Will project construction involve any hazardous substances (including petrol, oils, tar, paints or industrial chemicals) to be used or stored on site?		If yes, management of hazardous materials should be included in ESIA/ESMP. Refer to Annex 10A for more guidance.
Will the subproject generate hazardous waste such as batteries, unused paints, oil, lubricant, etc.		If yes, management of hazardous waste should be included in ESIA/ESMP. Refer to Annex 10A for more guidance.
Section 6: Water		
Will the project extraction or use large amount of ground, surface or tank water resources, leading to reduction in the volume and quality of water available for the public water supply?		Estimate the requirements and proposed source of water. If yes, this should be part of ESIA/ESMP.
Will the project cause water pollution (ground, surface, coastal or sea) by construction waste and materials?		If yes, this should be part of ESIA/ESMP. Refer to Annex 10A for more guidance.
Will the project result changes in runoff, drainage patterns or absorption rates?		If yes, flood risk should be part of ESIA/ESMP.
Section 7: Air and Nosie		
Will the project construction cause dust?		If yes, this should be part of ESIA/ESMP. Refer to Annex 10A for more guidance.
Will the project construction require the use of heavy or noisy machinery or equipment?		If yes, this should be part of ESIA/ESMP. Refer to Annex 10A for more guidance.
Section 8: Vegetation and Fauna		
Will the subproject remove vegetation cover, cut down trees for timber or site clearance?		If yes, describe the type of vegetation, specify the area of vegetation (in m^2 or ha). This

Screening Questions	Response (Yes/No/N.A.) (please provide brief description)	Remarks
		should be part of ESIA/ESMP. Refer to Annex 10A for more guidance
Will the project result in damage to or loss of habitat?		If yes, further assessment needed in ESIA/ESMP
Section 9: Natural resources		
Will the project extract, harvest or consume natural resources (e.g., timber, aggregate, water, other construction materials)?		If yes, please specify the type and quantities. Refer to Annex 10A.
Section 10: Communities		
Have relevant district and provincial authorities been consulted about the project / provided consent.		Document consultation/consent and include ESIA/ESMP.
Have community/clan leaders and representatives (for all affected/vulnerable groups in the community) been consulted?		Document consultation and include ESIA/ESMP.
Have social sensitive receptors been identified/mapped and consulted?		Map and include assessment of impacts in ESIA/ESMP. Document consultation and include ESIA/ESMP.
Will the project serve all locations in the community; will any groups be excluded?		If not, are their opportunities to extend service?; is there a clear justification if not? Include in ESIA/ESMP.
Section 11: Land and Resettlement		
Will the subproject involve physical works		If yes, answer relevant questions below. If no, skip below questions.
Will the subproject involve physical works on an existing PPL site?		If yes, include land due diligence and assess social impacts (if any) relating to the site.
Will the subproject involve the establishment of MV lines or other associated MV infrastructure?		If yes, organise land investigation to be conducted by provincial lands administration.
Will MV infrastructure utilise existing road corridors?		If yes, land due diligence to include engagement with relevant authorities; consult communities about road

Screening Questions	Response (Yes/No/N.A.) (please provide brief description)	Remarks
		corridor and confirm status of easement; check to confirm if land has other interest attached to it.
Will MV infrastructure require additional land (outside existing road easements)		If yes, land due diligence required and identification of land tenure / land owners and willingness to provide access.
Is MV infrastructure likely to affect customary land?		If yes, confirm whether ILG is in place. If not, consult with community leaders of way forward.
Will MV infrastructure affect residences, other buildings, economic trees/crops or other assets?		If yes, ESMP to assess impacts and seek to avoid and/or mitigate. Resettlement Plan required in addition to Land Due Diligence.
Will the subproject involve the establishment of LV lines and associated LV infrastructure?		If yes, land due diligence required. Consultation with local government representatives, village leaders – and wider community/landowners on alignments is required as part of land due diligence.
Are any vulnerable households affected by land/restricted access?		If yes, identify, assess and manage impact as part of ESIA/ESMP and RP
Section 12: Associated Facilities		
Does the subproject/activity involve 'Associated Facilities' as defined in the ESF? (An 'Associated Facility' means a facility or activity which is not funded as a part of the project, but: (a) directly and significantly related to the project; (b) simultaneously implemented or planned with the project; and (c) constructed for the project and is necessary for the project.)		If yes, the E&S requirements that apply to the subproject also are applicable to the facility. If unsure, write unsure. This will be confirmed by the PIU E&S Specialist.

The Subproject shall prepare/follow (Check all that apply):

____ESIA

____ESMP

____Land Due Diligence Report

____Resettlement Plan

____ Pursue formation of ILG

Ineligible activities are those activities classified as "High Risk" as per definition below.

High Risk[47]
The Project is likely to generate a wide range of significant adverse risks and impacts on human populations or the environment. This could be because of the complex nature of the Project, the scale (large to very large) or the sensitivity of the location(s) of the Project. The following activities are considered "High" risk activities:

- Activities that may cause long term, permanent and/or irreversible (e.g., loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the Project;
- Activities that are high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large);
- Activities that may have high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.).
- Activities that may have significant adverse social impacts and may give rise to significant social conflict;
- Activities that will result in significant involuntary land take and/or resettlement impacts;
- Demolition or removal of assets without consultation and consent of owners of the building;
- Construction works involving forced labour, child labour, or other harmful or exploitative forms of labour;
- Activities that have potential to cause significant loss or degradation of natural and/or critical habitats whether directly or indirectly or those that could adversely affect forest and forest health;
- Activities that could affect sites with archaeological, paleontological, historical, religious, or unique natural values; and
- Use of goods and equipment for military or paramilitary purposes.

Examples of activities in NEAT that can be considered high-risk:

- Construction of distribution lines that run through major natural habitat or protected area.
- Conversion of wetland or clearing of land in sensitive area for solar micro-grid
- Demolition or removal of sacred graves/archaeological sites for grid expansion/solar or hydro micro-grids

ANNEX 9B E&S SCREENING FORM – MICRO-GRID

This form must be completed by the pre-feasibility consultant for subprojects under subcomponent 2.1 (renewable energy micro-grids) as part of the pre-feasibility process to assist in the understanding of E&S issues associated with the subproject and tools required to manage these. The E&S tools required would then be prepared by the developer as part of the detailed design drawing on the information in Annex 10b and Annex 12b.

Section 1: Overview	**Response**
Project name	
Project location Provide a description and attach aerial imagery of the site identifying any nearby environmental and/or social receptors.	
Province, LLG and Ward	
Beneficiary village/s	
What area of land will be developed? Indicate size of the area needed for the solar PVs and control room in m^2 or km^2, the length of MV and LV lines, the area (if any) that will be dammed for hydropower.	
Name and role of person who completed the screening	
Date and signature	

Screening Questions	Response (Yes/No/N.A) (please provide brief description)	Remarks
Section 2: Eligibility screening		
Are any activities associated with subproject classifiable as "High" risk pursuant to the World Bank's ESS1 of the ESF? Definition and examples of high-risk activities are provided at the end of this checklist.		If yes, subproject not eligible for financing. If unsure, write unsure. This will be confirmed by the PIU E&S Specialist.
Does the subproject meet the eligibility criteria in the Operations Manual (e.g., has broad community support, no involuntary resettlement required)?		If no, then the subproject is not eligible for financing.
Does the subproject meet the eligibility criteria in the Operations Manual (e.g., has broad community support, no involuntary resettlement required)?		If no, then the subproject is not eligible for financing.
Section 3: Size and scale of the proposed project		
Does the Project meet the definition of a Level 3 prescribed activity under Environment (Prescribed Activities) Regulation 2002?		If yes, ESIA is required. If no, ESMP is required.
Section 4: Topography, geology and soils		
Will the project involve destruction, covering or modification of any unique geological or landscape feature?		Describe the nature of change. If the Project is expected to significantly affect the landscape (e.g., large structures that are visible from a distance will be modified), the risk should be included in ESIA/ESMP.
Will the project involve disturbance of previously contaminated soils?		If yes, contaminated soil management should be included in ESIA/ESMP. Please refer to Annex 10B
Will the project involve disturbance of soils that are susceptible to erosion or compaction?		If yes, mitigation measures to prevent erosion should be included in ESIA/ESMP. Please refer to Annex 10B.
Section 5: Waste & Hazardous Materials		
Will waste products be generated during construction or operation? Will any waste products be treated or disposed of offsite?		If yes, management of the waste including the identification of disposal site should be included in ESIA/ESMP. Refer to Annex 10B for more guidance.
Will project construction involve any		If yes, management of hazardous

Screening Questions	Response (Yes/No/N.A) (please provide brief description)	Remarks
hazardous substances (including petrol, oils, tar, paints or industrial chemicals) to be used or stored on site?		materials should be included in ESIA/ESMP. Refer to Annex 10B for more guidance.
Will the subproject generate hazardous waste such as batteries, unused paints, oil, lubricant, etc.		If yes, management of hazardous waste should be included in ESIA/ESMP. Refer to Annex 10B for more guidance.
Section 6: Water		
Will the project extraction or use large amount of ground, surface or tank water resources, leading to reduction in the volume and quality of water available for the public water supply?		Estimate the requirements and proposed source of water. If yes, this should be part of ESIA/ESMP.
Will the project cause water pollution (ground, surface, coastal or sea) by construction waste and materials?		If yes, this should be part of ESIA/ESMP. Refer to Annex 10B for more guidance.
Will the project result changes in runoff, drainage patterns or absorption rates?		If yes, flood risk should be part of ESIA/ESMP.
Section 7: Air and Nosie		
Will the project construction cause dust?		If yes, this should be part of ESIA/ESMP. Refer to Annex 10B for more guidance.
Will the project construction require the use of heavy or noisy machinery or equipment?		If yes, this should be part of ESIA/ESMP. Refer to Annex 10B for more guidance.
Section 8: Vegetation and Fauna		
Will the subproject remove vegetation cover, cut down trees for timber or site clearance?		If yes, describe the type of vegetation, specify the area of vegetation (in m^2 or ha). This should be part of ESIA/ESMP. Refer to Annex 10A for more guidance
Will the project result in damage to or loss of habitat?		If yes, further assessment needed in ESIA/ESMP.
Section 9: Natural resources		
Will the project extract, harvest or consume natural resources (e.g., timber, aggregate, water, other construction materials)?		If yes, please specify the type and quantities. Refer to Annex 10B.
Section 10: Communities		
Have relevant district and provincial authorities been consulted about the project / provided consent?		Document consultation/consent and include in pre-feasibility report.

Screening Questions	Response (Yes/No/N.A) (please provide brief description)	Remarks
Have community/clan leaders and representatives (for all affected/vulnerable groups in the community) been consulted?		Document consultation/consent and include in pre-feasibility report.
Have social sensitive receptors been identified/mapped and consulted?		Map and include assessment of impacts in ESIA/ESMP. Document consultation and include ESIA/ESMP.
Is the project likely to impact on existing land or sea uses/activities (e.g., agriculture or fisheries)?		If yes, include assessment of impacts in ESIA/ESMP.
Will the project serve all locations in the community; will any groups be excluded?		If not, are their opportunities to extend service?; is there a clear justification if not? Include in ESIA/ESMP.
Availability of appropriate housing to accommodate an external workforce?		Workforce accommodation to be addressed in ESIA/ES
Section 11: Land and Resettlement		
Has the community confirmed land is available for the subproject?		If yes, project feasibility can proceed. Document consultation/consent and included pre-feasibility report If no, project not ready to proceed.
Will the project be developed on customary land		If yes, confirm whether ILG is in place and include evidence in pre-feasibility report. If no, consult with community leaders of way forward.
Have sites for power production and storage infrastructure been identified as per the site selection process – refer LARF Section 5.4		Site selection process to be followed/documented and included pre-feasibility report
Have landowners of proposed sites for power production and powerhouse been consulted and expressed interest in providing land access for the project?		Document consultation/ in principle consent and included pre-feasibility report Land due diligence and documented consent/ negotiated agreements (including fair compensation) required during detailed design. Follow entitlement matrix (LARF)
Are there any land disputes on the proposed sites for power production and storage infrastructure?		If yes, not eligible for project.
Do any individuals (formal or informal)		If yes, not eligible for project.

Screening Questions	Response (Yes/No/N.A) (please provide brief description)	Remarks
currently use the proposed production/powerhouse sites for residence?		
Do any individuals (formal or informal) currently use the proposed project sites for commercial structures or economic crops?		If yes, negotiated agreement and/or resettlement plan – follow entitlement matrix (LARF)
Have communities/relevant landowners been consulted specifically on the provision (and associated impacts) of land access for transmission infrastructure.		Document consultation/in principle consent and included pre-feasibility report Land due diligence and documented consent/agreements required during detailed design.
Are any vulnerable households or groups likely to be adversely impacted by land access arrangements		Assess and address in ESIA/ESMP and RP.
Will any physical works otherwise restrict access to, or use of, land or natural resources?		Assess and address in ESIA/ESMP
Section 12: Associated Facilities		
Does the subproject/activity involve 'Associated Facilities' as defined in the ESF? (An 'Associated Facility' means a facility or activity which is not funded as a part of the project, but: (a) directly and significantly related to the project; (b) simultaneously implemented or planned with the project; and (c) constructed for the project and is necessary for the project.)		If yes, the E&S requirements that apply to the subproject also are applicable to the facility. If unsure, write unsure. This will be confirmed by the PIU E&S Specialist.

Required attachments:

- Imagery of the area identifying target communities and proposed sites
- Record of initial consultation with communities/customary land holders with in-principle agreement to prepare the project.

The Subproject shall prepare/follow (Check all that apply):

____ESIA

____ESMP

____Land Due Diligence Report

____Resettlement Plan

____ Pursue formation of ILG

Ineligible activities are those activities classified as "High Risk" as per definition below.

High Risk[48]
The Project is likely to generate a wide range of significant adverse risks and impacts on human populations or the environment. This could be because of the complex nature of the Project, the scale (large to very large) or the sensitivity of the location(s) of the Project. The following activities are considered "High" risk activities:

- Activities that may cause long term, permanent and/or irreversible (e.g., loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the Project;
- Activities that are high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large);
- Activities that may have high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.).
- Activities that may have significant adverse social impacts and may give rise to significant social conflict;
- Activities that will result in the involuntary taking of land, relocation of households, permanent loss of assets or loss of access to assets that leads to permanent loss of income sources or other means of livelihoods;
- Demolition or removal of assets without consultation and consent of owners of the building;
- Construction works involving forced labour, child labour, or other harmful or exploitative forms of labour;
- Activities that have potential to cause significant loss or degradation of critical and / or natural habitats whether directly or indirectly or those that could adversely affect forest and forest health;
- Activities that could affect sites with archaeological, paleontological, historical, religious, or unique natural values; and
- Use of goods and equipment for military or paramilitary purposes.

Examples of activities in NEAT that can be considered high-risk:

- Construction of distribution lines that run through major natural habitat or protected area.
- Conversion of wetland or clearing of land in sensitive area for solar micro-grid
- Demolition or removal of sacred graves/archaeological sites for grid expansion/solar or hydro micro-grids

ANNEX 10A E&S MANAGEMENT AND MONITORING TABLE - GRID REHABILITATION, MODERNIZATION & EXPANSION

This E&S Management and Monitoring Table has been developed to provide guidance on the management of typical environmental and social (E&S) risks associated with subprojects to be implemented as part of subcomponents 1.1 and 1.2 of the National Energy Access Transformation Project (NEAT). It will be used by PNG Power Ltd (PPL) and contractors to assist in the preparation of ESMPs and C-ESMPs. The E&S risks in the ESMPs and C-ESMPs should be reviewed against this document to make sure all risks are covered. This document covers construction and operations. Decommissioning is not included as it is assumed that the infrastructure will be refurbished as required and continued to be used.

This document should be read in conjunction with the following Project documents:

- Environmental and Social Management Framework (ESMF)
- Labour Management Procedures (refer ESMF Annex)
- SEA/SH Action Plan (refer ESMF Annex)
- Stakeholder Engagement Plan (SEP)
- Land Access and Resettlement Framework (LARF)

Planning and Design Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Facilities to be renovated/upgraded may contain asbestos, lead from lead paints, synthetic mineral fibre (SMF), PCBs, ozone depleting substances and other hazardous waste).	Building inspection(s) that identifies whether asbestos, PCBs or other hazardous materials are present prior to renovations/upgrades commencing.	Hazardous material assessment.	During detail design period – prior to works commencing - once	PIU (implementation)
Land, Property Damages/Compensation Land use restrictions (distribution lines) Minor impacts on economic trees, crops and structures Residences avoided or if necessary moved in situ	Land for infrastructure secured by PPL prior to Project construction following land access strategy in the LARF. Identify potentially affected assets or residences in consultation with owners and address any claims for damages/compensation in accordance with entitlement matrix in LARF	Land due diligence and or resettlement completion report.	Before commencement of works	PIU (implementation)
Location of proposed MV/LV lines does not consider potential environmental and social impacts	Consultation with community in accordance with the SEP to ensure proposed project sites can be utilized for project infrastructure activities and would not result in physical or economic displacement, or restriction of access to natural resources.	Results of consultation.	During detail design period – prior to works commencing - once	PIU (implementation);

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Air quality, noise, and vibration generated from civil works	The contractor(s) is responsible for compliance with all relevant national legislation and international standards with respect to noise and vibration and ambient air quality. **Noise and vibration:** The contractor(s) undertaking works shall implement the following at a minimum:	Designated stockpile areas approved; dust plumes; complaints register; vehicle and plant maintenance	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	• Plan activities in consultation with communities so that noisiest activities are restricted to being undertaken during periods that will result in least disturbance • Noise levels should be maintained within the national permissible limits/standards • If necessary, use temporary noise-control methods such as fences, barriers or deflectors (such as muffling devices for combustion engines) and select equipment with lower sound power levels where possible • Minimize transportation of demolition waste and construction materials through community areas during regular working time • Maintain a buffer zone (such as open spaces, row of trees or vegetated areas) between the project site and surrounding areas if possible, to lessen the impact of noise. Noise impacts should not exceed 55 dB(A) for residential; institutional, or educational receptors during the daytime (07:00 – 22:00) and 45 dB(A) during the Night-time (22:00 – 07:00) and for industrial or commercial receptors should not exceed 70 dB(A) at any time or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site). Given the small scale of subprojects, modification of noise levels in response to community concerns is likely sufficient and noise monitoring unnecessary. **Air Quality:** The contractor(s) undertaking works shall implement dust suppression measures (e.g. covering of material stockpiles, etc.) as required. At a minimum the following is required: • Materials used shall be covered and secured properly during transportation to prevent scattering of soil, sand, materials, or generating dust • Keep stockpiles of aggregate materials covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals	records.		

<table>
<tr><th colspan="5">Renovation / Construction Stage</th></tr>
<tr><th>Risks and Impacts</th><th>Mitigation Measures</th><th>Monitoring - Verification</th><th>Monitoring - Frequency</th><th>Responsibilities</th></tr>
<tr><td></td><td>

Minimize dust from exposed work sites and stockpiles by applying water on the ground regularly (note: hydrocarbons shall not be used as a method of dust control)
No burning of site clearance debris (trees, undergrowth) or construction waste materials
Immediately re-vegetate and/or stabilize exposed areas (if required).

Ambient air quality should not exceed the WHO Ambient Air Quality Guidelines (below), albeit visual monitoring for dust is likely sufficient given the small scale of subprojects.
<table>
<tr><th colspan="3">WHO Ambient Air Quality Guidelines</th></tr>
<tr><th></th><th>Averaging Period</th><th>Guideline value in micrograms/m³</th></tr>
<tr><td>Particulate Matter PM_{10}</td><td>1-year
24-hour</td><td>20
50</td></tr>
<tr><td>Particulate Matter $PM_{2.5}$</td><td>1-year
24-hour</td><td>10
25</td></tr>
</table>
</td><td></td><td></td><td></td></tr>
<tr><td>Soil erosion and uncontrolled sediment causing negative impacts to surface or groundwater.</td><td>The contractor(s) undertaking works shall implement the following at a minimum:

Implement suitable project design (e.g., establish appropriate erosion and sediment control measures) to minimize soil erosion and identify and protect receiving water courses and bodies;
Scheduling to avoid heavy rainfall periods; and
Use mulch, grasses or compacted soil to stabilize exposed areas promptly.
Minimise cleared areas.
Avoid clearing sloped areas where practicable.
</td><td>On-site sediment control measures; records of water quality monitoring (visual); revegetation.</td><td>Weekly inspections throughout construction period.</td><td>Contractor(s) (implementation)

PIU (oversight)</td></tr>
</table>

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Resource efficiency issues, including materials supply and extraction of raw materials.	The contractor(s) undertaking works shall at a minimum: • Estimate the quantities of raw materials needed for the minor civil works; • Source raw materials and construction materials locally and from licenced/permitted facilities only (where scale of quarry requires an environment permit); and • Use recycled or renewable building materials (e.g. timber) where possible.	Contract for local materials.	Prior to works commencing and then throughout construction as required	Contractor(s) (implementation) PIU (oversight)
Impacts on local communities from traffic obstruction, congestion, and traffic and road safety.	The contractor(s) undertaking works shall implement the following at a minimum: • Construction and establishment of haul roads shall be kept to a minimum; • Communicate traffic management plans – including traffic volumes, schedules, road closures and community safety measures – to project stakeholders and local communities. • Minimise the extent of traffic and construction impacts on adjacent villages and other residential areas where possible; and • Implement dust suppression measures. • Use appropriate traffic control signs (Stop/Go) to direct traffic held by signallers	Traffic management in the Contractor(s) OHS Plan; traffic control measures implemented; signage and barriers installed as required; Project GRM	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)
Hunting and gathering of bush materials by non-local workforce contributes to loss of flora/fauna.	Hunting and gathering of bush materials by non-local workforce to be prohibited and this is to be communicated to the workforce through inductions, toolbox talks, etc.	Induction and toolbox talk records	Monthly	Contractor(s) (implementation) PIU (oversight)
Damage to cultural heritage.	The contractor(s) shall have a Chance Finds Procedure in place prior to any physical works beginning. Refer to example provided as Annex 6 of the NEAT ESMF.	Chance-Finds Procedure in place.	Prior to works commencing and then maintained throughout construction.	Contractor(s) (implementation) PIU (oversight)
Land and/or water pollution from waste generated by	The contractor(s) undertaking works shall:	Contractor ESMP; sanitation facilities	Weekly inspections	Contractor(s) (implementation)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**

demolition debris, construction materials, and/or workers (solid, hazardous, and wastewater)	• Manage waste according to the following hierarchy:
	  • Avoid – avoid generation of waste (e.g., purchase products with no packaging materials)
	  • Reduce – reduce generation of waste (e.g., purchase product in bulk to reduce packaging materials)
	  • Reuse – reuse waste products (e.g., reuse packaging materials)
	  • Recycle – recycle waste products (e.g., recycle packaging materials)
	• identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.
	The measures should be in compliance with GIIP and PNG regulations and included in a waste management section in the C-ESMP.
	If the hazardous material assessment indicates the presence of asbestos or PCB, then the Contractor is to prepare specific procedure/s for the handing, treatment and disposal of such wastes in line with GIIP and PNG requirements[49]. Procedure to be reviewed and approved by PPL and the WB prior to commencement of works.
		maintained onsite; waste and recycling records; worker training records; specific procedures for hazardous waste	throughout construction period.	PIU (oversight)

Land and/or water pollution from use and storage of hazardous substances e.g.	The contractor(s) undertaking works shall implement the following at a minimum in accordance with relevant PNG laws and GIIP such as the IFC EHS Guideline: Hazardous Materials Management:	Secured storage areas and secondary	Weekly inspections throughout	Contractor(s) (implementation)

[49] Example of GIIP: World Bank Good Practice Note: Asbestos: Occupational and Community Health issues. Reference for preparing the asbestos management plan: https://www.dfat.gov.au/sites/default/files/environmental-and-social-safeguard-asbestos-guideline.pdf

See Secretariat of the Basel Convention publications for various guidance on PCB management, such as Updated technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs) or polybrominated biphenyls (PBBs): http://www.basel.int/Portals/4/Basel%20Convention/docs/pub/techguid/tg-PCBs.pdf

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
minor spills from fuel, oils, lubricants.	• Using impervious surfaces for refuelling areas and other fluid transfer areas; • Ensure that refuelling and maintenance facilities are not located, or that activities do not take place, within 30 m of a watercourse, or in ecologically sensitive areas. If a 30m limit is impracticable then a lesser limit may be adopted provided approval is obtained. On no account shall the limit be less than 10 m; • Providing adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids. If the secondary containment used is bunding, then the area should also be lined and covered; • Ensure that vehicles and plant are not stored within 30 m of a watercourse, or in ecologically sensitive areas, overnight or when not in use; • Regular checks for leaking oil or fuel from machinery undertaken. Any leaks are promptly repaired and/or parts replaced within two days as part of maintenance of vehicles and equipment; • Training workers on the correct transfer and handling of fuels and chemicals and the response to spills; and • Spill kit, appropriate to the hazardous materials being used, to be kept on-site and workers to be trained in its deployment.	containment; spill kit and worker training records; records of safety briefings; vehicle and plant maintenance records.	construction period.	PIU (oversight)
Loss of vegetation cover / trees	• Minimise area to be cleared. • Store topsoil from excavated area for vegetation. planting/reinstatement at the end of construction. • Only cut trees and remove vegetation in areas specified in the design. • Keep the area of vegetation removal minimal. Avoid loading the pipes, timbers, construction tools on vegetated areas. Place them on barren soil. • Restore vegetation cover on barren soil at the end of construction. • Refill excavated areas and cover with top soil for vegetation cover to	Revegetation.	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	regenerate.			
Spread of weeds and pests	• Ensure machinery brought to site is clean (i.e., free of soil and plant material) and is cleaned before it is moved to a new area.	Wash-down records	Prior to transport of machinery	Contractor(s) (implementation) PIU (oversight)
Damage to cultural heritage.	The contractor(s) shall have a Chance Finds Procedure in place prior to any physical works beginning. Refer to example provided as Annex 6 of the NEAT ESMF.	Chance-Finds Procedure in place.	Prior to works commencing and then maintained throughout construction.	Contractor(s) (implementation) PIU (oversight)
Disturbance of UXO results in OHS and community safety risks	Discuss UXO potential with community and have the site cleared prior to ground disturbance activities if warranted. Should a UXO be discovered one works have commenced, the contractor is to immediately cordon off the area, arrange the evacuation of nearby residences and inform the police of the find. All UXO finds are reported to the police who arrange the pickup, transport, storage and ultimate disposal of the finds.	Records of community consultation regarding UXO potential, UXO clearance and disposal	Prior to works commencing and then throughout construction.	Contractor(s) (implementation) PIU (oversight)
Land, Property Damages/Compensation	Temporary land required during construction period is secured through appropriate agreements with landholders; agreements stipulate decommissioning and rehabilitation requirements	Land agreements	Once off	Contractor(s) (implementation)
	Monitor any property damage related issues through the project GRM	GRM	Weekly inspections throughout construction period.	PIU (oversight
Property Access Rehab and expansions to distribution network Temporary impact access to private and public properties	Community is consulted about the construction schedule Property owners are consulted at least 48 hours before works commence outside or to their properties. Maintain regular contact with property owners and manage any access issues as they	Consultation records GRM	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
(i.e. driveways) Connections to households require household consent	may arise.			
Occupational Health and Safety (OHS) risks for workers.	The contractor(s) undertaking works shall comply with all national and good practice regulations and GIIP regarding workers' safety, such as OHS section of the IFC EHS Guidelines on Construction and Decommissioning, and implement the following at a minimum: • Complete different levels of risk assessment, i.e. from whole Job Safety Analysis down to the personal level, to identify any potential hazards, rank the risks, and identify ways to eliminate, control or minimize the hazards. • Appoint a health and safety officer at site, who will have the authority to issue directives for the purpose of maintaining the health and safety of all personnel authorized to enter and or work on the site. • Prepare and implement a simple action plan to cope with risk and emergency (e.g., fire, storm surge, cyclone, COVID-19 outbreak). • Have or receive minimum required training on occupational safety regulations and use of PPE. • Undertake training of staff to meet standards for the proper operation and use of equipment. • Training of workers in lifting and materials handling techniques in, including the placement of weight limits above which mechanical assists or two-person lifts are necessary. • Training and use of temporary fall prevention devices, such as rails or other barriers, when working at heights. • Use of control zones and safety monitoring systems to warn workers of their proximity to fall hazard zones, as well as securing, marking, and labelling covers for openings in floors, roofs, or walking surfaces. • Implementing good house-keeping practices, such as the sorting and placing loose construction materials or demolition debris in established	C-ESMP; workers allocated and wearing PPE; first aid kits in vehicles and at work sites; worker training records; complaints record; accident/ incidents register.	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	areas away from foot paths. • Locating electrical cords and ropes in common areas and marked corridors. • Planning and segregating the location of vehicle traffic, machine operation, and walking areas, and controlling vehicle traffic through the use of one-way traffic routes, establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic. • Ensuring moving equipment is outfitted with audible back-up alarms. • Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as handrails and toe boards to prevent materials from being dislodged. • Providing PPE and other safety measures as appropriate during works such as safety glasses with side shields, face shields, hard hats, hi-vis vests and safety shoes with non-slip soles, first aid kits, restricted access zones, warning signs, overhead protection against falling debris; • Preparing detailed safety requirements for working on or in close proximity to power lines (or follow existing PPL procedure if adequate). • Preparing detailed mitigations to prevent and/or minimise exposure to electro-magnetic fields (or follow existing PPL procedure if adequate). • Preparing detailed mitigations relating to tree felling (or follow existing PPL procedure if adequate). • Providing project workers with accessible means to raise workplace concerns (as per requirements in the NEAT LMP).			
Health and safety risks for community from civil works.	The contractor(s) undertaking works shall implement the following at a minimum: • Develop and follow C-ESMP that is compliant with the ESMF and World Bank Environment and Health and Safety Guidelines (EHSGs) and which includes health and safety measures for the community. • Comply with all national and good practice regulations regarding workers'	C-ESMP Plan which includes community health and safety Monthly progress reports	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	safety and the Project's LMP • Use of barriers to prevent unauthorised access to worksites. • Implement good house-keeping practices to eliminate the hazard where possible, such as the sorting and placing loose construction materials or demolition debris in established areas away from foot paths. • Ensure moving equipment is outfitted with audible back-up alarms. • Provide safe access routes and other safety measures as appropriate during works such first aid kits, restricted access zones, warning signs, covering openings to small confined spaces, overhead protection against falling debris and barricaded exclusion areas for drop zones (e.g. when working at heights), lighting system to protect community against construction risks; • Communicate risks and community safety mitigation measures to project stakeholders and communities; and • Have the grievance redress mechanism (GRM) developed and operational in accordance with the SEP.	GRM		
Increase in sexual exploitation and abuse/ harassment (SEA/H) related to project workforce	The Contractor(s) should at a minimum: • Comply with all relevant national laws and legislations. • Include SEA/H requirements in the C-ESMP including aspects relating to preventing GBV and SEA/H and zero tolerance for these behaviours • Ensure that workers are well briefed on the GBV and SEA/H requirements in the C-ESMP. • Have separate, safe and easily accessible facilities for women and men working on the site. • Visibly display signs around the project site (if applicable) that signal to workers and the community that the project site is an area where SEA/SH is prohibited. • As appropriate, ensure public spaces around the project grounds are well-lit.	C-ESMP which includes SEA/H requirements; Code of Conduct; worker training records; complaints record; GRM	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	Refer to the LMP and SEA/SH Action Plan for further mitigation measures.			
Labour and working conditions are not met.	Implement measures from the LMP, including: • Prohibiting child labour or forced labour • Providing a Worker GRM • Providing clear terms and conditions of employment • Managing community workers	Records of workers by age; complaints record; Worker GRM	Weekly inspections throughout construction period.	Contractor(s) (implementation) PIU (oversight)
Employment of Local People Inequitable provision of labour leads to community unrest	Include information about employment opportunities in community consultations and utilise community leadership (including women leaders) in ensuring the equitable distribution of opportunities amongst community.	Consultation records/reports	Monthly throughout construction period	Contractor(s) (implementation) PIU (oversight)
	Actively promote equal opportunity for women to secure employment.	Employment records - % of women employed/roles	Monthly throughout construction period	
Poor communication and/or grievances associated with the project are not properly identified and managed leading to community unrest	Community Liaison Plan developed and implemented to ensure inclusive consultation with key stakeholders during construction.	Approved Plan	Once-off	Contractor(s) (implementation) PIU (oversight)
	Conduct inclusive consultation with the government and community stakeholders at least monthly.	Consultation records	Monthly	
	Establish grievance redress mechanism with clear roles and responsibilities (contractor and community), lodgement mechanism, register, resolution process and community feedback process in accordance with Implementing Entity project grievance redress mechanism.	Grievance register	Once-off	
Community unrest – general or project related heightens safety risks for contractor workers and property	C-ESMP to include procedures for managing site security	C-ESMP	Once -off	Contractor(s) (implementation) PIU (oversight)
	Ensure accommodation is secure (e.g., fenced, has lighting, locks on room doors, etc). All equipment and containers locked down during the day where practicable and overnight.	Inspection records	Weekly inspections throughout construction	

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Potential emergencies include hazardous materials spills, fire and civil unrest.	C-ESMP outlines emergency response procedures including key contacts.	C-ESMP	Once -off	Contractor(s) (implementation) PIU (oversight)
	Ensure appropriate responses are provided for each situation. In the event of civil unrest contact Police and District Administration.	Incident record form	As required	
Camp management (if required)	Measures that apply to the Project will also apply to any camps constructed to support the project.	C-ESMP	Once -off	Contractor(s) (implementation) PIU (oversight)
	Any camp constructed to support the project will include personnel security measures and managed so that meets needs of workers and facilitates rest (e.g., drinking water, washing, bathroom facilities, no 'hot bedding', etc.) and kept in a clean and hygienic state.	Inspection records	Weekly inspections throughout camp use.	Contractor(s) (implementation) PIU (oversight)

Operations				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Fire or other issues caused by vegetation interacting with powerlines	Trim trees along the powerline easements regularly, to prevent accidents caused by overgrowth into the power lines. Follow PPL procedures for tree trimming.	Records of vegetation management; incident reports	As per PPL procedure	PPL
Erosion from clearing works	Tree trimming should be undertaken with minimal damage to existing vegetation. Grass or other groundcover should remain along the easement to prevent erosion. Follow PPL procedures for tree trimming.	Records of vegetation management; incident reports	As per PPL procedure	PPL
Health and safety risks to worker during maintenance	Follow PPL H&S procedures during maintenance activities	Records of JHAs, audits, incidents	As per PPL procedure	PPL
Soil and water contamination from oil spill/leaks, chemical	Follow PPL H&S procedures during maintenance activities	Records of JHAs, audits, incidents	As per PPL procedure	PPL

ANNEX 10B E&S MANAGEMENT AND MONITORING TABLE – MICRO-GRIDS

This E&S Management and Monitoring Table has been developed to provide guidance on the management of typical environmental and social (E&S) risks associated with subprojects to be implemented as part of subcomponent 2.1 of the National Energy Access Transformation Project (NEAT). It will be used by developers and their contractors to assist in the preparation of ESMPs and C-ESMPs. The E&S risks in the ESMPs and C-ESMPs should be reviewed against this document to make sure all risks are covered. This document covers construction and operations. Decommissioning is not included as it is assumed that the infrastructure will be refurbished as required and continued to be used.

This document should be read in conjunction with the following Project documents:

- Environmental and Social Management Framework (ESMF)
- Labour Management Procedures (refer ESMF Annex)
- SEA/SH Action Plan (refer ESMF Annex)
- Stakeholder Engagement Plan (SEP)
- Land Access and Resettlement Framework (LARF)

Planning and Design Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Location of proposed micro-grid does not consider potential environmental and social impacts	E&S screening process undertaken to screen out ineligible activities and identify potential issues prior to finalising the design.	Results of consultation.	During detail design period – prior to works commencing - once	Developer (implementation) NEMU (oversight)
Land, Property Damages/Compensation Land use restriction Minor impacts on economic trees, crops and structures Residences avoided or if necessary moved in situ	Land for production and storage infrastructure secured prior to Project construction following land access strategy in the LARF. Identify potentially affected assets or residences in consultation with owners and address any claims for damages/compensation in accordance with entitlement matrix in LARF	Land due diligence and/or resettlement completion report.	Before commencement of works	EPM (Feasibility) Developer (implementation) NEMU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Air quality, noise, and vibration generated from civil works	The contractor(s) is responsible for compliance with all relevant national legislation and international standards with respect to noise and vibration and ambient air quality. **Noise and vibration:** The contractor(s) undertaking works shall implement the following at a minimum: • Plan activities in consultation with communities so that noisiest activities are restricted to being undertaken during periods that will result in least disturbance • Noise levels should be maintained within the national permissible limits/standards • If necessary, use temporary noise-control methods such as fences, barriers	Designated stockpile areas approved; dust plumes; complaints register; vehicle and plant maintenance records.	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	or deflectors (such as muffling devices for combustion engines) and select equipment with lower sound power levels where possible • Minimize transportation of demolition waste and construction materials through community areas during regular working time • Maintain a buffer zone (such as open spaces, row of trees or vegetated areas) between the project site and surrounding areas if possible, to lessen the impact of noise. Given the small scale of subprojects, modification of noise levels in response to community concerns is likely sufficient and noise monitoring unnecessary. **Air Quality:** The contractor(s) undertaking works shall implement dust suppression measures (e.g. covering of material stockpiles, etc.) as required. At a minimum the following is required: • Materials used shall be covered and secured properly during transportation to prevent scattering of soil, sand, materials, or generating dust • Keep stockpiles of aggregate materials covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals • Minimize dust from exposed work sites and stockpiles by applying water on the ground regularly (note: hydrocarbons shall not be used as a method of dust control) • No burning of site clearance debris (trees, undergrowth) or construction waste materials • Immediately re-vegetate and/or stabilize exposed areas (if required). Ambient air quality should not exceed the WHO Ambient Air Quality Guidelines albeit visual monitoring for dust is likely sufficient given the small scale of subprojects.			
Soil erosion and uncontrolled sediment causing negative	The contractor(s) undertaking works shall implement the following at a minimum: • Implement suitable project design (e.g., establish appropriate erosion and	On-site sediment control measures;	Weekly inspections	Developer / contractor

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
impacts to surface or groundwater and/or bank instability (applicable to hydropower subprojects)	sediment control measures) to minimize soil erosion and identify and protect receiving water courses and bodies; • Scheduling to avoid heavy rainfall periods; and • Use mulch, grasses or compacted soil to stabilize exposed areas promptly. • Minimise cleared areas. • Avoid clearing sloped areas where practicable. • Include structures to prevent or reduce erosion of the natural stream banks and prevent erosion from waters released through the tailrace, for example, stone pitching and cement grouting (applicable to hydropower subprojects).	records of water quality monitoring (visual); revegetation.	throughout construction period.	(implementation) PIU (oversight)
Resource efficiency issues, including materials supply and extraction of raw materials.	The contractor(s) undertaking works shall at a minimum: • Estimate the quantities of raw materials needed for the minor civil works; • Source raw materials and construction materials locally and from licenced/permitted facilities only (where scale of quarry requires a environment permit); and • Use recycled or renewable building materials (e.g. timber) where possible.	Contract for local materials.	Prior to works commencing and then throughout construction as required	Developer / contractor (implementation) PIU (oversight)
Impacts on local communities from traffic obstruction, congestion, and traffic and road safety.	The contractor(s) undertaking works shall implement the following at a minimum: • Construction and establishment of haul roads shall be kept to a minimum; • Communicate traffic management plans – including traffic volumes, schedules, road closures and community safety measures – to project stakeholders and local communities. • Minimise the extent of traffic and construction impacts on adjacent villages and other residential areas where possible; and • Implement dust suppression measures. • Use appropriate traffic control signs (Stop/Go) to direct traffic held by signallers	Traffic management in the Contractor(s) OHS Plan; traffic control measures implemented; signage and barriers installed as required; Project GRM	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Damage to cultural heritage.	The contractor(s) shall have a Chance Finds Procedure in place prior to any physical works beginning. Refer to example provided as Annex 9 of the NEAT ESMF.	Chance-Finds Procedure in place.	Prior to works commencing and then maintained throughout construction.	Developer / contractor (implementation) PIU (oversight)

Land and/or water pollution from waste generated by demolition debris, construction materials, and/or workers (solid, hazardous, and wastewater)	The contractor(s) undertaking works shall:
	• Manage waste according to the following hierarchy:
	  • Avoid – avoid generation of waste (e.g., purchase products with no packaging materials)
	  • Reduce – reduce generation of waste (e.g., purchase product in bulk to reduce packaging materials)
	  • Reuse – reuse waste products (e.g., reuse packaging materials)
	  • Recycle – recycle waste products (e.g., recycle packaging materials)
	• identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.
	The measures should be in compliance with GIIP and PNG regulations and included in a waste management section in the C-ESMP.
		Contractor ESMP; sanitation facilities maintained onsite; waste and recycling records; worker training records; specific procedures for hazardous waste	Weekly inspections throughout construction period.	Developer / contractor (implementation)
				
				PIU (oversight)

Land and/or water pollution from use and storage of hazardous substances e.g. minor spills from fuel, oils, lubricants.	The contractor(s) undertaking works shall implement the following at a minimum in accordance with relevant PNG laws and GIIP such as the IFC EHS Guideline: Hazardous Materials Management: • Using impervious surfaces for refuelling areas and other fluid transfer areas; • Ensure that refuelling and maintenance facilities are not located, or that activities do not take place, within 30 m of a watercourse, or in ecologically sensitive areas. If a 30m limit is impracticable then a lesser limit may be	Secured storage areas and secondary containment; spill kit and worker training records; records of safety briefings; vehicle and plant	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	adopted provided approval is obtained. On no account shall the limit be less than 10 m; • Providing adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids. If the secondary containment used is bunding, then the area should also be lined and covered; • Ensure that vehicles and plant are not stored within 30 m of a watercourse, or in ecologically sensitive areas, overnight or when not in use; • Regular checks for leaking oil or fuel from machinery undertaken. Any leaks are promptly repaired and/or parts replaced within two days as part of maintenance of vehicles and equipment; • Training workers on the correct transfer and handling of fuels and chemicals and the response to spills; and • Spill kit, appropriate to the hazardous materials being used, to be kept on-site and workers to be trained in its deployment.	maintenance records.		
Loss of vegetation cover / trees	• Minimise area to be cleared. • Store topsoil from excavated area for vegetation. planting/reinstatement at the end of construction. • Only cut trees and remove vegetation in areas specified in the design. • Keep the area of vegetation removal minimal. Avoid loading the pipes, timbers, construction tools on vegetated areas. Place them on barren soil. • Restore vegetation cover on barren soil at the end of construction. • Refill excavated areas and cover with top soil for vegetation cover to regenerate.	Revegetation.	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)
Spread of weeds and pests	• Ensure machinery brought to site is clean (i.e., free of soil and plant material) and is cleaned before it is moved to a new area.	Wash-down records	Prior to transport of machinery	Developer / contractor (implementation)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
				PIU (oversight)
Damage to cultural heritage.	The contractor(s) shall have a Chance Finds Procedure in place prior to any physical works beginning. Refer to example provided as Annex 9 of the NEAT ESMF.	Chance-Finds Procedure in place.	Prior to works commencing and then maintained throughout construction.	Developer / contractor (implementation) PIU (oversight)
Disturbance of UXO results in OHS and community safety risks	Discuss UXO potential with community and have the site cleared prior to ground disturbance activities if warranted. Should a UXO be discovered one works have commenced, the contractor is to immediately cordon off the area, arrange the evacuation of nearby residences and inform the police of the find. All UXO finds are reported to the police who arrange the pickup, transport, storage and ultimate disposal of the finds.	Records of community consultation regarding UXO potential, UXO clearance and disposal	Prior to works commencing and then throughout construction.	Developer / contractor (implementation) PIU (oversight)
Land, Property Damages/Compensation	Temporary land required during construction period is secured through appropriate agreements with landholders; agreements stipulate decommissioning and rehabilitation requirements	Land agreements	Once off	Developer / contractor (implementation)
	Monitor any property damage related issues through the project GRM	GRM	Weekly inspections throughout construction period.	PIU (oversight
Occupational Health and Safety (OHS) risks for workers.	The contractor(s) undertaking works shall comply with all national and good practice regulations and GIIP regarding workers' safety, such as OHS section of the IFC EHS Guidelines on Construction and Decommissioning, and implement the following at a minimum: • Complete different levels of risk assessment, i.e. from whole Job Safety Analysis down to the personal level, to identify any potential hazards, rank the risks, and identify ways to eliminate, control or minimize the hazards. • Appoint a health and safety officer at site, who will have the authority to issue directives for the purpose of maintaining the health and safety of all	C-ESMP; workers allocated and wearing PPE; first aid kits in vehicles and at work sites; worker training records; complaints record; accident/ incidents register.	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	personnel authorized to enter and or work on the site. • Prepare and implement a simple action plan to cope with risk and emergency (e.g., fire, storm surge, cyclone, COVID-19 outbreak). • Have or receive minimum required training on occupational safety regulations and use of PPE. • Undertake training of staff to meet standards for the proper operation and use of equipment. • Training of workers in lifting and materials handling techniques in, including the placement of weight limits above which mechanical assists or two-person lifts are necessary. • Training and use of temporary fall prevention devices, such as rails or other barriers, when working at heights. • Use of control zones and safety monitoring systems to warn workers of their proximity to fall hazard zones, as well as securing, marking, and labelling covers for openings in floors, roofs, or walking surfaces. • Implementing good house-keeping practices, such as the sorting and placing loose construction materials or demolition debris in established areas away from foot paths. • Locating electrical cords and ropes in common areas and marked corridors. • Planning and segregating the location of vehicle traffic, machine operation, and walking areas, and controlling vehicle traffic through the use of one-way traffic routes, establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic. • Ensuring moving equipment is outfitted with audible back-up alarms. • Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as handrails and toe boards to prevent materials from being dislodged.			

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	• Providing PPE and other safety measures as appropriate during works such as safety glasses with side shields, face shields, hard hats, hi-vis vests and safety shoes with non-slip soles, first aid kits, restricted access zones, warning signs, overhead protection against falling debris; • Preparing detailed safety requirements for working on or in close proximity to power lines (or follow existing PPL procedure if adequate). • Preparing detailed mitigations to prevent and/or minimise exposure to electro-magnetic fields (or follow existing PPL procedure if adequate). • Preparing detailed mitigations relating to tree felling (or follow existing PPL procedure if adequate). • Providing project workers with accessible means to raise workplace concerns (as per requirements in the NEAT LMP).			
Health and safety risks for community from civil works.	The contractor(s) undertaking works shall implement the following at a minimum: • Develop and follow C-ESMP that is compliant with the ESMF and World Bank Environment and Health and Safety Guidelines (EHSGs) and which includes health and safety measures for the community. • Comply with all national and good practice regulations regarding workers' safety and the Project's LMP • Use of barriers to prevent unauthorised access to worksites. • Implement good house-keeping practices to eliminate the hazard where possible, such as the sorting and placing loose construction materials or demolition debris in established areas away from foot paths. • Ensure moving equipment is outfitted with audible back-up alarms. • Provide safe access routes and other safety measures as appropriate during works such first aid kits, restricted access zones, warning signs, covering openings to small confined spaces, overhead protection against falling debris and barricaded exclusion areas for drop zones (e.g. when working at heights), lighting system to protect community against construction risks;	C-ESMP Plan which includes community health and safety Monthly progress reports GRM	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	• Communicate risks and community safety mitigation measures to project stakeholders and communities; and • Have the grievance redress mechanism (GRM) developed and operational in accordance with the SEP.			
Increase in sexual exploitation and abuse/ harassment (SEA/H) related to project workforce	The Contractor(s) should at a minimum: • Comply with all relevant national laws and legislations. • Include SEA/H requirements in the C-ESMP including aspects relating to preventing GBV and SEA/H and zero tolerance for these behaviours • Ensure that workers are well briefed on the GBV and SEA/H requirements in the C-ESMP. • Have separate, safe and easily accessible facilities for women and men working on the site. • Visibly display signs around the project site (if applicable) that signal to workers and the community that the project site is an area where SEA/SH is prohibited. • As appropriate, ensure public spaces around the project grounds are well-lit. Refer to the LMP and SEA/SH Action Plan for further mitigation measures.	C-ESMP which includes SEA/H requirements; Code of Conduct; worker training records; complaints record; GRM	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)
Labour and working conditions are not met.	Implement measures from the LMP, including: • Prohibiting child labour or forced labour • Providing a Worker GRM • Providing clear terms and conditions of employment • Managing community workers	Records of workers by age; complaints record; Worker GRM	Weekly inspections throughout construction period.	Developer / contractor (implementation) PIU (oversight)
Employment of Local People Inequitable provision of	Include information about employment opportunities in community consultations and utilise community leadership (including women leaders) in ensuring the equitable distribution of opportunities amongst community.	Consultation records/reports	Monthly throughout construction	Developer / contractor (implementation)

Renovation / Construction Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
labour leads to community unrest			period	PIU (oversight)
	Actively promote equal opportunity for women to secure employment.	Employment records - % of women employed/roles	Monthly throughout construction period	
Poor communication and/or grievances associated with the project are not properly identified and managed leading to community unrest	Community Liaison Plan developed and implemented to ensure inclusive consultation with key stakeholders during construction.	Approved Plan	Once-off	Developer / contractor (implementation) PIU (oversight)
	Conduct inclusive consultation with the government and community stakeholders at least monthly.	Consultation records	Monthly	
	Establish grievance redress mechanism with clear roles and responsibilities (contractor and community), lodgement mechanism, register, resolution process and community feedback process in accordance with Implementing Entity project grievance redress mechanism.	Grievance register	Once-off	
Potential emergencies include hazardous materials spills, fire and civil unrest.	C-ESMP outlines emergency response procedures including key contacts.	C-ESMP	Once -off	Developer / contractor (implementation) PIU (oversight)
	Ensure appropriate responses are provided for each situation. In the event of civil unrest contact Police and District Administration.	Incident record form	As required	

Operations				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Health and safety risks to worker during maintenance	Prepare and implement H&S plan for maintenance activities.	Records of JHAs, audits, incidents	6-monthly	Developer (implementation) PIU (oversight)
Soil and water contamination from oil spill/leaks, chemical	Prepare and implement H&S plan for maintenance activities.	Records of JHAs, audits, incidents	6-monthly	Developer (implementation)

Operations				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
				PIU (oversight)
Contamination of land/water from inappropriate disposal of used solar panels and batteries	Include waste management in ESMP, including processes for the collection, storage, and disposal of solar panels and batteries, in alignment with Annex 2 of the PNG Off-Grid Regulation for Small Power System.	Waste records	6-monthly	Developer (implementation) PIU (oversight)
	Investigate options for setting up a mechanism to collect used batteries and solar panels and centrally arrange for adequate disposal as part of the wider Project. This will also consider the management of waste beyond the developer's operation pf the micro-grids (i.e., if the micro-grids are handed to the community to self-operate).			PIU (as part of TA activity)

ANNEX 11 ENVIRONMENTAL AND SOCIAL CODE OF PRACTICE – OFF-GRID SOLAR

This Code of Environmental and Social Practice (ESCoP) has been developed to manage the typical environmental and social (E&S) risks associated with subprojects to be implemented as part of subcomponent 2.2 of the National Energy Access Transformation Project (NEAT). The proponent for Component 2 is the National Energy Authority (NEA).

All third parties participating in the RBF scheme under the Project are required to prepare a management procedure that complies with this ESCoP and this will be specified in agreements.

The ESCoP provides the guidance for on the potential environmental and social impacts, mitigation measures, and responsibilities during the planning / design, construction and operational stages.

This ESCoP should be read in conjunction with the following Project documents:

- Environmental and Social Management Framework (ESMF)
- Stakeholder Engagement Plan (SEP)

Scope

This ESCoP applies to subcomponent 2.2 of the Project, which is the results-based financing (RBF) scheme to support off-grid solar companies, including suppliers, distributors, and/ or retailers to extend their current supply chains into deeper rural areas and provide standalone solar systems (SHS) solutions for population beyond the reach of grid or micro-grid supply.

Monitoring and Compliance

The ESCoP will be followed by third parties participating the grant administrator and compliance monitored by grant administrator, NEA and the World Bank E&S Risk Management Team.

Reporting

Quarterly reports will need to be prepared by the PIU E&S Specialists and provided to the World Bank. The semi-annual environmental and social monitoring reports to the World Bank will include: (i) the status of the implementation of mitigation measures; (ii) the findings of monitoring programs; (iii) stakeholder engagement activities; (iv) grievances log; and (v) any incidents/accidents with adverse impacts and the actions taken to address it and prevent reoccurrence.

Incidents/accidents must be initially reported as soon as practicable.

Monthly reports shall be prepared by the third-party participants (s) and submitted to NEA for review. The reports will include information on: (i) the implementation of C-ESMP; (ii) any health and safety or environmental incidents; and (iii) information on any grievances received and how they were resolved.

Screening Stage				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Third parties approved for participation in the scheme that do not have the expertise or expertise to manage the potential E&S issues associated with the project.	E&S screening process undertaken to screen potential participants as outlined in the ESMF and to be detailed in the Grant Manual.	Results of screening	During project planning/design	Grant applicant (implementation); Grant administer (oversight)

Installation of SHS				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Occupational Health and Safety (OHS) risks for workers.	The company installing the SHS shall comply with all national and good practice regulations and GIIP regarding workers' safety, such as OHS section of the IFC EHS Guidelines on Construction and Decommissioning, and implement the following at a minimum: • Complete different levels of risk assessment, i.e. from whole Job Safety Analysis down to the personal level, to identify any potential hazards, rank the risks, and identify ways to eliminate, control or minimize the hazards. • Have or receive minimum required training on occupational safety regulations and use of PPE. • Training of workers in lifting and materials handling techniques in, including the placement of weight limits above which mechanical assists or two-person lifts are necessary. • Training and use of temporary fall prevention devices, such as rails or other barriers, when working at heights. • Providing PPE and other safety measures as appropriate during works such as safety glasses with side shields, face shields, hard hats, hi-vis vests and safety shoes with non-slip soles, first aid kits, restricted access zones, warning signs, overhead protection against falling debris; • Preparing detailed safety requirements for working on or in close proximity	C-ESMP which includes OHS Workers allocated and wearing PPE; first aid kits in vehicles and at work sites; worker training records; complaints record; accident/ incidents register.	Weekly inspections throughout construction period.	Contractor(s) / Grant applicant (implementation) Grant administer (oversight)

Installation of SHS				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	to power lines. • Preparing detailed mitigations relating to tree felling. • Ensuring all personnel are appropriately licenced to carry out the work they have been tasked.			
Community health and safety	The company installing the SHS should develop and follow C-ESMP that is compliant with the ESMF and World Bank Environment and Health and Safety Guidelines (EHSGs) and which includes health and safety measures for the community, and implement the following at a minimum: • Communicate risks and community safety mitigation measures to project stakeholders and communities; and • Have the grievance redress mechanism (GRM) developed and operational in accordance with the SEP.	GRM in place	Grievances	Contractor(s) / Grant applicant (implementation) Grant administer (oversight)
Increase in sexual exploitation and abuse/ harassment (SEA/H) related to project workforce	The company installing the SHS should at a minimum: • Comply with all relevant national laws and legislations. • Include SEA/H requirements in the C-ESMP including aspects relating to preventing GBV and SEA/H and zero tolerance for these behaviours. • Ensure that workers are well briefed on the GBV and SEA/H requirements in the C-ESMP. • Provide separate facilities for female and male workers. Refer to the LMP for further mitigation measures.	C-ESMP which includes SEA/H requirements; Code of Conduct; worker training records; complaints record.	Weekly inspections throughout construction period.	Contractor(s) / Grant applicant (implementation) Grant administer (oversight)
Workers are underaged.	Child labour (including community labour / volunteers) or forced labour is absolutely prohibited in the project.	Records of workers by age; complaints record.	Weekly inspections throughout construction period.	Contractor(s) / Grant applicant (implementation) Grant administer (oversight)
Land and/or water pollution from waste generated by,	The company installing the SHS shall: • Manage waste according to the following hierarchy:	Contractor ESMP; sanitation facilities	Weekly inspections	Contractor(s) / Grant applicant

Installation of SHS				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
construction materials, and/or workers (solid, hazardous, and wastewater)	• Avoid – avoid generation of waste (e.g., purchase products with no packaging materials) • Reduce – reduce generation of waste (e.g., purchase product in bulk to reduce packaging materials) • Reuse – reuse waste products (e.g., reuse packaging materials) • Recycle – recycle waste products (e.g., recycle packaging materials) • identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste. The measures should be in compliance with GIIP and PNG regulations and included in a waste management section in the C-ESMP.	maintained onsite; waste and recycling records; worker training records; specific procedures for hazardous waste	throughout construction period.	(implementation) Grant administer (oversight)
Community safety risks associated with the supply and use of electricity in communities that are not familiar with electrical safety.	• The battery and other equipment of the SHS should be placed in location out of reach and inaccessible to young children. • Warning signs must be visible on the housing for each SHS in in Tok Pisin or Hiri Motu or English (language to be chosen by household), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion. • After installing the SHS, the company must provide training to household members on the proper use and care of the system, and on safety measures. • The training must include adequate warnings of the risks of tampering with the SHS, including electric shock, fire, and explosion. • At least one adult male and one adult female in the household should be trained. • This can be done as group training on the operation and maintenance of SHS, after work in a village or group of villages is completed. • The company must place a safety poster close to the battery for each SHS.	Training records, warning signs in place	As part of verification prior to payment	Contractor(s) / Grant applicant (implementation) Grant administer (oversight)

Installation of SHS				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
	• The company must provide an instructions booklet in Tok Pisin or Hiri Motu or English (language to be chosen by household) for each SHS. • Extra copies of the instruction booklet and safety poster should be provided to the a community leader, as replacements for any lost or damaged booklets or posters.			

Operations				
Risks and Impacts	**Mitigation Measures**	**Monitoring - Verification**	**Monitoring - Frequency**	**Responsibilities**
Contamination of land/water from inappropriate disposal of used solar panels and batteries	Include waste management in ESMP, including processes for the collection, storage, and disposal of solar panels and batteries.	Waste records	6-monthly	Grant applicants Grant administer (oversight)
	Investigate options for setting up a mechanism to collect used batteries and solar panels and centrally arrange for adequate disposal as part of the wider Project. This will also consider the management of waste beyond the supplier's operations (i.e., if the supplier ceases operations).			PIU (as part of TA activity)
Labour and working condition risk within the PV panel supply chain concerning polysilicon suppliers.	Grant applicants to obtain declarations and qualification requirements regarding forced labour from their suppliers of solar panels and solar components.	Records of declarations	Upon contract award	Grant applicants

ANNEX 12A SUBPROJECT-SPECIFIC ESMP OUTLINE - GRID REHABILITATION, MODERNIZATION & EXPANSION

This is an outline for a subproject-specific ESMP for a subproject related to grid rehabilitation, modernisation and expansion. The EMSP will used to support an application for environment permit under the *Environment Act 2000* and to meet the requirements of the World Bank for 'no objection'. The ESMP will build on the completed E&S screening form and feedback received from the PIU.

Executive Summary

1. Introduction

Include objectives of the ESMP.

2. Project Description

- Project objective / rationale.
- Project location, including maps, photos and drawings.
- Detailed description of the project design and any standards or guidelines that it meets.
- Overview of the activities that will occur during project planning and design, demolition, construction, commissioning and operations.
- Details of material and labour requirements for project construction.
- Project logistics, including any access tracks, etc., required.
- Details of waste types (including hazardous waste) likely to be generated and how they will be managed.

3. Environmental and Social Setting

Description of the biophysical and social environment of the proposed project, including:

- Social setting: Descriptions of the villages and other communities in the vicinity of the project, including customary landowners/culture, land tenure arrangements, vulnerable groups; culturally important sites in the vicinity of the project.
- Biophysical setting: Description of landscape, natural habitat, and key flora and fauna in the area, including any protected species and protected areas (e.g., wildlife management areas).

4. Legal and Other Requirements

Overview of WB requirements and PNG regulations that apply to the subproject.

5. Stakeholder consultation

Details of the stakeholder consultation undertaken during project planning (when it was undertaken, who was consulted with, how were they consulted, and what feedback was received), and the proposed future stakeholder consultation.

6. Potential Impacts and Mitigation Measures

Analysis of the potential environment and social impacts of the project during construction and operation and how they are proposed to be mitigated. Impacts may include (but not limited to):

- Land access/acquisition and resettlement requirements.
- Damage to sites of cultural value.
- Sourcing of construction materials and aggregate contributing to unsustainable extraction of resources.
- Generation of hazardous wastes, including from demolition of old infrastructure.
- Typical OHS construction risks and OHS risks related to working at with live power lines and magnetic fields.
- Asset and livelihood impacts associated with land requirements
- Community health and safety risks associated with construction and labour influx (i.e. antisocial behaviour, transmissible disease and sexual exploitation and abuse and sexual harassment).
- Vandalism and/or tribal fighting leading to damage of infrastructure.
- Community safety risks associated with the supply and use of electricity in communities that are not familiar with electrical safety.
- GBV/SEA/SH risks.

7. Monitoring and Reporting

Identifies monitoring objectives and specifies the type of monitoring, with linkages to the identified impacts. Outlines the reporting requirements.

8. Emergency Response and Incident Management

This section will include the process to follow in the event of various types of incidents (e.g., fire, large spill, electrocution, other injury, motor vehicle incident, etc). It will include:

- Locations of first aid kits, spill kits, eye wash facilities, etc.
- Contact details for medical and other emergency assistance.
- Initial notification requirements, include reporting to the PIU.
- Investigation and reporting requirements.

9. Grievance Redress Mechanism

Details of the Worker Grievance Redress Mechanism (GRM) (that aligns with the requirements in the Labour Management Procedure) and any points of contact within the contractor's organization that will tie into the overall Project GRM. This will also include processes for managing grievances related to GBV/SEA/SH.

10. Capacity Development and Training

Provides recommendations on the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

11. Implementation Responsibilities, Schedule and Cost Estimates

Details of responsibilities for implementing the ESMP.

Provides an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and the capital and recurrent cost estimates and sources of funds for implementing the ESMP.

Annexes

Evidence of consultations and consent

Land Due Diligence and/or Resettlement Plan

ANNEX 12B SUBPROJECT-SPECIFIC ESMP OUTLINE - MICRO-GRID

This is an outline for a subproject-specific ESMP for a micro-grid and the completed document should be a included as part of the detailed design prepared by the developer. If the EMSP will also be used to support an application for environment permit - the proposed content and format of the ESMP should be discussed with CEPA to confirm their expectations. The ESMP will build on the completed E&S screening form in the pre-feasibility study and feedback received from the PIU. The ESMP must also contain the environmental and social information required under the PNG Off-Grid Regulation for Small Power System, Annex 2 Technical Standards and Guidelines, 'Preliminary Studies'.

1. Executive Summary

2. Introduction

Include objectives of the ESMP.

3. Project Description

- Basic information on the target community(s) and the developer
- Project location, including maps, photos and drawings.
- Detailed description of the project design and any standards or guidelines that it meets.
- Overview of the activities that will occur during project planning and design, construction, commissioning, operations and decommissioning.
- Details of material and labour requirements for project construction.
- Details of waste types likely to be generated and how they will be managed.

4. Environmental and Social Setting

Description of the biophysical and social environment of the proposed project, including:

- Social setting: Descriptions of the villages and other communities in the vicinity of the project, including customary landowners/culture, village governance arrangements, land tenure arrangements, vulnerable groups; community/public infrastructure and services (i.e. roads, schools, health facilities); local economies; culturally important sites in the vicinity of the project.
- Biophysical setting: Description of landscape, natural habitat, and key flora and fauna in the area, including any protected species and protected areas (e.g., wildlife management areas).
- In the case of hydropower micro-grids, description of the watercourse/s where the infrastructure will be located, the biota that inhabit the watercourse/s, and downstream water uses and users.

5. Legal and Other Requirements

Overview of WB requirements and PNG regulations that apply to the subproject.

6. Stakeholder consultation

Details of the stakeholder consultation undertaken during project planning (when it was undertaken, who was consulted with, how were they consulted, and what feedback was received), and the proposed future stakeholder consultation.

7. Potential Impacts and Mitigation Measures

Analysis of the potential environment and social impacts of the project during construction and operation and how they are proposed to be mitigated. Impacts may include (but not limited to):

- Land access/acquisition and resettlement requirements.
- Damage to sites of cultural value.
- Sourcing of construction materials and aggregate contributing to unsustainable extraction of resources.
- Typical OHS construction risks and OHS risks related to working at with live power lines and magnetic fields.
- Asset and livelihood impacts associated with land requirements
- Community health and safety risks associated with construction and labour influx (i.e. antisocial behaviour, transmissible disease and sexual exploitation and abuse and sexual harassment).
- Labour and working condition risk within the PV panel supply chain concerning polysilicon suppliers.
- Hazardous waste generation from battery and used solar PVs.
- Variable governance and capacity within community, which can affect the quality of implementation of the micro-grid and the level of benefits achieved.
- Vandalism and/or tribal fighting leading to damage of micro-grid infrastructure.
- Social tensions, conflict and civil unrest between groups/ communities resulting from real or perceived inequities concerning selection of target sites/communities for micro-grids.
- Fire and/or electrocution risk if installations are not done by qualified personnel using suitable materials.
- Community safety risks associated with the supply and use of electricity in communities that are not familiar with electrical safety.
- GBV/SEA/SH risks.

8. Monitoring and Reporting

Identifies monitoring objectives and specifies the type of monitoring, with linkages to the identified impacts. Outlines the reporting requirements.

9. Emergency Response and Incident Management

This section will include the process to follow in the event of various types of incidents (e.g., fire, large spill, electrocution, other injury, motor vehicle incident, etc). It will include:

- Locations of first aid kits, spill kits, eye wash facilities, etc.
- Contact details for medical and other emergency assistance.
- Initial notification requirements, include reporting to the PIU.

- Investigation and reporting requirements.

10. Grievance Redress Mechanism

Details of the Worker Grievance Redress Mechanism (GRM) (that aligns with the requirements in the Labour Management Procedure) and any points of contact within the contractor's organization that will tie into the overall Project GRM. This will also include processes for managing grievances related to GBV/SEA/SH.

11. Capacity Development and Training

Provides recommendations on the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

12. Implementation Responsibilities, Schedule and Cost Estimates

Details of responsibilities for implementing the ESMP.

Provides an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and the capital and recurrent cost estimates and sources of funds for implementing the ESMP.

Annexes

Evidence of consultations and consent

Land Due Diligence and/or Resettlement Plan

ANNEX 13 C-ESMP INDICATIVE OUTLINE

This is an indicative outline for a Contractor ESMP (C-ESMP) to be prepared by the contractors engaged to support the National Energy Access Transformation Project (NEAT). Contractors may use their own C-ESMP format, or a modified version of this template.

Introduction

Include objectives of the C-ESMP.

Project Description

- Project location, including maps, photos and drawings.
- Descriptions of the villages and other communities in the vicinity of the project.
- Detailed description of contractor's scope of work.
- Overview of the activities that will occur.
- Details of material and labour requirements.
- Details of any accommodation requirements for the contractor workforce.
- Details of aggregate requirements and where these will be sourced, including volumes from each supplier.

Legal and Other Requirements

Overview of WB requirements, PNG regulations and any PPL or NEA internal procedures that apply to the contractor's scope.

Stakeholder Consultation

Details of any planned stakeholder consultation as part of the contractor's scope. For example, keeping community informed of construction schedule, confirming details of any planned community events that need to be considered (worked around), community health and safety, grievance redress mechanism, potential job opportunities for local people, etc.

Waste Management

Inventory of waste types likely to be generated and how they will be managed, including any specific storage and handling requirements.

Waste should be managed according to the following hierarchy:

- Avoid – avoid generation of waste (e.g., purchase products with no packaging materials)
- Reduce – reduce generation of waste (e.g., purchase product in bulk to reduce packaging materials)
- Reuse – reuse waste products (e.g., reuse packaging materials)
- Recycle – recycle waste products (e.g., recycle packaging materials)

Occupational Health and Safety

A completed risk assessment that identifies the occupational risks/hazards associated with the contractor's scope and explains how these will be managed. The mitigations may refer to existing contractor OHS systems (if adequate) and these can be appended to the C-ESMP. Risk assessment to include reference to mitigations in the COVID-19 Protocol.

Community Health and Safety

A completed risk assessment that identifies the community health and safety risk associated with the contractor's scope and explains how these will be managed. Risk assessment to specifically address risks associated with workers being accommodated within the community (if applicable).

Potential Impacts and Mitigation Measures

Table listing the potential environment and social impacts of the contractor's scope of work and how they are proposed to be mitigated. These will come from the applicable E&S Management and Monitoring Table and/or Environmental and Social Management Plan and/or Environmental and Social Impact Assessment. Table to reference or include cultural heritage chance find procedures.

Risks and Impacts	Mitigation Measures	Responsibilities	Timing	Monitoring

Inspections and Monitoring

This section lists the inspections and monitoring to be undertaken, responsibilities for undertaking the inspection/monitoring and how they will be recorded. This would include, but not be limited to, daily site walk-arounds, weekly site inspections, checks for leaks, etc.

Training

This section lists the training to be undertaken, responsibilities for undertaking the training and how it will be recorded. This would include, but not be limited to, site inductions, toolbox talks, job/task-specific training, first-aid training, GBV/SEAH awareness training, etc.

Emergency Response and Incident Management

This section will include the process to follow in the event of various types of incidents (e.g., fire, large spill, electrocution, other injury, motor vehicle incident, etc). It will include:

- Locations of first aid kits, spill kits, eye wash facilities, etc.
- Contact details for medical and other emergency assistance.
- Initial notification requirements, include reporting to the PIU.
- Investigation and reporting requirements.

Grievance Redress Mechanism

Details of the contractor's Worker Grievance Redress Mechanism (GRM) (that aligns with the requirements in the Labour Management Procedure) and any points of contact within the contractor's organization that will tie into the overall Project GRM.

Responsibilities

Details of responsibilities for implementing the C-ESMP.

ANNEX 14 INDICATIVE TOR FOR E&S ASSESSMENT FOR SMALL HYDROPOWER PLANT

Preamble

This indicative Terms of Reference (ToR) has been prepared to support the National Energy Access Transformation Project (NEAT). Component 3 of the NEAT includes Technical Assistance activities for the design of potential new small hydropower plants (HPPs), including detailed environmental and social assessment. Funding for constructing and operating the small HPPs will not be provided by NEAT. This aspect of the NEAT is being implemented by PNG Power Limited (PPL).

This indicative ToR is for the detailed environmental and social assessment and was prepared during the preparation stage of the NEAT. Once further details of the potential new small HPPs are known, this ToR should be reviewed and revised (if required), with final ToRs produced for each HPP to be investigated.

Terms of Reference

Small HPPs have potential to impact the biophysical and social environment. Typical impacts from HPPs include:

- Dam safety risks
- Land inundation and associated loss of forest and gardens
- Changes to aquatic habitat and species
- Changes to downstream water availability and quality
- Land and resettlement requirements and associated impacts
- Damage to sites of cultural value
- Construction-related impacts such as those from clearing, labour-influx, noise, dust, erosion/sedimentation, etc.

The consultant shall undertake an Environmental and Social Impact Assessment (ESIA) and prepare a draft ESIA report that addresses the potential impacts associated with the proposed small HPP (and any associated facilities), which include, but are not limited to, those listed above. The ESIA will be undertaken in alignment with the requirements of the World Bank Environmental and Social Framework (ESF) and relevant Environment and Social Standards (ESSs), including Annex A of ESS4 on Safety of Dams (if applicable). If the scale of the proposed small HHP is such that it would require an environment permit under the PNG *Environment Act 2000* (i.e., it meets the definition of a Level 2 or Level 3 prescribed activity under Environment (Prescribed Activities) Regulation 2002), then the ESIA should also contain the information required to support an environment permit application.

The ESIA shall include a Land Due Diligence and/or preliminary resettlement plans which clearly outline the requirements for land acquisition and resettlement in accordance with the project's LARF and ESS5.

The ESIA shall document stakeholder engagement activities conducted during the feasibility, how feedback was addressed, and a plan for future engagement in accordance with the project's SEP, IPPF and WB ESS7 and ESS10.

If there is insufficient information at the time of undertaking the ESIA to prepare an ESIA that includes all of the requirements of the WB ESF, WB ESS and environment permit application (if applicable), then the consultant shall prepare a draft ESIA and a forward work plan that outlines the information and assessments required in order to finalise the ESIA to meet all requirements of the WB ESF, WB ESS and

environment permit application (if applicable). The ESIA would be finalised if/when the small HPP is developed, which is outside the scope of NEAT.

Indicative ESIA Outline

Executive summary

Introduction / background

- Description of the project proponent.
- Objectives of the ESIA.

Project description

- Project rationale and alternatives considered.
- Project location, including maps, photos and drawings.
- Detailed description of the project design and any standards or guidelines that it meets.
- Overview of the activities that will occur during project planning and design, construction, commissioning, operations and decommissioning.
- Details of material and labour requirements for project construction.
- Details of waste types likely to be generated and how they will be managed.

Legal, regulatory and policy framework

- PNG requirements.
- Work Bank requirements.

Environmental and social baseline

- Social setting: Descriptions of the villages and other communities in the vicinity of the project (including they meet the definition of IPs), including customary landowners/culture, village governance arrangements, land tenure arrangements, vulnerable groups; community/public infrastructure and services (i.e., roads, schools, health facilities); local economies; culturally important sites in the vicinity of the project.
- Biophysical setting: Description of landscape, natural habitat, and key flora and fauna in the area, including any protected species and protected areas (e.g., wildlife management areas). Description of the watercourse/s where the infrastructure will be located, the biota that inhabit the watercourse/s, and downstream water uses and users.

Stakeholder engagement

- List of stakeholders and their interest in the project.
- Details of the stakeholder consultation undertaken during project planning (when it was undertaken, who was consulted with, how were they consulted, and what feedback was received), and the proposed future stakeholder consultation.

Environmental and social risks and potential impacts

- Description of the potential environment and social risks and impacts (including any risks and potential impacts on IPs) and how these will be managed.
- Risk/impact assessment/rating.
- Emergencies – impacts and mitigation.

Environmental and social management plan.

- Details of how the environmental and social risks and impacts will be managed, monitored and reported.
- Roles and responsibilities.