ADAPTATION FUND

CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Enhancing climate resilient water security in remote vulnerable region of New Ireland, Papua New Guinea

Country: Papua New Guinea

Thematic Focal Area: Water Resources

Type of Implementing Entity: Regional Implementing Entity

Implementing Entity: The Secretariat of the Pacific Regional Environment Programme

Executing Entities: Climate Change and Development Authority

Amount of Financing Requested: 3,469,287 (in U.S Dollars Equivalent)

Project Formulation Grant Request (available to NIEs only): Yes ☐ No ☒

Amount of Requested financing for PFG: (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: Yes ☒ No ☐

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: https://www.adaptation-fund.org/apply-funding/designated-authorities

Stage of Submission:

☒ This concept has been submitted before

☐ This is the first submission ever of the concept proposal

In case of a resubmission, please indicate the last submission date: 4/9/2026

Please note that concept note documents should not exceed 50 pages, including annexes.

Project/Programme Background and Context:

1.1 Brief introduction to PNG

As an archipelagic state, Papua New Guinea (PNG) is made up of four big islands and 600 small islands and atolls, constituting a total land area of 452,860 km^2 and spreading throughout 800,000 km^2 of ocean[1]. Endowed with rich natural resources, PNG has about 360,000 km^2 of forest area (78% of total land area), 5,152 km of coastline and 40,000 km^2 of coral reef. PNG has one of the most diverse reef systems in the world and an economic exclusive zone of 3.12 million km^2. PNG's population was estimated at 10 million people in 2021[2], more than 8% of whom are expected to live within one kilometre of coastal and island environments[3] and 21% within five kilometres[4]. PNG is a country of exceptional ethnic diversity with over 850 spoken languages. The indigenous population of PNG is one of the most heterogeneous in the world, comprising several thousand separate communities and tribal groups.

1.2 Socio-economic development context

PNG is represented by young populations with approximately 60% of PNG's population under the age of 25. However, access to education and employment is low, especially in remote and rural areas. While the overall literacy rate has increased between 2000 to 2015, the increase has been slow and concerning, from 57.3% and 63.4% respectively[5]. In terms of access to employment, it is reported that roughly 28.4% of youth (between 15 – 24 years of age) are unemployed nor participating in education or job training programs[6], resulting in low labor force participation. This has been identified as one of the drivers for law and order challenges[7]. Overall, PNG's population is highly dispersed and fragmented, with a limited level of urbanization, considerable gender disparities, high exposure to natural disasters, a severe degree of resource dependency, and inter-communal violence in some areas. Progress on human development has been slow, ranking the country 156th out of 191 countries in the Human Development Index in the Human Development Report 2021/2022[8].

PNG is one of the most ethnically diverse countries with a mix of patrilineal and matrilineal kinship social system. Population is widely sparse and remote, with 86% living in rural areas[9], relying on natural resources and agricultural livelihoods. Poverty remains persistent and prevalent with an estimation of 37.5% of the population living under the national poverty line in 2017, and proportion of employed populations below $1.90 purchasing power parity/day in 2022 was 24.4%[10]. Poverty, poor infrastructure, inaccessibility to basic services, corruption, safety, and security concerns, among other factors heighten the vulnerability of the local population[11]. To make ends meet, many households are resorting to coping measures such as spending their savings or receiving financial support from friends and family.

In terms of economic development, PNG is a resource-dependent, lower middle-income country. GDP per capita was estimated to be around USD 3,115 in 2022[12]. The economy is dominated by the capital-

[1] CCDA (2020). Papua New Guinea GCF Country Programme
[2] https://data.worldbank.org/indicator/SP.POP.TOTL?locations=PG (accessed 27 June 2023)
[3] GoPNG (2020). National Oceans Policy of Papua New Guinea 2020 - 2030
[4] Andrew et al., (2019). Coastal proximity of populations in 22 Pacific Island Countries and Territories. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6768456/
[5] https://pngnri.org/images/Publications/Spotlight_Vol_14_Issue_7.pdf
[6] International Labour Organization. Youth Labour Statistics. (2020).
[7] Melpa, J (2022). Youth unemployment in Papua New Guinea: Causes, effects, and wayforward. The nationa; research institute of Papua New Guinea.
[8] UNDP (2022). Human Development Report 2021-22: Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World. New York
[9] https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=PG (accessed 27 June 2023)
[10] https://www.adb.org/where-we-work/papua-new-guinea/poverty (accessed 30 January 2024)
[11] World Bank (2021). Climate Risk Country Profile, Papua New Guinea.
[12] https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=PG

intensive mineral and petroleum extractive sectors, while the agricultural sector employes majority of the labor force. In 2022, GDP grew by an estimated 3.2% as economic activity bounced back from the impact of COVID-19 pandemic[13], which saw a negative growth in 2020. The World Bank PNG Economic Update (2023) reports that PNG's fiscal deficit is estimated to have reduced from 6.8% of GDP in 2021 to 5.4% in 2022, reflecting the GoPNG's continued fiscal consolidation and work to safeguard macroeconomic stability[14]. Nevertheless, public debt remains high, accounting for 51% of GDP in 2022[15].

Gender Equality

Progress towards gender equality has been slow. Papua New Guinea has a value of Gender Inequality Index (GII) of 0.725, ranking the country 169th in the Gender Inequality Index in the Human Development Report 2021/2022[16]. The country ranks exceptionally low among global indicators on advancing gender equality and the elimination of violence against women and girls. Despite that women account for about half the population, the number of women in key leadership and decision-making roles remains very low as women face cultural and systemic obstacles to participating in political life. In the 2017–2022 parliamentary term, PNG had no women parliamentarians at all. The 2022 general election saw two women elected to the parliament out of 118 seats[17]. Representation of women at the lower level of the government, and their presence in senior management and executive appointments was also low. Other decision-making structures, including those in customary, religious and private spheres, are also dominated by men. With 85% of the population in PNG living in rural areas, and only 20% of the rural population having access to clean water[18], women are faced with excessive workloads, malnutrition, poor access to safe water and healthcare service, and gender-based violence[19]. At household level, women and girls of school going age are responsible for fetching water, cooking food, house-keeping, caring for children, the old and sick among other household chores. The limited access to sanitation and clean water particularly in rural areas, mainly effects women and young girls, as they have to carry out domestic duties including fetching water and also caring for children under challenging circumstances. Young girls based in rural areas of PNG, such as New Ireland Province, often sacrifice their study times in the evenings to go collect water from far distances as creeks nearby have dried up due to prolong droughts. The household responsibilities which include collection of water is among the main factors behind female students not doing well academically and also dropping out. Nationally, only 8% of women aged 15-49 years have completed secondary school[20].

It was reported that more than two thirds of women in PNG have experienced family violence, and in some parts of the country, 80% of men admitted they have been responsible for sexual violence against their partner[21]. To address this, PNG's Gender Equity and Social Inclusion (GESI) policy includes targets to increase participation of women within the public sector and the number of women in public service leadership positions[22]. Women are increasingly recognized as leaders and are developing skills to move into elected office and other formal positions of authority[23]. Despite this progress, such barriers

[13] https://www.adb.org/sites/default/files/publication/27788/png-2022.pdf
[14] World Bank (2023): Papua New Guinea Economic Update, March 2023: Unlocking the Economic Benefits of Gender Equality
[15] https://assets.kpmg.com/content/dam/kpmg/pg/pdf/insights/National_Budget_2022_KPMG.pdf
[16] UNDP (2022). Human Development Report 2021-22: Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World. New York
[17] https://www.eastasiaforum.org/2022/09/02/where-are-the-women-in-pngs-parliament/
[18] Willie, (2020). Water quality and sanitation in PNG. Accessed on 29 Jan 2025 from: https://mdfpng.com/water-quality-and-sanitation-in-papua-new-guinea/
[19] JICA. 2010. Country Gender Profile: Papua New Guinea
[20] National Statistics Office, (2019). Demographic and heath survey 2016-18. Accessed on 4 Feb 2025 from: Papua New Guinea Demographic and Health Survey 2016-18 [FR364] .
[21] https://www.hrw.org/report/2015/11/04/bashed/family-violence-papua-new-guinea
[22] Department of Personnel Management, 2011, Gender Equity and Social Policy, PNG.
[23] USAID, 2013, Women's Economic Participation in Papua New Guinea: Achieving APEC Priorities for Gender Equality.

as sociocultural attitudes of men (and women), low education attainment and limited access to financial resources continue to prevent women from playing a greater role in leadership and decision-making[24]. In the Water, Sanitation and Hygiene (WaSH)[25], women representation in the professional WaSH staff is low, accounting only 18% due to lack of information about the sector, societal gender norms, family obligation, and physical demands of certain WaSH activities.

Most women in PNG do not own property or land because of cultural, legal barriers, also limited involvement in decision making. Available data indicates that only 15% of women own land, which is a key asset in rural areas[26]. Additional, PNG has the highest gender gap in financial inclusion in the Pacific region, as women are 29% less likely to have access to formal financial services than men[27]. In this regard, women lack the financial means to cope with the climate change impacts such as droughts.

At the community level, women have less access to essential resources for disaster preparedness, mitigation and rehabilitation, while their workloads are comparatively higher than those of men. To make matters worse, men are more likely to migrate out of rural areas in search of work. Heavy workloads imposed on women often result in girls dropping out of school, reducing ability to gain technical expertise/knowledge in relation to cash cropping, or climate resilient practices[28,29].

From maintaining personal hygiene to childbirth, water is fundamental to the wellbeing of women. Within a community, women and girls bear the disproportionate effects of water scarcity and unsafe water conditions, such as exposing them to risk of violence, health problems, and limiting work and education. Lack of access to clean water could impact young girls of their adolescent years in terms of health and hygiene [30].

Environmental Context

PNG is predominantly mountainous, with large portions of its land area covered by tropical rainforest. PNG has a share of the third largest tropical forest area (together with West Papua Province of Indonesia) in the world after the Amazon and Congo basins and considered the most floristically diverse island in the world[31]. Land habitats span from extensive lowlands with tropical forests, savannas, grasslands, and freshwater swamps to montane tropical forests and alpine meadows. Customary landownership, accounting for 97% of land in PNG, is integral to PNG's 2.1 million hectares in its 59 protected areas that sustain livelihoods, help maintain culture, provide tourism opportunities, store carbon, and protect biodiversity[32].

1.3 PNG Climate Context

PNG has a monsoonal climate with high temperatures and humidity throughout the year and two distinct seasons: a wet season (November/December to March/April) and a dry season (May/June to September/October). The mean temperatures range between 26°C and 28°C, with maximum temperatures between 30°C to 32°C year-round. PNG has a recorded average rainfall of 250 – 350

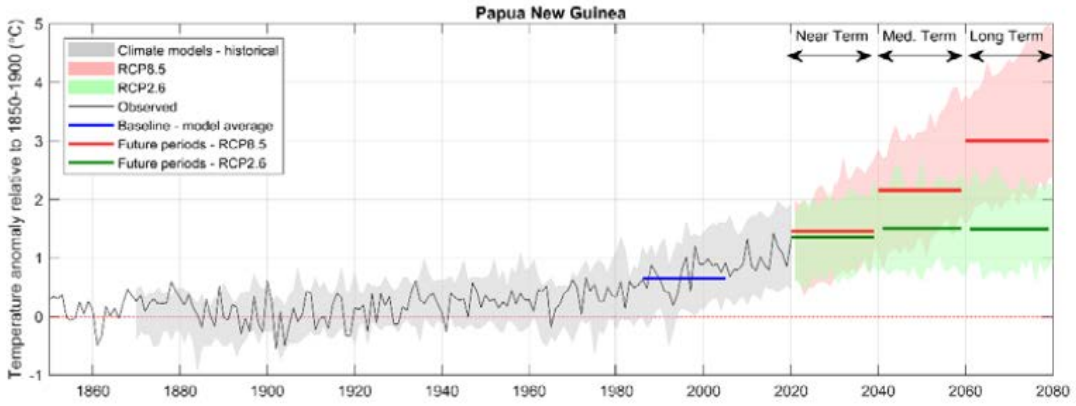
[24] SPC, 2012, Stock-take of the Gender Mainstreaming Capacity of Pacific Island Governments, PNG.
[25] UNICEF (2022). Understanding Barriers to Gender Equality in the WASH Sector in Papua New Guinea
[26] World Bank, (2024). Land ownership by women. Accessed on 29 Jan 2025 from: Additionally, only 15% of women own Women do not own land or resources, and they do not have the financial means to purchase agricultural processing equipment.
[27] UNCDF, (2020). Five Reasons Women in Solomon Islands and Papua New Guinea are Financially Excluded
[28] Lambrou Y, Nelson S. Farmers in a Changing Climate: Food Security in Andhra Pradesh, India. Rome: FAO; 2010.
[29] Alber G. Gender, cities and climate change: thematic report prepared for cities and climate change global report on human settlements, 2011.
[30] https://greennetwork.asia/news/empowering-women-in-papua-new-guinea-for-clean-water-access/
[31] Cámara-Leret et al. (2020) New Guinea has the world's richest island flora. Nature 584, 579–583.
[32] https://soec.sprep.org/png/

millimeters per month. The main drivers of climate are the El Niño-Southern Oscillation (ENSO), the Intertropical Convergence Zone, and the South Pacific Convergence Zone (SPCZ)[33].

1.3.1 Observed and projected temperature

As shown in Figure 1 below, warming is being experienced in PNG. While the observed average annual temperature shows year-to-year variability, it demonstrated a warming trend over the 1850 – 2020 period especially after 2000. It is noted that all years since 2000 were warmer than the pre-industrial climate average, showing an accelerated rise in temperature in recent decades. Warming over PNG's land surface, as measured on the difference between average temperature in 1900–1917 and 2000–2017, has been approximately 0.8–0.9°C[34].

Figure 1: Average annual temperature in PNG 1850 – 1920 and projected temperature under different scenarios from 2020 - 2080. Thick horizontal lines show the mean of all models in 20-year periods of the baseline 1986 – 2005 (blue) and future 20-year period centered on 2030, 2050 and 2070[35].



Climate projections under a very high emissions pathway (RCP8.5) and a very low emission pathway (RCP2.6) suggest an upward warming trend into the next 50 years, relative to the 1986 – 2005 period. While there is a similarity in terms of projected temperature change between RCP2.6 and RCP8.5 for the near team (2020 – 2039), the longer term suggests a wider gap between the two pathways. Based on the projections of IPCC using the RCP2.6 and RCP8.5, the models show a trend of consistent warming that will be more significant for inland regions as compared to coastal areas[36]. Increase in average temperature will also lead to a rising number of hot days and warm nights and a decline in cooler weather[37].

1.3.2 Observed and projected precipitation

PNG has one of the wettest climates in the world with annual rainfall exceeding 2,500 mm in many areas of the country and much of the rainfall (about 78%) comes during wet season[38]. While there is no clear trend in overall rainfall in PNG since 1950, a decrease in the wet season rainfall but increase in dry season rainfall has been observed in the Northern part of the country.

[33] CCDA (2020). Papua New Guinea GCF Country Program
[34] World Bank (2021). Climate Risk Profile: Papua New Guinea
[35] CSIRO and SPREP (2021). 'NextGen' Projections for the Western Tropical Pacific: Current and Future Climate for Papua New Guinea.
[36] World Bank: Climate Risk Country Profile, Papua New Guinea.
[37] https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/14_PCCSP_PNG_8pp.pdf
[38] World Bank. Climate Change Knowledge Portal (CCKP). https://climateknowledgeportal.worldbank.org/country/papua-new-guinea

Figure 2. Average annual rainfall in PNG mainland relative to 1850 – 1900 (%)[39].

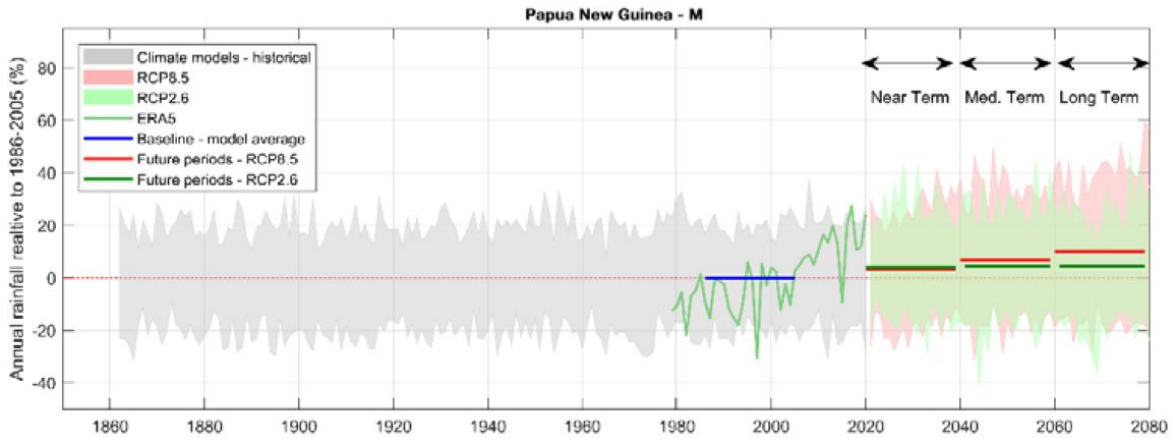
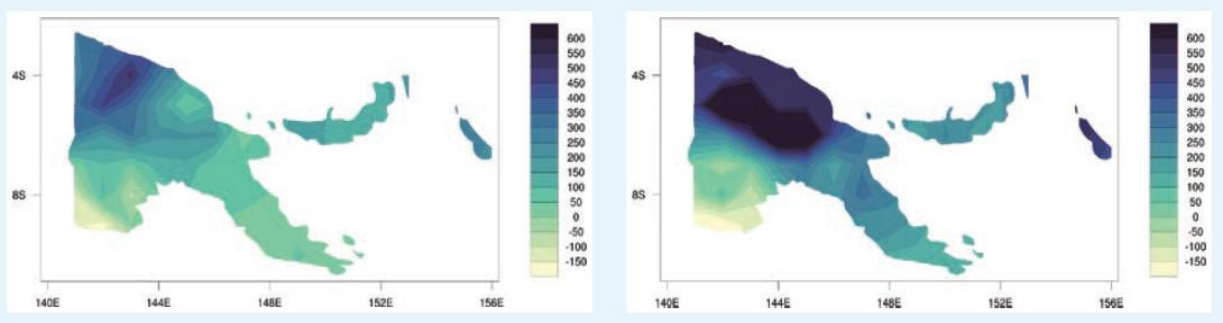


Figure 3. CMIP5 ensemble projected change in annual precipitation by 2040 – 2059 (left) and by 2080 – 2090 (right) relative to baseline under RCP8.5[40].



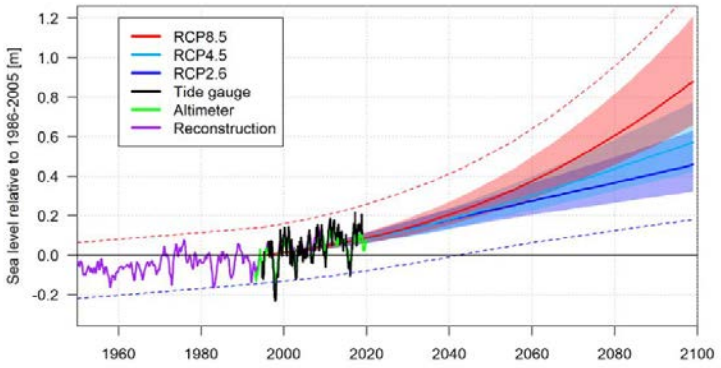
There is a range of possible future changes in annual and seasonal rainfall, from wetter through to drier, largely determined by how monsoon changes. There has been a high degree of uncertainty on changes in rainfall patterns and large model uncertainties for the Pacific region. Future El Niño-related events are likely to drive many expected changes in rainfall, including a rise in annual precipitation and increases in drought conditions throughout the region. In addition, an increase in frequency and intensity of extreme rainfall events, in line with global trends, has been suggested[41]. The coastal regions, the islands and the low-lying atoll areas are most vulnerable to extreme weather events, storm surge, sea-level rise, and coastal inundation.

1.3.3 Observed and projected sea-level rise

The sea level surrounding PNG has increased approximately by 7 mm/year since 1993, which is higher than global average of 2.8 – 3.6 mm per year[42]. Sea level rise projections incorporating the higher Antarctic contribution show a rise of between approximately 0.09 – 0.18 m by 2030, and an increase of 0.65 – 1.21 m by 2100 under RCP8.5, leading to coastal flooding, increased salination, and land erosion. Communities depending on tubers grown in pits dug in coastal areas are particularly vulnerable to saltwater intrusion associated with sea-level rise. In addition, sea-level rise affects sources of freshwater for communities along the coastal areas.

[39] CSIRO and SPREP (2021). 'NextGen' Projections for the Western Tropical Pacific: Current and Future Climate for Papua New Guinea.
[40] World Bank (2021). Climate Risk Profile: Papua New Guinea
[41] World Bank (2021). Climate Risk Profile: Papua New Guinea
[42] CCDA (2020). Papua New Guinea GCF Country Program

Figure 4. Sea level rise projections for PNG[43].



1.3.4 Observed and projected drought occurrence

Two primary types of droughts affect PNG such as meteorological drought (precipitation deficit) and hydrological drought (a deficit in surface and sub-surface water flow)[44]. Between 1890 and 2009, there were 15 widespread droughts in PNG, 13 of which were associated with El Niño events[45]. Over the 20th century, five widespread droughts occurred in 1902, 1914, 1941, 1982 and 1997, all with severe impacts. In 1941 and 1997, more than 80% of PNG received less than 10th percentile rainfall.,. Two recent drought events in 1997 and 2015 (accompanied by frost at very high altitudes) also had significant impacts on agriculture and water sectors, resulting in critical food and water shortages and widespread famine[46]. It is suggested that PNG at present faces an annual median probability of severe meteorological drought of around 4%, as defined by a standardized precipitation evaporation index (SPEI) of less than two[47].

According to the PNG National Adaptation Plan[48], the observations of current trends indicate that Papua New Guinea will likely face several continued and additional increases in climate changes, variability, and impacts especially surface air temperature, sea surface temperature, and the intensity and frequency of days with extreme heat, accompanied by increasing incidents of drought. This is in line with Nauman et al., (2018) who suggest a large increase in drought frequency in the Oceania region[49].

[43] CSIRO and SPREP (2021). 'NextGen' Projections for the Western Tropical Pacific: Current and Future Climate for Papua New Guinea.
[44] World Bank (2021). Climate Risk Profile: Papua New Guinea
[45] Cobon et al. (2016). Food shortages are associated with droughts, floods, frosts, and ENSO in Papua New Guinea. Agricultural Systems 145
[46] McVicar, T.R. and Bierwirth, P.N. (2001). Rapidly assessing the 1997 drought in Papua New Guinea using composite AVHRR imagery. International Journal of Remote Sensing, 22(11), pp. 2109–2128
[47] World Bank (2021). Climate Risk Profile: Papua New Guinea
[48] CCDA (2023). Papua New Guinea National Adaptation Plan
[49] Naumann, G., Alfieri, L., Wyser, K., Mentaschi, L., Betts, R. A., Carrao, H., Feyen, L. (2018). Global Changes in Drought Conditions Under Different Levels of Warming. Geophysical Research Letters, 45(7)

Table 1. Climate projections for Papua New Guinea[50]

CLIMATE VARIABLE	PROJECTION	CONFIDENCE LEVEL
Surface Air Temperature	Projected to Increase	Very High Confidence
Sea Surface Temperature	Projected to Increase	Very High Confidence
Annual Mean Rainfall	Projected to Increase	High Confidence
Seasonal Mean Rainfall	Projected to Increase	High Confidence
Intensity and Frequency of days of extreme Heat	Projected to Increase	Very High Confidence
Intensity and Frequency of days of extreme Rainfall	Projected to Increase	High Confidence
Incidence of Drought	Projected to Increase	Moderate Confidence
Frequency of Tropical Cyclones	Projected to Increase	Moderate Confidence
Ocean Acidification	Projected to Continue	Very High Confidence
Mean Sea-Level Rise	Projected to Increase	Very High Confidence

1.4 Climate Change Impacts

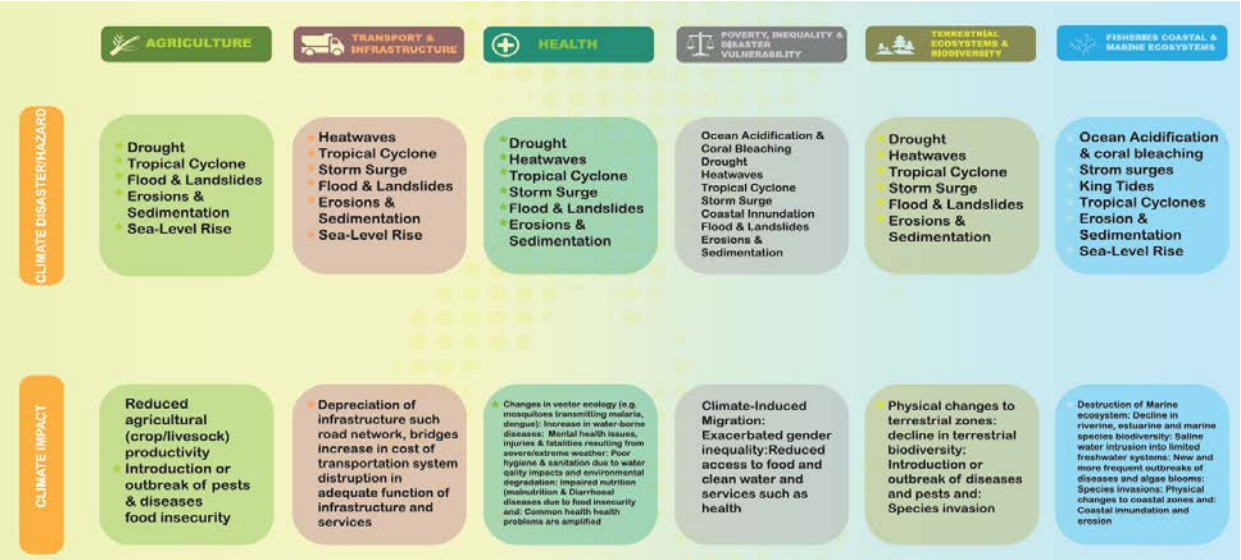
PNG is one of the most vulnerable countries in the world to climate change and natural disasters such as drought, heatwaves, floods, landslides, tropical cyclones, sea level rise and ocean acidification, ranking the 9th most vulnerable country by the World Risk Report 2021[51], and 167th by the ND-GAIN Index 2023[52], indicating high exposure and low adaptive capacity. PNG's vulnerability is a function of high exposure to a changing climate, the sensitivity of its society and economy to those changes (e.g., poverty, subsistence livelihoods, settlement in low lying coastal areas, tribal conflicts, limited access to clean water and sanitation), and the capacity to respond and adapt to minimize impacts of climate change that is still lacking (insufficient domestic public resources to enable people to have access to basic services). For instance, the 1997-1998 drought event killed thousands of people in PNG due to lack of food and water[53]. In 2015-2016, ENSO related drought incident affected about 40% of the population with half a million people faced food shortages[54].

Climate change hazards, both rapid and slow onset, are already exacerbating risks and impacts in coastal communities from coastal flooding, erosions, increased saltwater intrusion, decreased freshwater availability, and biodiversity loss. These in turn have impacts on both natural and human systems such as loss of natural protection structures, declined fishery stocks, decreased access to freshwater for drinking, lower agricultural productions, increased food insecurity, loss of livelihoods, damage to infrastructure and vital assets, increased malaria and vector borne disease, and loss of cultural sites such as graveyards, and increased migration[55;56;57;58;59]. In PNG, it is estimated that nearly 500,000 people throughout 2,000 coastal villages are vulnerable to weather extremes and flooding[60]. Coastal flooding in particular has adverse impacts on coastal lowland areas, mangroves, estuaries and coral reefs as a result of heavy silt and debris deposited from flood events, negative impact on agricultural productivity, and damage to coastal infrastructure. It is estimated that coastal floods affect around 8,000 people on annual basis and cause damages estimated between USD 10 – 20 million[61]. The more frequent and intense rainfall events coupled with increasing sea-level rise are expected to

[50] GoPNG (2020). Enhanced Nationally Determined Contribution
[51] https://crisisresponse.iom.int/sites/g/files/tmzbdl1481/files/appeal/documents/2021-world-risk-report_0.pdf
[52] https://gain.nd.edu/our-work/country-index/rankings/ (accessed 30 January 2024)
[53] https://reliefweb.int/report/papua-new-guinea/drought-papua-new-guinea
[54] https://www.cfe-dmha.org/LinkClick.aspx?fileticket=AvmtAYhfkKw%3d&portalid=0
[55] GoPNG (2020). Enhanced Nationally Determined Contribution
[56] CCDA (2020). Papua New Guinea's Sustainable Development Goal 13 Roadmap.
[57] CCDA (2020). Papua New Guinea GCF Country Programme
[58] IOM (2015). Assessing the Evidence: Migration, Environment and Climate Change in Papua New Guinea
[59] UNDRR (2019). Disaster Risk Reduction in Papua New Guinea: Status Report 2019.
[60] CCDA (2023). Papua New Guinea National Adaptation Plan.
[61] Papua New Guinea (2014). Second National Communication

intensify the risk of coastal flooding.

Figure 5. Sectoral impacts and vulnerabilities of Papua New Guinea[62]



1.5 Water, Sanitation and Hygiene (WaSH)

A voluntary national review of PNG's SDG 2020 notes that PNG has the lowest water and sanitation access indicators among the 15 developing Pacific Island nations[63]. It was reported in 2019 by the United Nations Joint Monitoring Program that access to safe drinking water and improved sanitation in PNG was 41% and 13% respectively in 2017. Lack of access to WaSH services and infrastructure remains a critical challenge especially for remote and rural populations. WaSH-related diseases have long term impacts, causing higher morbidity and death rates, reducing educational attainment, and causing significant economic impacts at both the household and national levels. The Government of PNG recognizes that access to safe drinking water and improved sanitation and hygiene is essential to the health and wellbeing of the people and aims to provide adequate WaSH infrastructure[64]. The National WaSH Policy 2015 - 2030 has been rolled out through pilot project across the country with support from development partners and NGOs that are working with District Development Authorities to develop and test appropriate approaches for WaSH planning, financing and service delivery. Specifically, the policy includes minimum standards for piped water (150 liters per capita per day or 'lpcd'), standpipes and handpumps (50 lpcd with a maximum 50 users per water point no further than 150 meters form the household), and rainwater catchment (5 lpcd for drinking water with a maximum of 50 users per water point no further than 150 meters)[65]. Despite progress made to date, there remain significant capacity challenges in planning, finance and service delivery, especially at the subnational level. Local level governments are constrained by remoteness, under-resourcing and low technical capacity[66].

As noted in the PNG Midterm Development Plan 2023 - 2027, about 60% of the population don't have access to safe drinking water especially in remote and rural areas. This number is expected to increase

[62] CCDA (2023). Papua New Guinea National Adaptation Plan
[63] Department of National Planning and Monitoring. (2020), Papua New Guinea's Voluntary National Review 2020.
[64] GoPNG (2023). Papua New Guinea Midterm Development Plan IV 2023 - 2027
[65] Department of National Planning and Monitoring (2015). PNG National Water, Sanitation and Hygiene (WaSH) Policy 2015 - 2030
[66] Department of National Planning and Monitoring. (2020) Papua New Guinea's Voluntary National Review 2020.

as service expansion of clean water supply struggles to keep up with population growth. The situation will be exacerbated by projected climate change. Projected sea-level rise will extend salinization of groundwater, decreasing freshwater availability for coastal communities. In addition, increasing temperatures, erratic rainfall patterns and changes in frequency and intensity of drought will cause negative effects on water supply and health of communities. Higher temperatures and more frequent floods and droughts are projected to exacerbate many forms of water pollution – from sediments to pathogens and pesticides[67]. In short, climate change hazards affect access to water supply both quantity and quality especially people living in remote and atoll communities. In addition, increased climate change pressures, such as increased incidence of extreme rainfall, drought, and flood, as well as higher temperatures, represent environmental drivers of vector and water-borne disease such as diarrhea, which causes death in young children and hospital admissions[68].

1.6 New Ireland Province (Target Province)

Located in the most north-eastern part of PNG, New Ireland is composed of a set of 149 islands with a total land area of 9,620 Km^2. These islands are administratively grouped into two districts: Kavieng District (home to the provincial headquarters and offices), and Namatanai District. Districts are divided into Local-Level Government (LLGs), then further divided up into Wards. There is a total of 10 LLGs in New Ireland, half of which are in Kavieng. Based on the national census in 2011, New Ireland had a population of around 194,064 people, accounting for 2.7% of PNG's total population, with a growth rate of 4.4%, which is the country's highest. Current estimate shows that New Ireland has about 250,000 people[69].

Historical records between 1962 and 2012 show that annual mean temperature in Kavieng increased from 26.3°C to 28°C with an increase in minimum air temperature (from 22.2°C to 24.2°C) more pronounced than that of maximum air temperature (from 30.3°C to 31°C)[70]. Sea level rise is already affecting New Ireland as most parts of the province are low lying and most communities are located near the coast, making them susceptible to coastal flooding and seawater intrusion[71]. Agriculture is one of the key sectors that will be affected by inundation, salination and erosion of farmlands. In addition, sea level rise is likely to change water quality parameters and contaminate groundwater reserves[72].

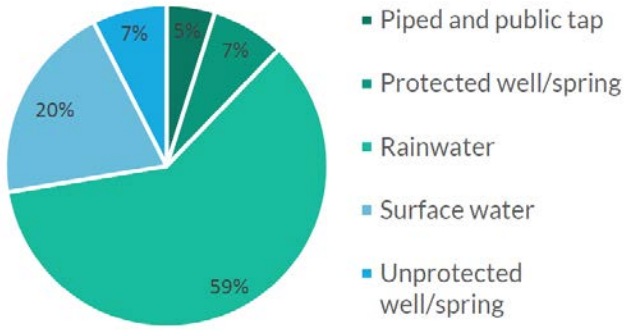
There is considerable uncertainty about precipitation trends in New Ireland as variability in rainfall trends over the years and complexity of rainfall patterns makes forecasting difficult. It was recorded that Kavieng has seen a decrease in wet season rainfall since 1950 with substantial variation in rainfall from year to year[73]. Estimates by the World Bank (2020) suggest a decrease in annual rainfall over the longer term in New Ireland[74]. Lastly, it is projected that vulnerability to drought will remain generally higher in the northern part of New Ireland than in the south with intensified risk to agriculture and access to clean water[75]. Other projections suggest a possible increase in the intensity of droughts in years impacted by ENSO phenomenon, again subject to high level of uncertainty in climate projections for

[67] https://www.un.org/en/climatechange/science/water-at the center of climate crisis
[68] World Bank (2021). Climate Risk Profile: Papua New Guinea
[69] GGGI (2022). Climate-Resilient Green Growth Strategy of New Ireland Province
[70] GGGI (2021). Climate-Resilient Green Growth Assessment in New Ireland
[71] D'Haeyer et al, (2017) Climate Risk, Vulnerability and Risk Assessment in the New Ireland Province in Papua New Guinea—Province and District Profile.
[72] Ganpat, Wayne G. and Wendy-Ann P. Isaac, Impacts of Climate Change on Food Security in Small Island Developing States, 2014.
[73] https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/14_PCCSP_PNG_8pp.pdf
[74] World Bank (2020). Papua New Guinea. Climate Data—Projections. Climate Change Knowledge Portal. World Bank Group. https://climateknowledgeportal.worldbank.org/country/papua-new-guinea/climate-data-projections
[75] D'Haeyer et al, (2017) Climate Risk, Vulnerability and Risk Assessment in the New Ireland Province in Papua New Guinea—Province and District Profile.

droughts[76].

Access to sources of water supply indicates the level of sensitivity and vulnerability of people to climate change. It is noted that approximately one-third of the rural population in New Ireland relies on unprotected sources of drinking water. Rainwater serves as the main source for drinking in both urban and rural areas[77] (almost 60% in Figure 6). Access to rainwater is susceptible to episodes of drought[78] and erratic rainfalls. In addition, prolonged rainfall, flooding, and an increase in droughts can affect unprotected water sources.

Figure 6. Source of drinking water in New Ireland



1.6.1 Target Locations

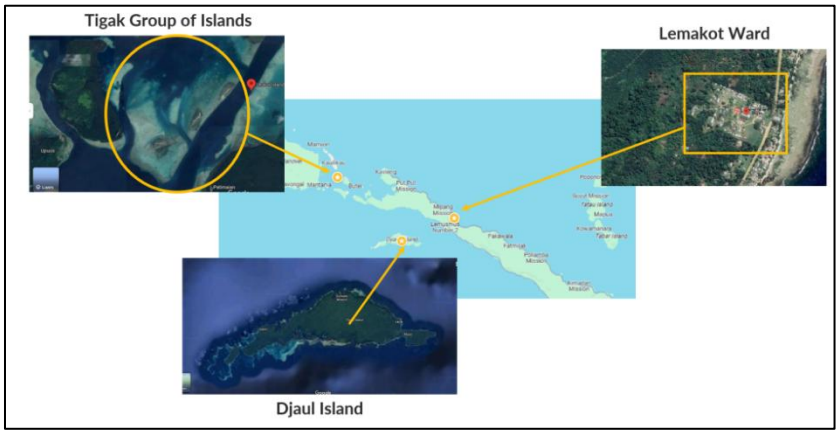
In response to the request from the New Ireland Provincial Administration, a scoping mission was undertaken in September 2023 to consult with relevant stakeholders including visits to communities to identify challenges and needs. Three locations were proposed by the Provincial Administration based on some criteria such as impact of 2022 drought, remoteness, and commitments of the communities to work with the provincial government to improve their health and well-being. Out of the three sites, one is located on the highway and hosts important institutions like school, church, and health center. Access to clean water supply which is threatened by climate change is critical for the services of these institutions. As a result, three target locations have been confirmed as follow:

Djaul Island is located in the middle part of the province and can be accessed only by boat, which takes about 50 minutes from the mainland, after one and half hour drive from Kavieng town. There are six villages on the island, namely Piliwa, Lapai, Kaia, Kalaunapok, Sumuna, and Pantegom, with an estimated population of more than 3,000 people. Climate change such as sea-level rise, salt-water intrusion, coastal erosion, change in seasonal patterns, temperature rise with more hot days, and droughts have negatively affected the lives and livelihoods of people on the island. Based on community discussion, severe drought events happened in 1997, 2010 and the most recent drought in 2022, which was reported by the villagers to last 10 months (the worst ever drought event). In addition to rainwater harvesting tanks, other sources of water could be found on this island including shallow wells, spring rivers, limestone cave, where people can turn to in times of drought.

Lemakot Ward is located on the highway to Namatanai district to the east of the province. **Lemakot Compound** houses primary school, school of nursing, healthcare facility, church, and some residential houses. This compound is faced with drought, coastal erosion, and increased temperature where water level has dropped, and existing wells dried up. There was an existing piping system for bore water (17 meters deep) with three tanks and diesel pump, which was installed more than 20 years ago. However, only one of the three tanks is still in use, albeit rusty. The other two are too rusty with leakage.

[76] BoM and CSIRO, Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports. Chapter 11: Papua New Guinea. Melbourne, Australia: Pacific-Australia Climate Change Science and Adaptation Planning Program Technical Report, BoM and CSIRO, 2014. https://www.pacificclimatechange.net/sites/default/files/documents/PACCSAP_CountryReports2014_Ch11PNG_WEB_140710.pdf
[77] NSO and ICF. (2019). Papua New Guinea Demographic and Health Survey 2026 – 2018.
[78] GGGI (2021). Climate-Resilient Green Growth Assessment in New Ireland

Figure 7. New Ireland Map and Target Locations



Tigak Group of Islands (outer atolls) are located towards the north of New Ireland. It takes about 60 minutes of boat ride from the town center. There are three communities, namely Kulinus, Utukul, and Upuas, all of which are relatively small in size with a total population of around 200 people. It was reported during community consultation that five meters of land in Kulinus village have been submerged over the past 20 years. The only source of fresh water on these three atolls is rainwater, which people mainly use for drinking and cooking. Shallow wells or boreholes are not feasible due to high salinity level. Villagers on these islands have to travel by traditional canoes for 2.5 – 3 Km to nearby bigger island to fetch water from stream, which can be dangerous during rough sea.

In response to drought update for New Ireland province due to dry conditions for May, June, July and August of 2022, the New Ireland Provincial Administration had commissioned a drought assessment of impacted communities in September 2022. The findings highlighted that people in New Ireland especially Djaul island were faced with water security challenges. While there were sights of some factory-made tanks to collect rainwater, communities resorted to sourcing underground water and from natural springs. The assessment also noted records of numerous absentees of primary school students during the drought period from May up to August 2022 as they were fulfilling their family obligations in fetching water from distant sources (approximately as far as 9 Km inland) [79]. For instance, the Lapai Primary School recorded 225 absentees of students from Grade 4, 5 and 8 from January to August 2022 with primary class of Grade 8 recording the highest number of absentees from May to August, accounting for 75% of total absentees. In Kakapan village, the school has in total 142 students, and recorded alarming absentees of more than 700 times (accumulated) in August 2022. The school had to opt to reschedule class for Grade 3 to 7, finishing one hour earlier as water reserve in the tanks went down quite quickly and no other available water within close proximity. Sourcing water from other sources far from school would compromise the safety of staff and students.

1.7 Barriers/challenges in responding to water challenges in New Ireland

Populations in New Ireland especially those living in remote and rural areas, and outer atolls are already faced with water scarcity and water insecurity for domestic use purpose. Projected temperature rise, sea-level rise, drought events will further impact water sources for domestic use by depleting and degrading water quantity and quality, spreading salt contamination, and increasing water-borne

[79] New Ireland Provincial Administration (2022). Provincial Drought Assessment.

diseases[80]. The challenges to effectively address water shortages are compounded by limited sources of freshwater especially in outer atolls, logistical challenges due to remoteness of outer atolls and islands, difficulty and high cost of transportation between atolls/islands to transport bottled water, limited water infrastructure in remote areas, limited service by PNG Water which serves only urban centers, weak governance to address water shortage issues especially in relation to drought, and limited financial resources by communities to improve existing sources of water collection as well as capitalize on new sources of freshwater. The following barriers are of special attention:

- Inefficient collection and limited storage capacity of rainwater. Rainwater is the main source of drinking water for communities in Djual, Lemakot, and Tigak. People rely mainly on household and community rainwater harvesting tanks, but the efficiency of the harvesting systems is still low due to poor roof types, limited storage capacity, small gutters and broken equipment resulting in low rainwater capture. Many households experience a shortage of drinking water due to prolonged dry spells.
- Weak water governance persists at the provincial level and down to community level. WaSH unit under the Provincial Health Authority is understaffed, coupled with lack of resources and equipment (i.e., laboratory, testing kits). Data collection and monitoring of WaSH activities is weak. The Provincial WaSH Committee, which was recently established is not yet functional. At the district level, Kavieng District has not developed a district WaSH plan, which is required by the National WaSH policy. This District WaSH Plan aims to outline priorities of WaSH development in the district as well as roadmap for improving equal access to safe, inclusive, convenient, sustainable and climate resilient WaSH services for the people. At LLG level, the drought response is not well organized and forward looking due to lack of planning process in place. Responses have been quite reactive and only carried out when the event had already taken place. At the community level, while the village development committee exists, there is no dedicated unit on water management within the village administration to oversee WaSH interventions and water management practices in the community.
- Limited knowledge and practice on water monitoring and saving practices among communities. It was evident during the scoping mission that there is a knowledge gap in drought preparedness, water saving practices, monitoring of rainwater harvesting systems including operations and maintenance, as well as water treatment. It was reported that people misuse their collected rainwater, which is supposed to be mainly for drinking and cooking especially during drought events, due to limited understanding and awareness of water conservation practices and water demand management. Water treatment is not widely practiced. Communities often drink water directly from their tanks without proper boiling or treatment.
- Community capacity to respond to climate change, especially climate-induced water challenges, is limited due to lack of financial resources to optimize collection of rainwater and alternative sources such as spring river, creeks, limestone cave, or groundwater, where available. Communities are largely dependent on subsistence agriculture and small-scale fisheries for their livelihoods. Most poor households don't have proper tanks and rely on containers for rainwater harvesting without proper cover, which was evident during the scoping mission in September 2023. Existing groundwater or shallow wells in the communities are not well protected and at risk of contamination by waves especially during king tides and storms.
- Limited participation of women and youth in efficient water management practices. Generally, women in PNG play crucial roles in securing food and water security in the households and

[80] World Bank (2021). Climate Risk Country Profile: Papua New Guinea

communities. Women and youth are often the one to fetch water from rainwater tanks (at home or community space), wells or boreholes. However, their participation in water management decision-making is limited. In rural areas, men commonly hold onto their traditional cultural practices where power and authority are given to men over their clan and family members in terms of decision-making power and control of resources[81]. Therefore, women and youth's increased active participation in the institutional arrangement in the community (for instance, community-based WaSH committee) is critical to support equitable and efficient water management planning within the community.

Project/Programme Objectives:

The project aims to enhance access to reliable and safe water supply of rural communities in New Ireland by addressing the barriers described above through optimization of access to available water sources, enhanced institutional capacity and coordination, and improving knowledge and awareness of community members. All of these will contribute to improving water security in the face of changing climate. Specific objectives are:

- To enhance resilient water security in the most vulnerable communities through optimization of existing and new freshwater sources coupled with water treatment, taking into consideration gender equality and social inclusion.
- To foster the institutional strengthening and coordination, and development of climate resilient water practices from provincial to community levels taking into consideration gender equality and social inclusion through improved coordination, capacity building, knowledge management and awareness raising.

Project/Programme Components and Financing:

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Component I - Increase access to reliable and clean water supply	Output 1.1: Rainwater capture is maximized through optimal mix of community and household interventions Output 1.2: Alternative sources of water are optimized to reduce reliance on harvested rainwater	Communities have improved access to resilient water security through an optimization of existing and new water sources coupled with water filtration system to enhance their adaptive capacity to climate-induced water challenges	1,102,200 810,000
Subtotal for the Component 1			**1,912,200**
Component II – Improve forward-looking response capacity, planning and coordination, and knowledge and	Output 2.1 Climate change induced drought preparedness and response measures are implemented and WaSH within the province is well coordinated.	Provincial and district authorities and communities are better prepared and equipped to cope with climate change induced water scarcity	618,300

[81] https://png.unfpa.org/en/topics/gender-equality-12

practices to enhance water security in the face of climate-induced events.	Output 2.2 Monitoring, evaluation and learning enhanced to scale up water security practices	issues through planned and coordinated efforts instilled by increased knowledge and best practices, taking into consideration gender equality and social inclusion.	400,000
Subtotal for the Component 2			1,018,300
3. Project activity cost (A)			2,930,500
4. Project/Programme Execution cost (B) – (up to 9.5%)			267,000
5. Total Project/Programme Cost (A) + (B)			3,197,500
6. Project/Programme Cycle Management Fee charged by the Implementing Entity (up to 8.5%)			271,787
Amount of Financing Requested			3,469,287

Projected Calendar:

The project will be implemented over a four-year period from the beginning of 2027 until the end of 2030 with terminal evaluation at the end of 2030.

Milestones	Expected Dates
Start of Project/Programme Implementation	1 June 2027
Mid-term Review (if planned)	31 May 2029(Year 2)
Project/Programme Closing	31 May 2031
Terminal Evaluation	29 February 2032

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project/programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

Climate change is already impacting PNG with an effect particularly acute for remote, rural and outer atoll communities especially in terms of water security. Therefore, the main goal of the project is to enhance climate resilience of these vulnerable communities by improving access to reliable and clean water supply, thereby improving health and well-being of populations especially women and young children.

The proposed components, outcomes and outputs are fully aligned with i) the national and provincial

government and sectoral priorities and gaps, ii) needs of community and vulnerable groups, and iii) the Adaptation Fund Outcomes, especially Outcome 4, Outcome 2, and Outcome 3.

Component 1 - Increase access to reliable and clean water supply

In response to urgent need to address the persistent challenges of insufficient water supply in the target locations which will be exacerbated by climate change, the project will support improved access to reliable and clean water supply by presenting concrete adaptation interventions that help to optimize the capture of rainwater and other sources of water suitable and available within the communities. Component 1 consists of the following outputs and activities:

Output 1.1: Rainwater capture is maximized through optimal mix of community and household interventions

Rainwater is the main source of freshwater in all target communities, but collection of rainwater is inefficient to meet the needs exacerbated by climate change. Under this output, the focus will be to maximize the capture of rainwater in the target communities by deploying different activities and water treatment practices.

Activity 1.1.1 Improve existing rainwater harvesting systems for community buildings and households in target communities.

- Upgrade existing rainwater harvesting systems to improve overall efficiency (example: refurbishment of rooftop catchment area, installation of new connections, increase of size of guttering and downpipes)

Activity 1.1.2. Provide additional rainwater harvesting systems and increase storage capacity for community buildings for usage during increasing frequency and periods of drought.

- Install additional rainwater harvesting systems and upgrade community-level storage quality and capacity (more tanks) in community space.

Activity 1.1.3. Provide rainwater harvesting systems for the most vulnerable households (those who don't have proper rainwater tanks).

- The distribution of rainwater harvesting systems will adhere to the selection criteria and process involving CWC so as to ensure equitable distribution as well as the prioritization of poor households who need the tanks the most. The initial selection criteria (to be further refined at the full funding proposal stage) is outlined below.
- Depending on the type of roof, the systems could be connected to the roof or have their own catchment areas.

- Remote and hard-to-reach areas - households located in remote areas where access to water and sanitation services is minimal or nonexistent will be prioritized.
- Disaster prone and climate impacted areas - households located in areas particularly vulnerable to climate change impacts, such as frequent droughts, that are most at risk of water shortages or contamination and may benefit from climate-resilient water solutions.
- Low-Income households - households that are economically disadvantaged, where families are unable to afford improvements to water and sanitation systems on their own
- Households with high vulnerability to health risks - households with members who are particularly vulnerable to waterborne diseases, such as children under five, elderly

individuals, pregnant women, or people with disabilities, should be given priority.

- Women-headed Households - women, especially in rural areas, often bear the burden of water collection and sanitation responsibilities. Priority will be given to female-headed households, as they are more likely to face greater challenges in accessing water and sanitation services.
- Willingness to contribute to maintenance - households that are willing to participate in the maintenance and management of rainwater harvesting systems, including contributing labor or resources to ensure long-term sustainability. This ensures that the infrastructure remains functional and accessible over time.
- The willingness of the beneficiary to work with the government and also development partners in maintaining existing projects that are already under implementation in that community.
- Community Schools and health facilities

The selection criteria will be finalized at full funding proposal stage based on the anticipated consultations process as well as including further gender disaggregated data based on a full gender assessment. The selection criteria will be vetted through the Provincial WASH Committee. The consultative process at the full proposal stage will also include a field visit to the site together with members from the Provincial WASH Committee and other relevant stakeholders to agree on an initial list of beneficiaries and ensure equitable distribution of resources under Component 1 and Component 2.

Output 1.2: Alternative sources of water are optimized to reduce reliance on harvested rainwater
This output is designed to diversify and optimize alternative sources of freshwater especially in Djaul and Lemakot compound by protecting or rehabilitating existing systems and installing new systems. Solar pumps, where feasible, will be used to facilitate access to some of these sources of water. These systems will be designed for access by communities. Activities under this Output 1.2 include:

Activity 1.2.1. Protect and optimize existing wells from more frequent climate change induced storm surges and contaminations in Djaul and Lemakot Compound

- Protection of wells from surface pollution (concrete slab, raise the surface)
- Optimization of water sources from limestone cave with solar-pump and tanks (community natural wells)
- Conduct groundwater surveys including environmental impact assessment (resistivity) to site productive and low-salinity wells
- New borehole drilling with solar pump utilizing rig drilled or hand-drilled boreholes
- Operation and maintenance planning and training for parts—particularly installed pumps

Activity 1.2.2. Implement a gravity-fed surface water system in Djaul

- Conduct site assessment including environmental impact assessment and obtain consents from landowners.
- Design and construction of gravity-fed surface water system (with community stand posts)
- Prepare Operation and Maintenance plan including spare parts for the first 10 years.

Activity 1.2.3 Provide low-cost decentralized water filtration system

- Procurement and distribution of low-cost water filters (i.e., ceramic water filters or gravity-driven membrane system, which is a filter technology that has been piloted in other countries in the Pacific – http://ieri.gist.ac.kr) for households and communities to ensure safe drinking water.

The assessment will be carried out during full proposal elaboration stage to determine precisely the technical specifications and number of equipment to be provided through all Component 1 activities, including environmental and social risk assessment to develop a comprehensive environmental and social management plan, taking note also that Activity 1.2.2 will include site assessment prior to design and construction. The technical assessment will enable an estimation of how the proposed hard investments such as rainwater harvesting, gravity-fed, tanks, solar pumps and water filtration system can meet the needs of communities in the face of climate change. Based on comments from Live and Learn and Water PNG, the estimated liter/person/day is between 10 liters to 15 liters, which is below a required level of needs and hygiene. In addition, the assessment during full proposal stage will inform the climate-resilient design of the proposed systems, for instance, site selection will be done based on the climate change vulnerability and risk assessment; tanks will be positioned or oriented with caution to consider potential barrage of storm surges; where rainwater catchment area needs to be constructed, it will be made resilient to storms by reinforcing with steels; designs will be in line with WHO standards; etc.

Component II – Improve forward-looking response capacity, planning and coordination, and knowledge and practices to enhance water security in the face of climate-induced events.

This component aims to improve institutional capacity of province, district, LLG and communities to plan and coordinate their efforts to improve access to reliable and clean water supply in the face of climate induced events. It will also enhance technical understanding and awareness of government officials and communities on drought preparedness and responses that are forward looking. There are two outputs under this component as follows:

Output 2.1 Climate change induced drought preparedness and response measures are implemented and WaSH within the province is well coordinated.

This output aims to improve technical capacity and knowledge of provincial, LLG and community on preparedness and emergency response to projected drought events. This will support system strengthening at the sub-national level. The output also aims to strengthen community-level awareness and capacity building support to ensure non-climatic barriers such as limited knowledge and practice on water monitoring and saving practices, water conservation practices, water demand management, and gender quality and social inclusion for water community- based water management are properly addressed. Activities under Output 2.1 include:

Activity 2.1.1 Develop a provincial/LLG contingency plans and Standard Operating Procedures (SOPs) for climate change induced drought response

- Training programs design and organization for drought risk management and contingency planning
- Development of SOPs for drought early warning and response in partnership with National Disaster Center, and stakeholders from NGOs and CSOs, and private sector

Activity 2.1.2 Enhance provincial multi-stakeholder coordination in WaSH

- Organize the bi-annual meetings of the Provincial Water Management and Coordination Committee (PWMCC) to ensure improvement of coordination among key stakeholders in WaSH. The decisions made at the bi-annual meetings by key stakeholders will go a long way towards improving capacity for management of water resources, and implementation of the drought response measures developed under Activity 2.1.1, prevent disease outbreaks, and also increase resilience to future droughts. For example, the detailed workplans for the project will go through the WaSH committee during bi-annual meetings for consideration and approval, prior to implementation. This coordination will be under the oversight of the Health Office under the New Ireland Provincial Administration Office.

Activity 2.1.3 Support Kavieng District to develop its WaSH Plan that is climate resilient, gender-responsive and socially inclusive, linked to Activity 2.1.2 in terms of engaging PWMCC to provide technical inputs and feedback on the WaSH Plan.

Activity 2.1.4 Develop and implement community-level drought contingency planning in target communities, building on the existing structure of Village Development Committee

- Establishment of Community WaSH Committee (CWC) in target villages and Lemakot WaSH Committee in Lemakot Compound. The water function will be instilled into this committee.
- Training and formulation of SOPs to develop and implement drought contingency plans
- Training on water balance assessments and access plans for community water resources (communal tanks, boreholes, wells)
- Establishment of CWC legal right and system to collect tariffs for water usage that can be used to cover O&M costs

During full proposal development, stakeholders and community consultations including a willingness to pay assessment will be undertaken to raise awareness of the tariff which is critical to cover O&M costs mainly for communal systems such as communal rainwater tanks (Activity 1.1.1 and 1.1.2), gravity-fed water system (1.2.2), and groundwater systems as part of Activity 1.2.1, and reach agreement with communities and stakeholders on the appropriate level of tariff and how it will be collected.

With regards to the Community WaSH Committees tariff system, the planned approach for their establishment includes community engagement to be undertaken at full funding proposal stage and also during project implementation to ensure the tariff system is accepted and understood, capacity building during project implementation to be achieved by conducting trainings covering key topics (financial management, tariff setting, and budgeting etc) to ensure that the committees can effectively manage the tariff system, and building climate resilience into the system's design by including mechanisms (i.e contingency) for dealing with climate-related impacts such as droughts which can affect water availability and system maintenance costs. The community engagement efforts will target local leaders, women's groups, youth, the disabled, and other key stakeholders, especially those who will be directly affected by the tariffs. By involving local communities in the tariff-setting process and ensuring that the system is adaptable, fair, and aligned with local economic realities, the project will create a robust, locally managed system that enhances the resilience of WaSH services while promoting long-term sustainability. Furthermore, the project will be built into the District Development

Authority (DDA)'s development plans for sustainability. Once the project ends the DDA can continue to sustain it together with revenue from the tariff.

Activity 2.1.5 Enhance women and youth's leadership through best practices and community awareness programs on efficient usage (demand management) and hygiene practices.

- Training programs include the development of Water Safety Plans especially for women and children who are generally responsible for collecting water, cleaning and general household in the usage of water based on water quality and available quantity etc.
- Focus of training will be related to water conservation and prioritization practices especially relating to WaSH requirements, water related health issues and hygiene/sanitation.

Activity 2.1.6 Training of community plumbers to provide repair and maintenance services.

- Train community plumbers who will act as focal points for repairs and maintenance services

Activity 2.1.7 Curricula of vocational training centers and other higher education institutions (for plumbing and other water related management courses) based in the province are updated to include rainwater harvesting systems, drought contingency planning for WaSH, and optimization of alternative water sources.

- Support the Department of Higher Education, Research, Science & Technology to update the curricula for vocational training centers and other higher education institutions in respect of rainwater harvesting systems, drought contingency planning for WaSH and water optimization

Output 2.2 Knowledge management and learning enhanced to scale up of water security practices.

This output aims to ensure long-term sustainability of the interventions through enhanced capacity of the provincial health authority, cross-learning and knowledge products to disseminate best practices and support scaling up of interventions to other locations. Activities under Output 2.2 include:

Activity 2.2.1 Enhancing Provincial Health Authority's capacity to monitor WaSH interventions in the province

- Support Provincial Health Authority to monitor WASH in the province (WASH database) by conducting a capacity needs assessment and providing relevant capacity building program.

Activity 2.2.2 Conduct cross-learning, develop and publish knowledge products

- Enhance the value of the Adaptation Fund investment and create a pathway to scale up provincially and regionally. This activity will create opportunities for learning exchanges among target communities (inter-island exchanges on best practices in climate change risk reduction on water resources, including water security and conservation of water resources); news articles to highlight best practices and lessons learned generated through the project.

B. Describe how the project/programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project/programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Extreme weather events and natural disasters induced by climate change disproportionately impact women and men, and people living with disabilities. Despite the fact that women are socially prescribed to play key roles in WaSH activities at home and in communities such as water collection duties, food preparation and family care, they are most of the time excluded from WaSH decision-making and not considered as leaders. As a result, this reduces their agency and resilience to adequately respond to climate-related events.[82]

The central benefit of the project is to enhance community climate resilience to water security caused by droughts, floods and saltwater intrusion induced by sea-level rise, and changing rainfall patterns through a variety of interventions. These include:

- Optimization of rainwater harvesting through improved efficiency and increased storage of rainwater catchments, optimization of alternative sources of freshwater, where available and suitable, including water treatment (Component I)
- Improved institutional strengthening at provincial, district, LLG and community's level including capacity building, coordination, planning, women and youth participation and empowerment, and knowledge management on effective water management practices (Component II).

Successful implementation of this proposed project will provide many other co-benefits in terms of environmental, social and economic aspects in the short and long term as follows.

Environmental benefits

- One key project activity is to implement measures to protect existing water wells, which will in turn reduce contamination of groundwater.
- Rainwater harvesting can reduce stormwater runoff, which can reduce flooding, erosion, and water pollution.
- Kavieng District WaSH plan will have environmental sustainability, and gender and social inclusion as a cross-cutting theme. This will facilitate mainstreaming of environmental concerns especially climate change in the district-wise WaSH interventions.
- Long-term knock-on benefit will come from reduced reliance on bottled water, which in turn will result in less plastic waste generation.

Social benefits including gender and social inclusion, health and wellbeing

- The project will install water assets in communal spaces such as schools, health facilities meeting rooms, etc for community members to access. Gravity-fed water system will also allow communities to access water through multiple water points.
- In particular, the project will benefit marginalized groups that include women, girls, elderly,

[82] https://www.waterforwomenfund.org/en/project/water-for-women-papua-new-guinea.aspx

the youths, disabled and also Indigenous People (IPs)[83] as water will be available at their door steps and will be accessible by all. New Ireland Province has a population of 232,000 people, and women make up 48% of the population. The province has a young population as 40% of the people are under the age of 15 years, whereas just 3% of the population is above 65 years old. The number of people living with disabilities in the province stood at 1,600[84]. Women are disproportionately affected by climate change due to social norms and gender roles that assign them domestic responsibilities for WaSH. The marginalized groups including IPs were identified and consulted during scoping mission (community visit), and representatives from all three locations attended and agreed to the proposed interventions during the consultation workshop. Some of the needs for marginalized groups identified from the consultation process at concept note stage include limited participation of women in decision-making processes related to WaSH, and the lack of capacity of marginalized groups. The afore-mentioned needs were taken into consideration in the design of the project. For example, women will also benefit from capacity building under Component 2 which will empower them to take on leadership roles within the Community WaSH Committees (CWCs) or other local governance structures.

- The project will strengthen the capacity of the people to reduce their vulnerability to the impacts of the climate change and will at the same time strengthen the participation of vulnerable groups (youth and women) in the decision-making on the use of the resources and services provided by the ecosystems. The project's actions will contribute to reducing social conflicts, reducing gender gaps and maintaining the environmental conditions that sustain the livelihoods of the communities.
- Community will be empowered by increasing the capacity of rural communities to optimize, manage and protect their water sources. Capacity building and awareness raising programs will help enhance their understanding of the complex nexus between climate change, water scarcity, and health issues.
- School children will have more time to study in the evenings. The risks of going distances to collect water will be removed. The general wellbeing of households would be expected to improve.
- Improved access to water supply will also reduce pressure on women and youths who are responsible for domestic tasks including water collection.
- Provision of safe and clean water will lead to a decrease in climate sensitive (water borne) diseases such as diarrheal illness, typhoid, skin, and eye infection, and will improve sanitation and hygiene conditions especially for women and girls, thus better health outcomes for communities.
- Improved rainwater harvesting systems in household and community buildings and optimization of alternative water sources are expected to have a positive impact on school attendance rate especially for girls and boys. The project will specifically offer gender co-benefits from improved water quantity and quality at both household and community levels, thus creating a more equitable access to water resources for vulnerable groups including women, children and elderly. Benefits will include:
    - Training and awareness raising programs on water management practices and monitoring of efficient use of water will support a more equitable distribution of water

[83] National Population Statistics (2021). Accessed on 1 Feb 2025 from: https://www.nip.gov.pg/wp-content/uploads/2023/07/New-Ireland-Pop-Estimate-Results-1.pdf

[84] The National, (2015). Province Implements Pension Policy. Accessed on 1 Feb 2025 from: https://www.thenational.com.pg/province-implements-pension-policy/#:~:text=New%20Ireland%20was%20the%20first%20province%20to,from%20the%20programme%20facilitated%20under%20the%20policy

resources especially during drought events.

- Participation and empowerment of women and youths in community water management and hygiene practices will also contribute to improving their self-esteem and social standing in the community.

With regards to women and youth, who are particularly more vulnerable to lack of access to clean water, the project will help them to:

- Reduce workload from time spent fetching water from sources far way, which will enable them to spend more time with families and communities
- School children will have enough time for studies in the evenings which will result in improved performance in school
- Mothers will have some time to rest which will contribute to their overall wellbeing
- Remove the risk taken when going distances to collect water
- Improve their health and wellbeing as a result of increased access to clean and reliable water supply
- Improve skills and knowledge, as they will also benefit from several training programs to be conducted through the project. The trainings will be related to water conservation and prioritization practices especially relating to WaSH requirements, water related health issues and hygiene/sanitation.
- Promote more equitable household workload. The project will use the household methodology, which will involve men and women as a couple with equal participation in the activities taking into account the specific needs of each gender. This will also help gender relations, mutual trust, and ensure effective participation of women in decision making.
- Increase their participation in decision making within the WaSH profession and also at community level by implementing gender sensitive decision-making approaches
- Significantly reduce unemployment among women and youth, by ensuring that they have access to the jobs to be created through the project activities.

An initial gender analysis was carried out through a desk review, which enabled the characterization of the gender profile of the project target areas in New Ireland Province. The analysis consisted of establishing the current situation of the beneficiaries and local communities regarding gender. This analysis showed that just 20% of the rural population in PNG has access to reliable and clean water, and that the huge responsibility for water collection for household purposes the maintenance and cleanliness of sanitation facilities, children's sanitation, and the hygiene practices of the family, primarily falls on women and young girls. Furthermore, inadequate WaSH services increase health risks for women and girls. In addition to WASH-related infectious diseases, like diarrhea and acute respiratory infections, women are vulnerable to harassment, violence, and injury when they have to go outside the home, often long distances, to fetch water or use the toilet. Time spent on domestic chores can also limit girls' chances of progressing further with their education and gaining employment. The situation is further compounded by the lack of representation of women in decision making roles either political in parliament and communities or in the WaSH profession.

The initial gender analysis also showed the different needs, capabilities, roles, activities, available opportunities and challenges for both men and women. To ensure that gender is considered for an equitable sharing of resources, the project focuses on women and youth groups from the formulation

stage. All stakeholders will be involved in the identification, design, planning, implementation, monitoring and evaluation of project activities. A more detailed gender assessment will be carried out at the stage of developing the full proposal to ensure that all aspects of equity, accountability and representation are fully integrated into the project.

Economic benefits

- Economic benefits will be derived from reduced time spent on water collection, avoided health costs related to sickness and exposure to untreated water for consumption, and finally avoided disaster response cost at a larger scale. This in turn will lead to positive secondary co-benefits from improved productivity and long-term human development and well-being in the community.
- Jobs will be created both during project implementation (associated with installation and construction of water technologies) and after project (associated with operation and maintenance by service technicians).

During full proposal elaboration, technical assessments including gender assessment, environmental and social safeguard assessments, and stakeholder engagement, cost and benefit analysis will be undertaken to validate and confirm these environmental, social and economic benefits including benefits to marginalized, vulnerable and/or indigenous communities.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project/programme.

The project will deliver both hard and soft components to enhance access to water security in the target areas. Hard component interventions (rainwater harvesting system, groundwater, gravity-fed system, and water filters) are based on past interventions implemented in PNG and similar contexts in the Pacific Region. Optimization of rainwater collection by ways of increasing collection efficiency and storage for households and communities are simple and low-cost techniques that require minimum expertise or knowledge. This is considered to be a cost-effective way of supplying clean water in areas which experience droughts. Optimization of existing water sources (wells, limestone-cave spring water, and groundwater) coupled with water filtration also offer cost-effective solutions to improving water security in communities, considering benefits derived from the avoided health costs and time lost for fetching water. Community-level capacity building is proposed to ensure ownership and sustainability of the project including establishing operation and maintenance agreements, training of plumbers who can provide services to communities, and empowerment and involvement of women and youths.

The project's total investment of USD 3,459,267 million will benefit around 5,000 direct beneficiaries in the three locations.

D. Describe how the project/programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The project is aligned with and will contribute to the implementation of several development and climate change strategies and polices of PNG, including Vision 2050, PNG development strategic plan 2010 – 2030, National WaSH policy 2015 – 2030, PNG enhanced NDC 2020, Medium Term Development IV (2023 – 2027), and the National Adaptation Plan (2023). More descriptions of project's alignment are as follows:

- *PNG Vision 2050*: will ensure that PNG has a strong, dynamic, and competitive economy by 2050. Pillar 1 is focused on human capital development, gender, youth and people empowerment, and Pillar 5 on environmental sustainability and climate change.
- *PNG Development Strategic Plan 2010 – 2030*: Part 6 (Sections 6.2-6.8), clearly articulates the strengthening of cross-sectoral policies on youth, gender, HIV/AIDS, Vulnerable and Disadvantaged, Environment, Climate Change and Natural Disaster Management as priority. The project will support this through building climate change resilience in communities through improved access to clean water supply.
- *National WaSH Policy 2015 – 2030:* aims to promote equitable access to safe, convenient and sustainable water supply and sanitation and improved hygiene practices within the paradigm of responsible sustainable development. The policy has a specific target for water supply in rural areas where 70% of the population will have access to safe, convenient and sustainable water supply. The policy also aims to have 100% of educational institutions and medical centers have access to safe, convenient, and sustainable water supply. The project will contribute to these two targets as well as support the development of District WaSH plan.
- *PNG's Enhanced NDC 2020 - 2030:* The NDC has four key adaptation targets including investment in agriculture, health, transport, and infrastructure. The project will contribute to the NDC target of 10% of the population (25% female) with increased resilience of food and water security, health, and wellbeing in PNG.
- *PNG National Adaptation Plan 2023 - 2030:* includes sectoral climate change adaptation areas and cross-cutting strategic areas to enable the implementation of climate change adaptation actions. Water is recognized in both infrastructure and health sectors. NAP includes Strategic Action 2.3 – improve water and sanitation infrastructure and services to meet demand considering expected climate impacts. The project is well aligned with supporting improved access to clean water supply to build climate resilience of water security in PNG.
- *PNG Medium Term Development Plan IV 2023* – 2027 (MDTP IV 2023-2027): Strategic Priority Area 02 on sustainable enabling infrastructure, which has six Deliberate Intervention Programs (DIP). DIP 2.5 is focused on national water, sanitation, and hygiene to ensure that 70% of PNG population have access to safe, convenient and sustainable drinking water in rural areas. This project will contribute to the implementation of rural WaSH intervention programs.
- *New Ireland Climate Resilient and Green Growth Strategy:* includes four strategic objectives to achieve inclusive climate resilient green growth from 2022 to 2027. Strategic Objective 2 is focused on reducing community vulnerabilities through climate related poverty reduction and social inclusion measures. One of the proposed activities is to improve access to drinking water and sanitation. This project is well aligned and contributes to the implementation of this strategy.

- *New Ireland Provincial Development Plan:* the five-year Provincial Development Plan is aligned with the MDTP IV (2023-2027) it incorporates all the MTDP IV and incorporate all the minimum service needs and strategic economic investment opportunities.

E. Describe how the project/programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

In PNG, a number of policies and laws provide the framework for Environment and Social Safeguards. The project is consistent with relevant national legal frameworks and standards such as:

Table 2. Relevant national technical standards and compliance

	Relevant national regulation	**Compliance procedure and authorizing office**
1	Climate Change (Management) Act (amended 2022)	• Climate risk screening undertaken during the design phase of the project key to assess and understand potential impacts of climate change on the proposed activities. Beyond this, the project will contribute to efforts to increase adaptative capacity to climate change through supporting rainwater harvesting (Component 1) and also enhancing preparedness for climate change disasters, particularly droughts (Component 2) • Climate Change and Development Authority (CCDA) is the authorizing office.
2	Environment Act (2000) especially Environment (water quality criteria) Regulation and environmental protection provisions for groundwater,	• Activities such as 1.2.1 associated with drilling of new borehole (potentially in Djaul and Lemakot), and Activity 1.2.2 regarding a gravity-fed surface water system in Djaul, will require an environmental and social impact assessment to be conducted as part of site assessment to ensure compliance with policy • Detailed environmental and social safeguards (ESS) assessment of the project done under Part II, sub-section K • At the full funding proposal stage, a proper assessment and water quality testing will be undertaken to ensure the sources of water meet minimum quality standards. Relevant ESS studies will be undertaken as well in line with the international best practices, AF guidelines and the national policies of PNG. • The Conservation and Environment Protection Authority (CEPA) is the authorizing officer.
3	PNG Drinking Water Quality Standards (an adoption of WHO drinking water quality guidelines), Public Health (Drinking Water Quality) Regulation/ Public Health (Drinking Water) Regulation 1984	• The project activities will comply with the Drinking water regulation (1984) in terms of drinking water quality standards set out in Schedule 2. This will, among other things, include sampling testing water quality during the full funding proposal development stage. • The National Department of Health (NDoH) is responsible for setting and reviewing these standards

4	National Water Supply and Sanitation Act 2016,	• Compliance will be achieved by ensuring that (i) water provided to communities meets the national water quality standards, and (ii) water supply is distributed fairly across communities, ensuring that vulnerable groups—such as women, children, indigenous communities, and people with disabilities in line with the Act. • The National Department of Health (NDoH) alongside PNG Water oversees the compliance with the Act
5	Lands and Physical Planning Act	• Compliance will be achieved by obtaining appropriate land access rights, complying with zoning regulations, conducting necessary environmental and social impact assessments, ensuring stakeholder consultation, and respecting land tenure systems, particularly in customary land areas • Department of Lands and Physical Planning oversees this Act, alongside local authorities
6	Disaster Management Act	• Under Component 2, the disaster risk reduction (DRR) strategies have been integrated into the design and implementation of the project, in compliance with the Act • National Disaster Center overseas the Act

F. Describe if there is duplication of project/programme with other funding sources, if any.

The project will be implemented in a synergetic and complementary manner with initiatives described in Table 3 below, some of which have already been completed. Completed and on-going projects will serve as a resource for valuable lessons learned and knowledge in terms of best practices. Project team will be participating in meetings and events to strengthen coordination with ongoing and pipeline projects. In particular, the project will be well coordinated with the recently approved Adaptation of Small-Scale Agriculture for improved food security of resilient communities in Papua New Guinea (ASSA) by the Adaptation Fund in March 2023 for USD 10 million, which includes New Ireland as one of the target provinces. SPREP is also preparing a full proposal for the GCF on climate smart landscapes in New Britina and New Ireland provinces. These two projects are focused on agriculture and livelihoods and the proposed project provides complementary in terms of resilience building.

Table 3. Complementarity and duplication of the project with other projects

Project title	**Enhancing adaptive capacity of communities to climate change-related floods in the North Coast and Islands Region of Papua New Guinea**
Objectives/Descriptions	The objective of the Project is to strengthen the ability of coastal and riverine communities in Papua New Guinea to make informed decisions; and to undertake concrete actions to adapt to climate change-driven hazards affecting their specific locations. The project aimed to reduce exposure and increase adaptative capacity of coastal communities to climate hazards in 11 provinces including New Ireland by strengthening capacity, awareness, education and advocacy at national and sub-national level to promote ownership of adaptation and climate change related risks reduction process
Funding and Source of funds	USD 6 million; Adaptation Fund
Status	Completed

Complementarity/Duplication	Rainwater tanks were distributed to communities and training was conducted for emergency response planning. This proposed project can learn from this project in terms of its implementation challenges and best practices and explore training materials that can be adapted.
Project title	**Building Resilience to Climate Change in Papua New Guinea**
Descriptions	The project aims to increase resilience to the impacts of climate vulnerability and climate change. The outcome is improved capacities of communities in 21 targeted/vulnerable atolls and islands, government agencies, and civil society to plan and to respond to the impacts of climate change.
Funding and Source of funds	USD 35.91 million; ADB and other sources
Status	On-going, and will be completed in 2024
Complementarity/Duplication	The project has a component on developing gender responsive disaster response strategies in 21 vulnerable island communities and provides rainwater harvesting tanks to communities to collect rainwater. No duplication since this project is not implemented in New Ireland.
Project title	**Water Supply and Sanitation Development Project**
Descriptions	The development objective of this project is to support the development and strengthening of the planning and implementation capacity of water sector institutions, and to increase access to water supply services in selected urban towns and rural districts. There are four components for this project. 1) Institutional structures for the implementation of the National WaSH Policy, focuses on supporting the development of the key sector institution 2) Rural and Peri-urban Water and Sanitation 3) Urban Water and Sanitation 4) Contingent Emergency Response
Funding and Source of funds	USD 70 million; World Bank
Status	On-going, and will be completed in end of 2024
Complementarity/Duplication	The proposed project is in synergy of this project especially Component 1 (linkage with the WaSH PMU at the national level and improved coordination). While Component 2 of this project is focused on rural and peri-urban WaSH, the project is not implemented in the proposed locations for AF-proposed project, so there is no duplication.
Project title	**Water for Women: Resilient WASH in the Islands Region of PNG**
Descriptions	The project aims to improve the health and wellbeing of approximately 60,000 rural people in PNG by increasing the quality and accessibility of resilient WaSH services in rural schools, healthcare facilities and communities and by strengthening WaSH sector systems.
Funding and Source of funds	Australian Department of Foreign Affairs and Trade
Status	On-going
Complementarity/Duplication	This project has component on supporting WaSH policy implementation at provincial, district and wards level as well as provide resilient safe and inclusive WaSH infrastructure and practices in communities, schools and health facilities. The project is being implemented in Namatanai and Sentral Niu Ailan districts of New Ireland by Live & Learn, thus there no duplication since the proposed project will be implemented in Kavieng. Nevertheless, the project can provide platform for best practices and lesson learned. Community-plumber training materials can be used or adapted for the proposed project.
Project title	**Climate Resilient Islands**
Descriptions	Climate Resilient Islands is working with rural communities in Fiji, Tonga, Vanuatu, Tuvalu, Solomon Islands and PNG to strengthen community resilience to the impacts of climate change through nature-based approaches. Communities engaged in the programme determine priorities and plans for strengthened resilience through

	pathways such as: 1. Intergenerational Indigenous land management 2. Ecological resilience 3. Restoration and strengthening of resilient local food systems 4. Access to small resilience grants to strengthen or establish community livelihoods 5. Disaster preparedness training
Funding and Source of funds	The New Zealand Ministry of Foreign Affairs
Status	On-going
Complementarity/Duplication	Complementarity and synergy in terms of disaster preparedness training.
Project title	**Adaptation of Small-Scale Agriculture for improved food security of resilient communities in Papua New Guinea**
Descriptions	The project aims to enhance the sustainability of main agricultural value chains through the adoption of climate-smart practices, contributing to improving the produces' quality, increasing access to markets, and creating green jobs for women and youth in vulnerable communities.
Funding and Source of funds	USD 10 million; Adaptation Fund
Status	Approved and initiation phase.
Complementarity/Duplication	No duplication since ASSA is focused on agriculture and livelihood. This water security will further increase livelihood resilience of New Ireland people.
Project title	**Climate smart landscape in East New Britian and New Ireland provinces**
Descriptions	The project will respond to the challenges through promoting climate-smart landscapes (CSL) by focusing on: (i) enhancing agricultural extension and climate smart field schools; (ii) increasing research on climate smart landscapes; (iii) recognizing and applying traditional ecological knowledge; (iv) increasing awareness of climate change and potential options; (v) increasing use of drought resistant agricultural and agroforestry systems; and (vi) promoting soil conservation measures to accommodate increased rainfall.
Funding and Source of funds	USD 14 million; GCF
Status	Full Project Preparation
Complementarity/Duplication	No duplication since the proposed project for AF is focused on water security. On the other hand, this will complement the investment of GCF in terms of increased resilience of communities.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

Building upon the national priorities outlined in the PNG National WaSH policy and NAP especially in terms of increased access to clean water supply and disaster preparedness and responses, the project output 2.2 encapsulates learning and knowledge sharing activities. Project monitoring, evaluation and learning will be under the oversight of the Project Management Unit (PMU) and implemented by the Project Implementation Unit (PIU) and working closely with stakeholders and project proponents at the national and sub-national levels. The MEL system will: (i) produce, organize and disseminate information for strategic management of the project, (ii) document results and lessons learned for internal use and public dissemination on project results especially news articles, and (iii) respond to information needs for reporting on activities, progress, and impact to the Adaptation Fund, SPREP, and Government of PNG.

Implementation of concrete adaptation actions on the ground will generate learning experience, which will feed into awareness, training and knowledge management actions facilitated and conducted by the

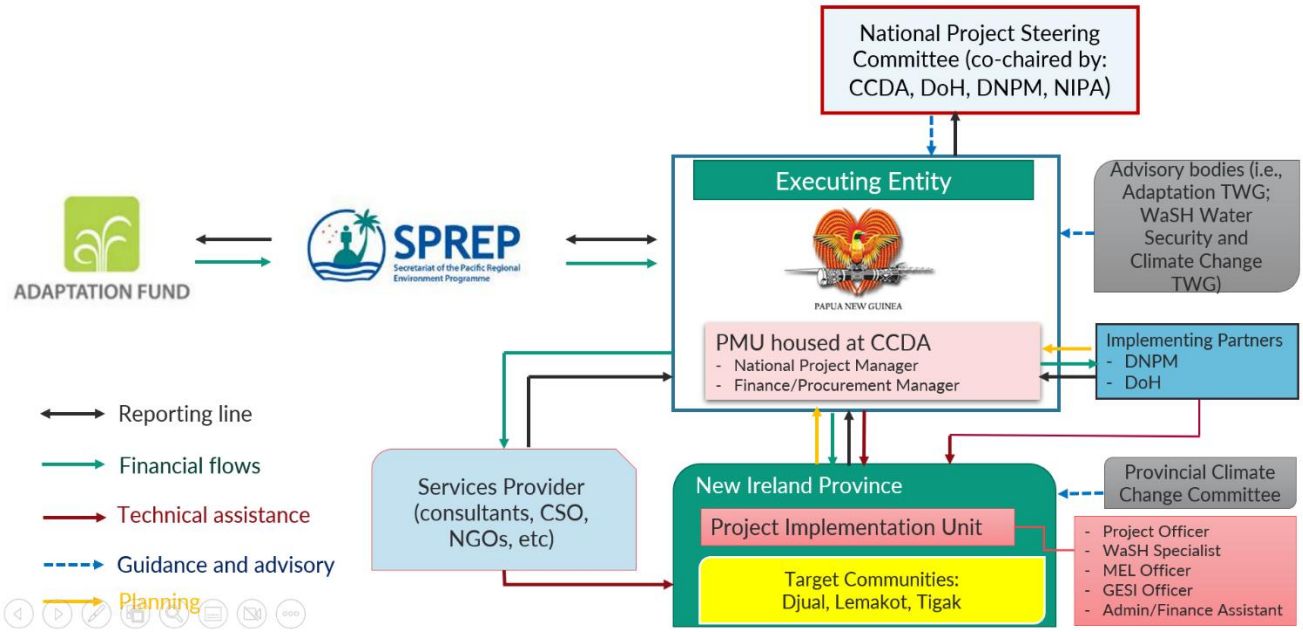
project. More specifically the project will design and deliver awareness and training programs in water management for members of the Community WaSH Committees, which will provide opportunities for knowledge sharing and best practices within and between island communities facilitated by the project. Finally, Activity 2.2.3 is designed to enhance the value of the Adaptation Fund investment and create a pathway to scale up provincially and regionally through knowledge exchange and knowledge products.

At the national level, project progress and results will be disseminated at the Technical Working Group on Adaptation, which is coordinated by CCDA. Liaison with the WaSH PMU at the Department of National Planning and Monitoring and participation at the Technical Working Group on WaSH, Water Security and Climate Change Integration meetings will be key ingredient to align with the National WasH Policy implementation and raise awareness about the project and disseminate project knowledge and best practices. This Technical Working Group aims to promote the integration of climate change resilience into WaSH services, infrastructures, and water resource management to ensure sustainable access to reliable and clean water, sanitation and hygiene for communities, schools, and health care facilities across the country. The project will also provide data to the National WaSH Management Information System administered by the Government of PNG and linked to the national M&E framework and WaSH monitoring. It is required by the Government of PNG that any new project related to WaSH will need to be registered in the mWater (https://www.mwater.co/) to ensure coordination and alignment.

The project success and lesson learned will be made available and accessible by all stakeholders locally, nationally and internationally through documented reports, new articles, case studies which will be produced under Activity 2.2.2. These documents will also be made available in CCDA's and SPREP's depository for online access. In addition, SPREP has the Pacific Climate Change Center which is a center of excellence for climate change information, research and innovation. Two of the key functions of the center are knowledge brokerage, and training and learning. Project success and lessons learned could be disseminated to other countries in the Pacific region through this center.

In addition to implementing the project monitoring, evaluation and learning, the PMU will also play a central role in project coordination in the targeted areas. More specifically, the PMU will serve as a secretariat to National Project Steering Committee (NPSC) and report to the Project Director, and be responsible for overall project management including planning, government and donor reporting, compliance with policies and regulations of AF and Government of PNG and engaging with national stakeholders to enhance coordination and alignment. Key members of the PMU include two core staff: a National Project Manager, and Finance and Procurement Officer. The PMU will be further supported by a PIU based in New Ireland Province. The PIU will be housed and managed by the head of the Provincial Natural Resources Office. PIU will consist of key staff such as a Project Officer, WaSH specialist, Gender Equality and Social Inclusion Officer, and Administrative and Finance Assistant. The project staff will strategically be based in the province to be able to engage with communities more closely, plan and execute project activities more efficiently, and address any issues that might arise in a timely manner, within the targeted areas. The head of the PIU will furnish regular reports to the Executing Entity through the PMU. Figure 8 below provides an overview of the implementation structure as well as the coordination mechanism for the PMU alongside the PIU, in project targeted areas:

Figure 8. Proposed Implementation Arrangement



H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

The project idea was identified as part of priority interventions under the New Ireland's Climate Resilient Green Growth (CRGG) Strategy[85]. Endorsed in 2021, the New Ireland CRGG was developed with a technical support from the Global Green Growth Institute (GGGI) and funding support from Australian Department of Foreign affairs and Trade. A series of consultations was conducted with different stakeholders across the province to identify priority sectors for the strategy. In addition, following the drought event in 2022, New Ireland Provincial Government sent a request letter to the Climate Change and Development Authority via GGGI in March 2023 to explore funding support to improve access to water supply in rural areas, which are affected by droughts and other climate-related events. This led to a formal letter of request from CCDA to SPREP as a Regional Implementing Entity to develop this project for submission to the Adaptation Fund.

Led by CCDA, a scoping mission to New Ireland was conducted in September 2023 to consult with relevant stakeholders in New Ireland including provincial governments (provincial administration, provincial health authority, provincial works), Tikawa Local Level Government, university and research centers based in New Ireland Province, private sector players (e.g supplier for water tanks, solar water pumps, and other materials), Live & Learn (INGOs), and visit to three locations (Djaul, Lemakot, and Tigak). During community visits, indigenous peoples were present and consulted as well. See **Annex 3** for people met and consulted during a scoping mission). A consultation workshop was organized on

[85] https://gggi.org/wp-content/uploads/2021/09/CRGG-Assessment-of-New-Ireland-Province-Final-Report_V2.7.pdf

21st March 2024 simultaneously in two locations: Port Moresby for national stakeholders and in New Ireland for the sub-national stakeholders to provide comments and feedback on the proposed project design, including rationales, activities, budget and implementation arrangements. There were 11 participants (five women and six men) attending the meeting in Port Moresby from CCDA, DMPN, DoH, Water Aid PNG, and GGGI. In New Ireland, there were 23 participants (8 women and 15 men) from New Ireland Provincial Administration, Water PNG, WCS, Live and Learn, and community representatives from three locations (Djaul, Lemakot and Tigak). Joining online were two participants from SPREP (one female and one male). In total, there were 36 participants (14 women and 22 men). Comments and feedback were incorporated in the revision of this concept note to reflect suggestions and concerns from stakeholders. Representatives from all three target locations attended and agreed to the proposed interventions. See **Annex 4** for list of participants in the consultation workshop.

Gender considerations were addressed during the consultation process through several approaches. Firstly, the team which undertook the scoping mission included a female member. Having a balanced scoping mission team was essential given that gender roles and dynamics have significant influence on access to water services in the project target areas. This also went a long way towards demonstrating the importance of female leadership and participation in decision-making processes, especially in male-dominated contexts as is the case with WaSH profession in PNG. During the scoping mission and also the validation workshop, both men and women participants in the consultation meetings as outlined in the previous paragraph. During the validation workshop for multi-stakeholder consultation, that was held in person at the province, and with national stakeholders connecting online from Port Moresby in March 2024, 45% of the participants where women. The high rate of participation of women was ensured by inviting 2 females from each targeted areas, among other measures. The inputs provided by women, were also taken into consideration the design of the project. One such case in point, is the input from the lady, who, on 27 September 2023, during a meeting held in Lemakot Ward, raised concerns that she fell sick from consuming too much salty water. Inlight of this and other concerns raised by vulnerable and marginalized groups including women, the project was designed in a manner that would ensure equitable distribution of clean/safe drinking water. The afore-mentioned objective will be achieved through the use of the selection criteria, as well as tasting water.

During the concept note design phase, the consultation of private sector was limited to Water PNG. However, during the full funding proposal stage, the consultative process will be widened to cover more stakeholders including several private sector platers, as well as university and research centers.

The various concerns raised by marginalized and vulnerable groups both during the scoping mission and also the multistakeholder validation workshop, were integrated into the project design. During the scoping mission, community members were engaged on 27 Sep 2023, both in Djual Island and Lemakot Ward. They raised a number of concerns which were subsequently considered in the design of the project. For example, the marginalized and vulnerable groups indicated that the current number of rainwater harvesting tanks is not adequate to meet the needs, and they requested for bigger tanks to store more rainwater. Taking this into account, the project will install water assets in communal spaces such as schools, meeting rooms, etc for community members to access through Activity 1.1.1. Moreover, the project will provide rainwater harvesting systems for the most vulnerable households (those who don't have proper rainwater tanks) under Activity 1.1.3, with equitable distribution ensured by adhering to a strict selection criteria.

During the validation workshop held on the 21st of March 2024, the representatives from target communities including marginalized and vulnerable groups, also reiterated the importance of verifying/confirming ownership of landownership as part of the project design process so as to avoid contested sites. More specifically, the representatives from target communities clearly mentioned that land in areas under customary ownership such as the Lemakot Compound do not have disputes/issues. This was factored into the project design, with sites carefully chosen in areas such as Lemakot Compound, amd Djul for activity 1.2.1 were protecting or rehabilitating of existing systems and installing new systems will be undertaken.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

It is well noted that climactic impacts will disrupt water supplies. On a global scale, terrestrial water storage including soil moisture, snow and ice, has declined at a rate of one centimeter per year[86], and is projected to further decline over the course of century with major implications for water security. The SDG Report (2023)[87] highlights that about 2.2 billion people worldwide don't have access to safely managed drinking water, and IPCCC report (2022)[88] points out that roughly half of the world's population are estimated to experience water scarcity for at least some part of the year due to climatic and non-climatic factors. The same IPCCC report also notes with high confidence that climate change impacts via water availability changes are projected to increase with every degree of global warming, potentially exposing between three and four billion people to physical water scarcity at 2°C and 4°C global warming levels respectively (low confidence). To adequately maintain health and well-being, it is estimated that 20 lpcd is needed to support drinking and cooking, and up to 30 lpcd to cover personal hygiene as well[89]. Communities with lack of water infrastructure, poor water management and governance will suffer the most as climate extremes intensify[90].

As indicated in Section 1.3, climate projections indicate temperature, sea-level rise and drought frequency and duration are likely to increase in PNG in the future due to climate change. The situation is similar for New Ireland, where 2022 drought had adverse impact on approximately 1500[91] remote and atoll communities especially access to water supply for domestic use. Sea-level rise and extreme events (king tides, storms) also affect their sources of water. Therefore, it will be imperative to increase investments in enhancing access to water supply, and preparedness and response to climate induced events especially slow-onset events such as drought. Increasing the capacity for rainwater harvesting and storage at both household and community levels and diversifying sources of water supply in an environmentally friendly and socially inclusive manner will be required to cope with scarcity of water in the islands and atolls during prolonged drought and in the face of sea-level rise.

The urgency of building climate resilience for island countries like PNG is clear. For PNG to achieve its

[86] https://www.un.org/en/climatechange/science/climate-issues/water?gclid=CjwKCAiA1-6sBhAoEiwArqlGPg5M98JnsQgKCVTCO_skxaaT2Jn8saL9-4UW_Kx47mJ-25p9W7Yx2BoCil0QAvD_BwE
[87] United Nations (2023). The Sustainable Development Goals Report – Special Edition
[88] Caretta, et al., (2022). Water. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 551–712
[89] https://cdn.who.int/media/docs/default-source/wash-documents/who-tn-09-how-much-water-is-needed.pdf
[90] World Water Council (2018). Water infrastructure for climate adaptation: the opportunity to scale up funding and financing.
[91] Estimation made by three focal points based in the province. There is no official records.

enhanced NDC 2020 target and measures, substantial resources are required with an estimate of over one billion USD over the next 10 years. However, PNG has a financial constraint of its own due to limited fiscal space to invest and meet its NDC targets. The situation was made worse due to the Covid-19 pandemic. Public debt is soaring (51.9% of GDP in 2022) with a budget deficit of 5.4% of GDP in 2022. Therefore, domestic resources to support climate resilience building, especially at the community level, have been limited. In 2021, CCDA was allocated around PGK 7 million (approximately USD 2 million), which was mainly used to support its administration and operation. The newly launched PNG Medium Term Development Plan IV (2023 – 2027)[92] has allocated 1% (PGK 500 million including resources from development partners) of its four-year PGK 51 billion national investment program on climate change and environment protection. Over the past years, PNG has relied on foreign aid to fund its climate actions to meet the needs, specially building climate resilience at community level. Secondly, high level of poverty (more than 37% of populations under poverty line), limited technical knowledge, and a lack of resources to deal with climate change impacts limit the ability of communities to invest in measures to build their resilience. Climate finance from bilateral donors and multilateral climate funds is very much needed to meet the financing gaps.

The current situation in New Ireland is marked by adverse effects of climate change especially sea-level rise, rising temperature, erratic rainfall, and prolonged droughts, which affect accessibility to and availability of water resources for domestic use. Without any project, damage and losses caused by climate change will increase as the communities in the target areas don't have the means to invest in adaptation measures, district and LLGs don't have the capacity to develop their WaSH plan in the face of climate change a well as forward-looking response strategy. Therefore, PNG seeks a grant from the Adaptation Fund through its country allocation for the adaptation actions to be implemented in remote communities of New Ireland to increase their resilience especially in the water sector. Contribution of the Adaptation Fund is crucial for the implementation of this proposed project as the country is not able to mobilize the required financial resources. Without AF resources, vulnerability of these rural remote communities to climate change will be intensified. This project includes activities with clear potential to enhance resilience of the most vulnerable communities in New Ireland province.

J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project/programme.

This proposed project has been designed in close consultation with and involvement of relevant government agencies at national and sub-national levels, international agencies like WaterAid PNG, Live and Learn, and target communities to ensure that it addresses community's needs and priorities and well as aligns with the national policy and priorities. The proposed project will show that technologically simple, low cost and accessible technologies such as rainwater harvesting (which constitutes the large part of the project), when well-planned and implemented, can address water scarcity in the island and atoll communities. It is estimated that the lifetime of the water storage tanks will be approximately 20 - 25 years. Mechanism for operation and maintenance (O&M) will be established during project implementation as well as capacity building for community members and dedicated training for community plumbers. The O&M plan will reflect local ownership and commitment for the long-term sustainability of the project activities and outcomes. Community systems including community rainwater tanks, tanks for limestone cave spring water, wells and gravity-fed surface water

[92] GoPNG (2023). Papua New Guinea Medium Term Development Plan IV 2023 - 2027

systems will be operated and maintained by local communities through the CWCs. As part of Activity 2.1.4, legal right and a system for CWCs will be established to collect tariffs for water usage (from community systems) that can be used to cover O&M costs to ensure long-term sustainability.

CWCs as well as women and youths will be trained on how to conduct simple water balance assessments and access plans for community water resources to ensure sustainable management of water systems and equitable distribution of community water resources. At the LLG level, staff will be trained in emergency preparedness and responses as well as putting in place a plan that is forward-looking. At the district level, the project will strengthen capacity to develop district-wide WaSH plan that takes into account climate change, gender equality and social inclusion, and environmental considerations. At the provincial level, WaSH sector coordination will be strengthened to ensure inclusion and participation of all stakeholders including NGOs, CSOs and private sector. It will also provide a venue for showcasing and sharing the project's experience and best practices for scaling up. Finally, the project will sustain adaptation benefits and replicate best practices through its knowledge management component that will support a mainstreaming of these best practices into existing government programs and plans.

As suggested by participants during the consultation workshop, there will be a market assessment of equipment and suppliers (tanks, drilling services, installation, etc) in New Ireland to identify durable and good quality products during full proposal development. For all hard investments planned under Component 1 during project implementation, the project will consult with Water PNG and emphasize the purchase of durable equipment, hence contributing to the project's investment technical sustainability.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project/programme.

The project aims to strengthen the resilience of vulnerable populations to the adverse effects of climate change, especially in terms of improved access to water supply, by providing strengthened community infrastructure. Improved water supply and water treatment practices will provide safe drinking water for communities especially for the most vulnerable groups of people including disabilities, youth, and elderly. This, in turn, will improve productivity and education attendance due to reduction in time required for collecting water, reduce social tensions caused by severe water shortages, and help reduce incidence of water-stress related diseases.

The project will be implemented in three locations in New Ireland, two of which are island and atolls (Djaul Island, and Tigak Group of Islands), where access to clean water is a challenge and will be further exacerbated with climate change. The project will implement a suite of interventions to enhance access to clean water supply, depending on localities and available sources of freshwater. Potential adverse impacts associated with project activities, especially Component I, are foreseen to be medium and site-specific especially surface and groundwater withdrawal, and unequitable access to resources. Therefore, Category B of Environmental and Social Safeguard (medium risk) has been assigned to this project.

Table 4. Assessment of Environmental and Social Risks for each component and outputs

Component	Risk Categorization
Component 1: Increase access to reliable and clean water supply	Risk: Medium Potential Impact: Medium Output 1.1 is focused on maximizing rainwater harvesting by improving collection efficiency and increasing storage, so the nature of the risk to environment is perceived to be low. However, the risk associated with access to water in public spaces (schools, churches, meeting venues) will need to be mitigated to avoid any conflict among villagers. There are several other activities in Output 1.2, which present specific E&S related concerns especially Activity 1.2.1 associated with drilling of new borehole (potentially in Djaul and Lemakot), and Activity 1.2.2 regarding a gravity-fed surface water system in Djaul. This will require an environmental and social impact assessment to be conducted as part of site assessment and ensure that access to such water source doesn't result in any adverse effect to the environment, as well as social conflicts in terms of ownership of the source of water, water standpoints, access to water, etc. A proper assessment and water quality testing will be undertaken during full proposal elaboration to ensure the sources of water meet minimum quality standards.
Component 2: Improve forward-looking response capacity, planning and coordination, knowledge and awareness to enhance water security in the face of climate-induced events.	Risk: Low (Environmental aspect) – Medium (Social aspect) Potential Impact: Low Activities under this Component pertain to capacity building, policy development, and knowledge and information management. Therefore, these are low risks. Nevertheless, when the community WaSH committees are formed, there is a medium to high risk that women and youth will continue to be excluded. Therefore, a dedicated activity has been designed to raise awareness of benefits for participatory decision-making process and empower women and youth to participate in water management in their communities.

The project will primarily enhance collection of rainwater, protect existing wells, capitalize on alternative sources of water, and provide water treatment. While the project will not involve any big infrastructure or major constructions, some of the interventions (shallow well, groundwater, gravity-fed water systems) will have some environmental and social effects, if not well managed and without effective mitigation measures. Risks could arise from over-withdrawal of freshwater from sources other than rainwater, potential disputes on access to public water points, and landownership issues. Therefore, the environmental and social principles and policy of SPREP and PNG will be triggered to avoid and minimize negative impacts and environmental and social risks.

Table 5 Checklist of environmental and social principles

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law		Risk: Low There is a possibility of lack of compliance with laws, regulations, and guidelines (i.e no environmental and construction permits) during the implementation of interventions. It is important to note that under the PNG Environment Act 2000, certain activities with low environmental risk are exempted from full EIA. The ESA during the full proposal stage will include an analysis of relevant laws and outline how the project ensures compliance with them. Further, compliance with laws will be ensured throughout project implementation
Access and Equity		Risk: Medium There is a risk of some beneficiaries being denied equal access to water. To address the matter, the project activities under Component 1 are designed to engage and benefit communities, especially vulnerable people. Under Component 2, all trainings and capacity building activities will be inclusive, leaving no one behind and particularly ensure adequate gender and youth representation throughout. Due to the complicated customary land tenure system in PNG, access to water resources (ground, springwater) will have to be well planned and executed with prior consent obtained from the land or resources owner. This will be undertaken as part of ESMP.
Marginalized and Vulnerable Groups		Risk: Low Although, the project aims to increase access to clean water supply, there is a risk that certain groups, especially for vulnerable people including disabled, women, youth, elderly, and low-income households, may still be excluded. Target geographic coverage of project interventions represents predominantly poor and vulnerable communities. To mitigate this issue, consultations have and will continue to capture all issues and needs of marginalised and vulnerable groups given the potential risk in respect of equitable distribution of water resources (i.e under Activity 1.1.3), to be further assessed through mapping of needs and also gender assessments at full funding proposal stage. The proposed project will adopt the Leaving no one behind (LNOB) principle as a central aspect of the project. To ensure that

		the project benefits are distributed in an equitable and inclusive manner, an initial selection criteria to be used at implementation has developed under Activity 1.1.3. The selection criteria will be further refined at full funding proposal stage.
Human Rights		Risk: Low There is a risk that during implementation of project, there is inadequate consideration of human rights. Also, there might be incidence of mal-adaptation. Some adaptation interventions might cause inconvenience for certain groups of people. To mitigate this potential risk, a people-centered approach will be adopted during implementation for all activities to ensure that people's and communities' rights are always protected. Additionally, after the full ESA and social impact assessments, appropriate preventive measures will be included in the design. Furthermore, all activities will respect and adhere to national legislation and international conventions on human rights
Gender Equality and Women's Empowerment		Risk: Low There is a risk that gender considerations are not fully integrated to the project design and implementation. To mitigate the risk, the project design has included and will actively pursue equal participation of men and women in project activities under Component 1 & 2. Capacity development and Community WaSH Committee (CWC) activities under Component 2 will specifically promote gender equality and empowerment. Furthermore, Gender Assessment and Action Plan will be developed during full proposal stage to ensure interventions that promote gender equality and women's empowerment.
Core Labour Rights		Risk: Low There is a risk that project activities may not adequately consider core labor rights. To mitigate the risk, the project will uphold international and national labor laws and standards that complement cultural norms and practice. Also, the project will use labor from the communities for some unskilled tasks as part of in-kind contribution from communities or as paid laborers.
Indigenous Peoples		Risk: Medium There is a risk that some project activities do not integrate fully the inputs of the community and leadership during design and implementation. To mitigate this, a people-centered approach will be adopted for all activities to ensure that people's and communities' rights are always protected. Also, stakeholder engagement plan will be developed and implemented to ensure that communities make a well-informed decision. This will be elaborated in the ESMP

		during full proposal stage. Also indigenous knowledge and governance systems will be well captured and respected to encourage full participation.
Involuntary Resettlement	X	Risk: No observed risk None of the project activities are envisaged to lead to relocation or displacement. No expropriation or relocation of people will be undertaken. The project will only add value to existing community setups.
Protection of Natural Habitats		Risk: Low Gravity-fed surface water systems and groundwater systems in activities under Component 1 may render some risks to the surrounding environment and will need to be taken into consideration. To mitigate this risk, an Environmental and Social Impact Assessment (ESIA) will be conducted for some water systems (drilling of new groundwater and gravity-fed surface water) in line with the AF's ESP principles with measures proposed in the environmental and social management plan.
Conservation of Biological Diversity		Risk: Low There is a risk that vegetation clearance for establishment of groundwater and/or gravity-fed water system may result in loss of biodiversity on those sites. To address this, the selection of proposed construction site areas will focus on avoiding sensitive habitats, informed by site assessment and ESIA.
Climate Change		Risk: Medium There is a potential risk that project activities may lead to maladaptation if they are not based on solid understand of local context and adequate information. To mitigate the risk, the project design is based on consultative process and the stakeholder engage plan will be developed at full funding proposal stage. Furthermore, the project will be designed and implemented based on information from studies such as ESIA. Under Component 1, some GHG emissions will be generated during the transportation of equipment (tanks, pipes, pumps, etc.) to communities, especially by boat to Djaul and Tigak. However, these are anticipated to be small.
Pollution Prevention and Resource Efficiency		Risk: Medium The project will implement some construction and installation activities involving plastic tanks, pipes, cement, etc. There could be unnecessary and harmful disposal and dumping of waste, if not well managed. The ESMP will provide measures that must be implemented to avoid spillage and pollution, waste management.

Public Health		Risk: Low There may be a risk of occupational health and safety issues during installation and construction of water systems that may result in injuries to workers or community members. Safety and protective equipment will be provided for workers who are working on site. Agreement of Cooperation with contractors and suppliers will stipulate this. Above all, the project will be implemented in compliance with all laws and guidelines including public health.
Physical and Cultural Heritage	X	Risk: No observed risk There are no UNESCO or other listed heritage sites or buildings in the project areas. So, the project is unlikely to have any direct impact on this.
Lands and Soil Conservation		Risk: Low Drilling boreholes under Activity 1.2.1 may negatively impact land and soil conservation efforts, primarily through potential groundwater contamination, soil erosion, and habitat disruption. As a mitigation measure, detailed environmental and social safeguards (ESS) will be undertaken at full funding proposal stage, to ensure that the drilling is done in line with international best practices, AF guidelines and the national policies of PNG. Other measures to be adopted during project implementation include careful site selection, using environmentally friendly drilling fluids, implementing proper waste management, and restoring the site after construction.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Demonstrate how the project/programme aligns with the Results Framework of the Adaptation Fund

A preliminary mapping of the project level objective and outcomes against AF Strategic Results Framework has been provided below. This is based on consultations and analysis to date and will be revised at full proposal stage dependent on more in-depth consultation and analysis.

Project Objective(s)[93]	Project Objectiv Indicator(s)	Adaptation Fund Outcome	Adaptation Fund Outcome Indicator	Grant Amount (USD)

[93] The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

Objective1: Enhance access to reliable and climate-resilient clean water supply for rural communities in New Ireland Province through improved	Number of people with enhanced access to climate-resilient clean and safe	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.2 Physical infrastructure improved to withstand climate change and variability-induced stress	1,912,200
Objective 2: Strengthen institutional and community capacity for drought preparedness, response coordination, and climate-resilient water security planning.	i) Number of staff and community members with increased capacity to respond to climate-induced water scarcity and drought events	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1 Capacity of national and sub-national institutions strengthened to respond to climate change risks	618,300
	ii) Number of tools, guidelines, awareness activities and knowledge products developed and applied by institutions and communities	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1 Targeted population groups aware of adaptation and climate risk reduction processes	400,000
Total outcome level grant amount				**2,930,500**
Project Outcome(s)	**Project Outcome Indicator(s)**	**Adaptation Fund Output**	**Adaptation Fund Output Indicator**	**Grant Amount (USD)**
Outcome 1: Increased access to reliable, safe, and clean water supply through optimized rainwater harvesting and alternative water sources.	Number of people with increased access to reliable, safe and clean water supply	Output 4**:** Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	4.1.2 Number of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change	1,912,200
Outcome 2: Improved forward-looking capacity, planning and coordination for climate-induced drought and water scarcity management.	i) Number of staff trained and institutions strengthened to respond to climate-induced water security risks	Output 2.1: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.1 Number of staff trained to respond to and mitigate impacts of climate-related events (disaggregated by gender)	618,300

	ii) No. of tools, guidelines and knowledge products developed and disseminated; no. of institutions and communities applying them	Output 3.2: Strengthened capacity of national and sub-national stakeholders and entities to capture and disseminate knowledge and learning	3.2.2. No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	400,000
Total output level grant amount				**2,930,500**

** Please note that project specific indicators will be developed at full proposal stage after further analysis and project level consultation have taken place.*
*** Budget allocations per outcome/output will be further refined at full proposal stage*

B. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

Not required at the concept note stage.

C. Include a disbursement schedule with time-bound milestones.

To be added at full proposal elaboration

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[2] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

Debra Sungi *Acting Managing Director* *Climate Change &* *Development Authority* *Papua New Guinea*	Date*: 09/05/2025*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme*

contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (the PNG Vision 2050, the PNG Development Strategic Plan 2010 - 2030, the Medium-Term Development Plan IV 2023-2027, PNG's Enhanced National Determined Contributions, and the PNG National Adaptation Plan, the Climate Change (Management) Act 2015 and relevant regulations) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme
Name & Signature Salome Tukuafu  Strategic Partnerships and Donor Relations Adviser
Date: 04092026 | Date: *(Month, Day, Year)*
Project Contact Person: Filomena Nelson, Climate Change Adaptation Adviser
Tel. +685-21929 And Email: mailto:filomenan@sprep.org

[6.] Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

CLIMATE CHANGE AND DEVELOPMENT AUTHORITY

OFFICE OF THE MANAGING DIRECTOR

Enchi Building, Ground Flr, Fig Street, Wards Road Hohola, Port Moresby
P O Box 4017, Boroko 111, National Capital District,
Papua New Guinea

Telephone: (+675) 3414286 I Mobile: (+675) 77007851 or 77007955 I Email: garau.podi@ccda.gov.pg I Website: www.ccda.gov.pg

Date: 13th December 2024
Ref: A/MD_AFB01-2024
A/O: je

LETTER OF ENDORSEMENT BY GOVERNMENT

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: afbsec@adaptation-fund.org
Fax: 202 522 340/5

SUBJECT: ENDORSEMENT FOR "ENHANCING CLIMATE RESILIENCE WATER SECURITY IN REMOTE VULNERABLE REGION OF NEW IRELAND, PAPUA NEW GUINEA "CONCEPT NOTE

In my capacity as the Designated Authority for the Adaptation Fund in Papua New Guinea (PNG), I confirm that the above project concept note is in accordance with the Government of Papua New Guinea's national priorities in implementing adaptation activities to reduce risks and adverse impacts posed by climate change in Papua New Guinea.

Accordingly, I am pleased to endorsed the above Project Concept Note for support from the Adaptation Fund. If approved, the project will be implemented by The Secretariat of the Pacific Regional Environment Programme (SPREP) and executed by the Government of Papua New Guinea through the Climate and Development Authority.

Yours sincerely,

Climate Change & Development Authority Common Seal

DEBRA SUNGI (MS)
Acting Managing Director
Climate Change and Development Authority
Government of Papua New Guinea

Describe how the project/programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project/programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the AdaptationFund.

The proposed components, outcomes and outputs are fully aligned with i) the national and provincial government and sectoral priorities and gaps, ii) needs of community and vulnerable groups, and ii) the Adaptation Fund Outcomes, especially Outcome 4, Outcome 2, and Outcome 3.

Extreme weather events and natural disasters induced by climate change disproportionately impact women and men, and people living with disabilities. Despite the fact that women are socially prescribed to play key roles in WaSH activities at home and in communities such as water collection duties, food preparation and family care, they are most of the time excluded from WaSH decision-making and not considered as leaders. As a result, this reduces their agency and resilience to adequately respond to climate-related events.[1]

The central benefit of the project is to enhance community climate resilience to water security caused by droughts, floods and saltwater intrusion induced by sea-level rise, and changing rainfall patterns through a variety of interventions. These include:

- Optimization of rainwater harvesting through improved efficiency and increased storage of rainwater catchments, optimization of alternative sources of freshwater, where available and suitable, including water treatment (Component I)
- Improved institutional strengthening at provincial, district, LLG and community's level including capacity building, coordination, planning, women and youth participation and empowerment, and knowledge management on effective water management practices (Component II).

Successful implementation of this proposed project will provide many other co-benefits in terms of environmental, social and economic aspects in the short and long term as follows.

Environmental benefits

- One key project activity is to implement measures to protect existing water wells, which will in turn reduce contamination of groundwater.
- Rainwater harvesting can reduce stormwater runoff, which can reduce flooding, erosion, and water pollution.
- Kavieng District WaSH plan will have environmental sustainability, and gender and social inclusion as a cross-cutting theme. This will facilitate mainstreaming of

[1] https://www.waterforwomenfund.org/en/project/water-for-women-papua-new-guinea.aspx

environmental concerns especially climate change in the district-wise WaSH interventions.

- Long-term knock-on benefit will come from reduced reliance on bottled water, which in turn will result in less plastic waste generation.

Social benefits including gender and social inclusion, health and wellbeing

- The project will install water assets in communal spaces such as schools, health facilities meeting rooms, etc for community members to access. Gravity-fed water system will also allow communities to access water through multiple water points.
- In particular, the project will benefit marginalized groups that include women, girls, elderly, the youths, disabled and also Indigenous People (IPs)[2] as water will be available at their door steps and will be accessible by all. New Ireland Province has a population of 232,000 people, and women make up 48% of the population. The province has a young population as 40% of the people are under the age of 15 years, whereas just 3% of the population is above 65 years old. The number of people living with disabilities in the province stood at 1,600[3]. Women are disproportionately affected by climate change due to social norms and gender roles that assign them domestic responsibilities for WaSH. The marginalized groups including IPs were identified and consulted during scoping mission (community visit), and representatives from all three locations attended and agreed to the proposed interventions during the consultation workshop. Some of the needs for marginalized groups identified from the consultation process at concept note stage include limited participation of women in decision-making processes related to WaSH, and the lack of capacity of marginalized groups. The afore-mentioned needs were taken into consideration in the design of the project. For example, women will also benefit from capacity building under Component 2 which will empower them to take on leadership roles within the Community WaSH Committees (CWCs) or other local governance structures.
- The project will strengthen the capacity of the people to reduce their vulnerability to the impacts of the climate change and will at the same time strengthen the participation of vulnerable groups (youth and women) in the decision-making on the use of the resources and services provided by the ecosystems. The project's actions will contribute to reducing social conflicts, reducing gender gaps and maintaining the environmental conditions that sustain the livelihoods of the communities.
- Community will be empowered by increasing the capacity of rural communities to optimize, manage and protect their water sources. Capacity building and awareness raising programs will help enhance their understanding of the complex nexus between climate change, water scarcity, and health issues.
- School children will have more time to study in the evenings. The risks of going

[2] National Population Statistics (2021). Accessed on 1 Feb 2025 from: https://www.nip.gov.pg/wp-content/uploads/2023/07/New-Ireland-Pop-Estimate-Results-1.pdf

[3] The National, (2015). Province Implements Pension Policy. Accessed on 1 Feb 2025 from: https://www.thenational.com.pg/province-implements-pension-policy/#:~:text=New%20Ireland%20was%20the%20first%20province%20to,from%20the%20programme%20facilitated%20under%20the%20policy

distances to collect water will be removed. The general wellbeing of households would be expected to improve.

- Improved access to water supply will also reduce pressure on women and youths who are responsible for domestic tasks including water collection.
- Provision of safe and clean water will lead to a decrease in climate sensitive (water borne) diseases such as diarrheal illness, typhoid, skin, and eye infection, and will improve sanitation and hygiene conditions especially for women and girls, thus better health outcomes for communities.
- Improved rainwater harvesting systems in household and community buildings and optimization of alternative water sources are expected to have a positive impact on school attendance rate especially for girls and boys. The project will specifically offer gender co-benefits from improved water quantity and quality at both household and community levels, thus creating a more equitable access to water resources for vulnerable groups including women, children and elderly. Benefits will include:
    - Training and awareness raising programs on water management practices and monitoring of efficient use of water will support a more equitable distribution of water resources especially during drought events.
    - Participation and empowerment of women and youths in community water management and hygiene practices will also contribute to improving their self-esteem and social standing in the community.

With regards to women and youth, who are particularly more vulnerable to lack of access to clean water, the project will help them to:

- Reduce workload from time spent fetching water from sources far way, which will enable them to spend more time with families and communities
- School children will have enough time for studies in the evenings which will result in improved performance in school
- Mothers will have some time to rest which will contribute to their overall wellbeing
- Remove the risk taken when going distances to collect water
- Improve their health and wellbeing as a result of increased access to clean and reliable water supply
- Improve skills and knowledge, as they will also benefit from several training programs to be conducted through the project. The trainings will be related to water conservation and prioritization practices especially relating to WaSH requirements, water related health issues and hygiene/sanitation.
- Promote more equitable household workload. The project will use the household methodology, which will involve men and women as a couple with equal participation in the activities taking into account the specific needs of each gender. This will also help gender relations, mutual trust, and ensure effective participation of women in decision making.
- Increase their participation in decision making within the WaSH profession and also at community level by implementing gender sensitive decision-making approaches
- Significantly reduce unemployment among women and youth, by ensuring that they

have access to the jobs to be created through the project activities.

An initial gender analysis was carried out through a desk review, which enabled the characterization of the gender profile of the project target areas in New Ireland Province. The analysis consisted of establishing the current situation of the beneficiaries and local communities regarding gender. This analysis showed that just 20% of the rural population in PNG has access to reliable and clean water, and that the huge responsibility for water collection for household purposes the maintenance and cleanliness of sanitation facilities, children's sanitation, and the hygiene practices of the family, primarily falls on women and young girls. Furthermore, inadequate WaSH services increase health risks for women and girls. In addition to WASH-related infectious diseases, like diarrhea and acute respiratory infections, women are vulnerable to harassment, violence, and injury when they have to go outside the home, often long distances, to fetch water or use the toilet. Time spent on domestic chores can also limit girls' chances of progressing further with their education and gaining employment. The situation is further compounded by the lack of representation of women in decision making roles either political in parliament and communities or in the WaSH profession.

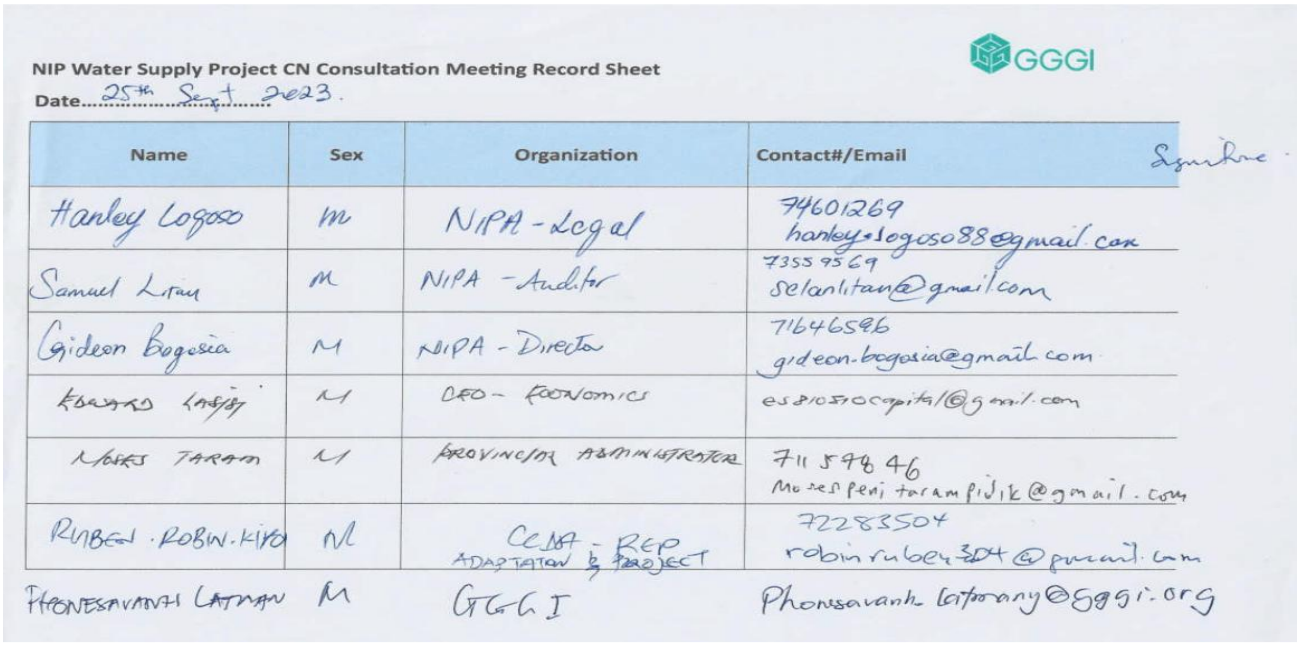
The initial gender analysis also showed the different needs, capabilities, roles, activities, available opportunities and challenges for both men and women. To ensure that gender is considered for an equitable sharing of resources, the project focuses on women and youth groups from the formulation stage. All stakeholders will be involved in the identification, design, planning, implementation, monitoring and evaluation of project activities. A more detailed gender assessment will be carried out at the stage of developing the full proposal to ensure that all aspects of equity, accountability and representation are fully integrated into the project.

Economic benefits

- Economic benefits will be derived from reduced time spent on water collection, avoided health costs related to sickness and exposure to untreated water for consumption, and finally avoided disaster response cost at a larger scale. This in turn will lead to positive secondary co-benefits from improved productivity and long-term human development and well-being in the community.
- Jobs will be created both during project implementation (associated with installation and construction of water technologies) and after project (associated with operation and maintenance by service technicians).

During full proposal elaboration, technical assessments including gender assessment, environmental and social safeguard assessments, and stakeholder engagement, cost and benefit analysis will be undertaken to validate and confirm these environmental, social and economic benefits including benefits to marginalized, vulnerable and/or indigenous communities.

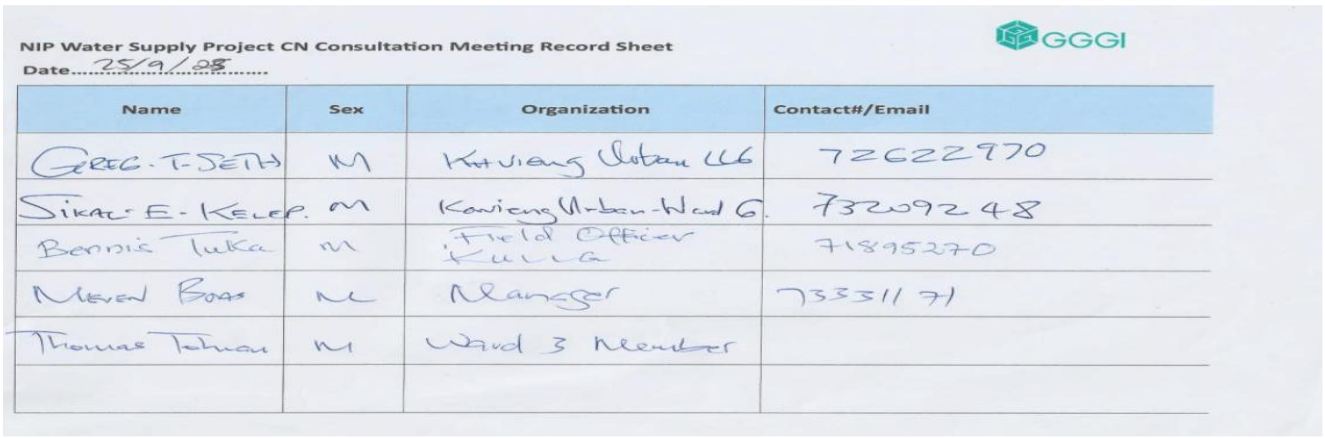
Annex 4 – People met during a scoping mission in September 2023



NIP Water Supply Project CN Consultation Meeting Record Sheet

Date 25th Sept 2023.

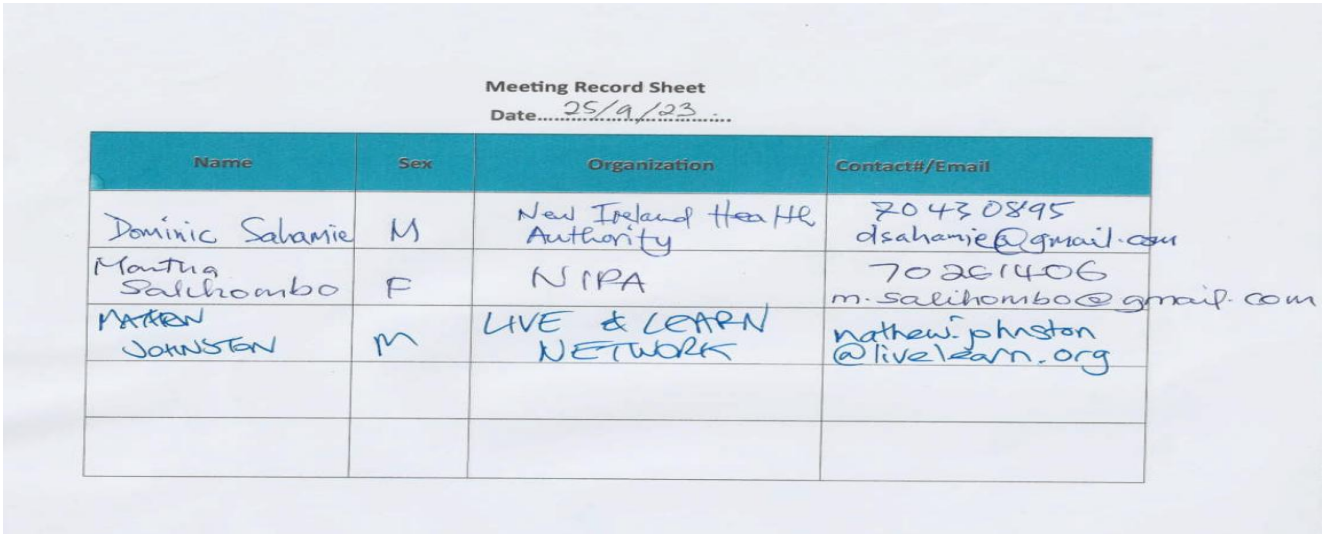
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NIP Water Supply Project CN Consultation Meeting Record Sheet

Date 25/9/23

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Bernie Tuka	M	Field Officer KULCA	71895270
Nelson Boas	M	Manager	73331171
Thomas Tahian	M	Ward 3 Member	



Meeting Record Sheet

Date 25/9/23

Name	Sex	Organization	Contact#/Email
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NIP Water Supply Project CN Consultation Meeting Record Sheet

Date 26/9/2023

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(1)

NIP Water Supply Project CN Consultation Meeting Record Sheet

Date 27/9/2023

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MARY TUROCHAI	F	LEMAKOT P/S HEADTEACHER	72830329
ANNA KARAMEL	F	LEMAKOT PRIMARY SCHOOL – Senior Tr.	70484188
MARYANNE SABUTAN	F	LEMAKOT P/SCHOOL V/CHAIRLADY BOM	79880455
ANNETE MALAYANA	F	NBC, KAVIENG	73867556
PHILIP TAMELA	M		72653210
PIUS KAPILIS	M	LEMAKOT ONE COMMUNITY VR CHAIRMAN	74854837
STEVATUS MANDRA	M	LEMAKOT 2 VPC CHAIRMAN	—

(2)

Supply Project CN Consultation Meeting Record Sheet

27/09/23

Name	Sex	Organization	Contact#/Email
RONALD BAKAI	M	WARD RECORDER.	72290407
JEREMIAH. NORMAN	M	V.P.C CHAIRMAN	72938688
SAMSON PELL.	M	V.P.C CHAIRMAN	
LAWRENCE MAILENG	M	V.P.C CHAIRMAN	79180202.
SALE PATRICK	M	V.P.C CHAIRMAN	
GAMUI MAIREM	M	V.P.C CHAIRMAN	
PETER UNANGMI	M	TIKANA LLG –	714 79985
JULY KUKI	M	LLEE	7392 1553

Supply Project CN Consultation Meeting Record Sheet

27/9/23

(3)

Name	Sex	Organization	Contact#/Email
EDDIE MARAWAT	M	MAI MAI	72906983
LALU SALE	M	MAI MAI	71779035
WESTER BART	M	VILLAGE COURT MAGISTRATE	74542855
EPHRAEM KAMWIEL	M	YOUTH CHAIRMAN	72390475
OBED MAKIS	M	BAKAL	
TOLOLO BISAK	M	LAW + ORDER.	

Supply Project CN Consultation Meeting Record Sheet

27/9/23

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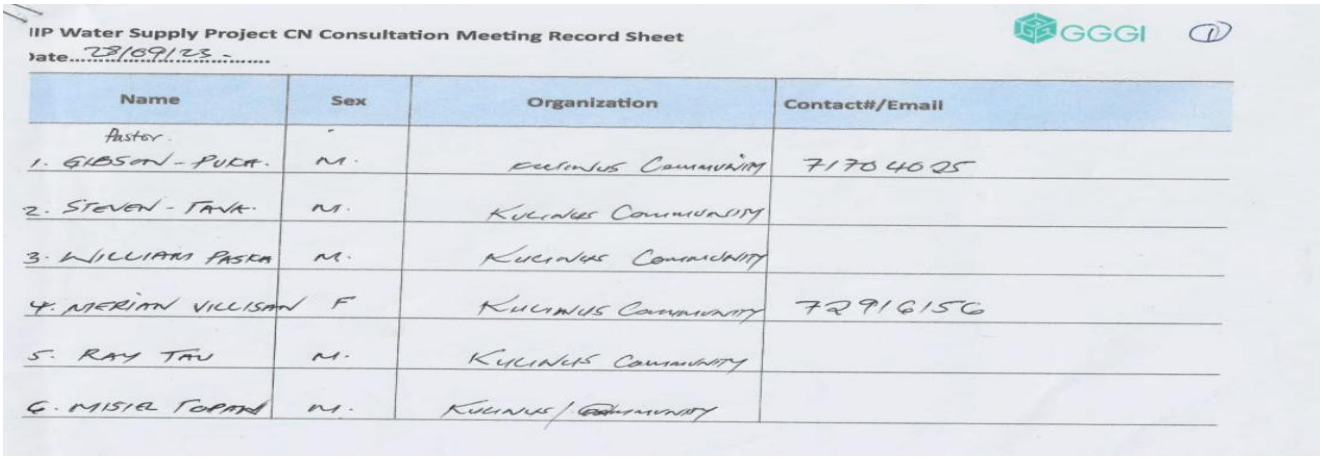
Name	Sex	Organization	Contact#/Email
ISAREL NORMAN RENALD BARAI	M	YOUTH CHAIRMAN	79337735
CHRIS MISSION JEREMAIAH	M	CHURCH REP.	70341531
FRANK APELIS	M	HEALTH SKIPPER.	74847769
ELIAS KONDAI	M	PASTOR	
NOLIS TOKOMIT	M	MAI MAI / BAKAL	
SAMUEL JAMES	M	PEACE OFFICER.	

Supply Project CN Consultation Meeting Record Sheet

27/9/23

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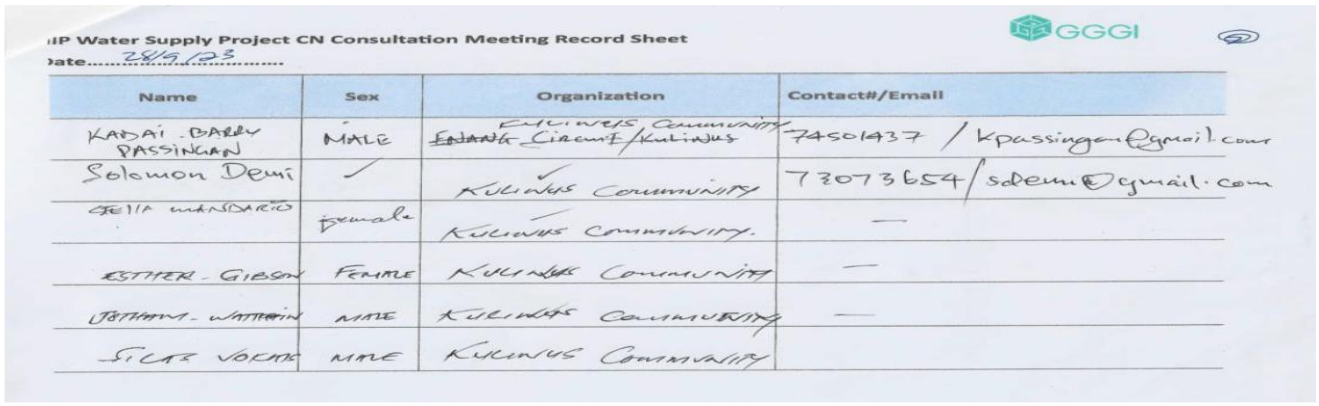
Name	Sex	Organization	Contact#/Email
VIVIAN LAMEMES	F	W/FELLOWSHIP REP.	
CYNTHIA NORMAN	F	W/FELLOWSHIP REP.	74819479
ARUS EDDIE.	F	W/FELLOWSHIP REP.	70078996
BELINDA TUTUMAN	F	SCHOOL TEACHER.	74890014
GOLAN SANGAU	M	LAW + ORDER.	72310217
PHILLIP TUTUMAN	M	SCHOOL TEACHER.	79136958



IIP Water Supply Project CN Consultation Meeting Record Sheet

Date 23/09/23

Name	Sex	Organization	Contact#/Email
Pastor 1. GIBSON - PUKA.	M.	KULINUS Community	71704025
2. STEVEN - TAVA.	M.	KULINUS Community	
3. WILLIAMS PASKA	M.	KULINUS Community	
4. MERIAN VILLISAN	F	KULINUS Community	72916156
5. RAY TAU	M.	KULINUS Community	
6. MISIEL TOPATA	M.	KULINUS Community	



IIP Water Supply Project CN Consultation Meeting Record Sheet

Date 26/9/23

Name	Sex	Organization	Contact#/Email
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Solomon Demi	✓	KULINUS Community	73073654 / sdemi@gmail.com
CECILIA MANSDARIO	female	KULINUS Community.	—
ESTHER - GIBSON	FEMALE	KULINUS Community	—
JOTHAM - WATTAIN	MALE	KULINUS Community	—
SILAS VOKAI	MALE	KULINUS Community	

Annex 5 – List of Participants at the consultation workshop on 21st March 2024

Multistakeholder Consultation Meeting
Draft Concept Note on Enhancing climate resilient water security in remote vulnerable region of New Ireland, Papua New Guinea

21st March 2024, Level 1 - Meeting Room

No.	Full name	M/F	Position	Organization	Contact number	Signature
1	Navara Kiene	F	Country Director	Water Aid	72880317	
2	Shirlee Dindillo Rovou	F	WaSH Technical Advisor	Water Aid	76445601	
3	Ray Kangu	M	WaSH	Department of Health	73001023	
4	Iki Peter	M	Acting Manager-Adaptation Branch	CCDA	73770078	
5	Benedict Golye	M	Adaptation Officer	CCDA		
6	Jacob Ekinye	M	General Manager-A&P	CCDA	71421497	
7	Estella Bunbun	F	WASH PMU	DNPM	78496509	
8	John Nokue	M	WASH PMU	DNPM		
9	Benjamin Kiap	M	WASH PMU	DNPM	78690744	
10	Phonesavanh Latmany	M	Technical Advisor	GGGI-CFAN		
11	Josephine Soroguku	F	Adaptation Officer	CCDA	7520 8657	
12	BENJAMIN A. 2	M	ACA (↔ DCR		73186796	

Sharon Tubal – GGGI / SPREPORIE – Bilemina – Bureni



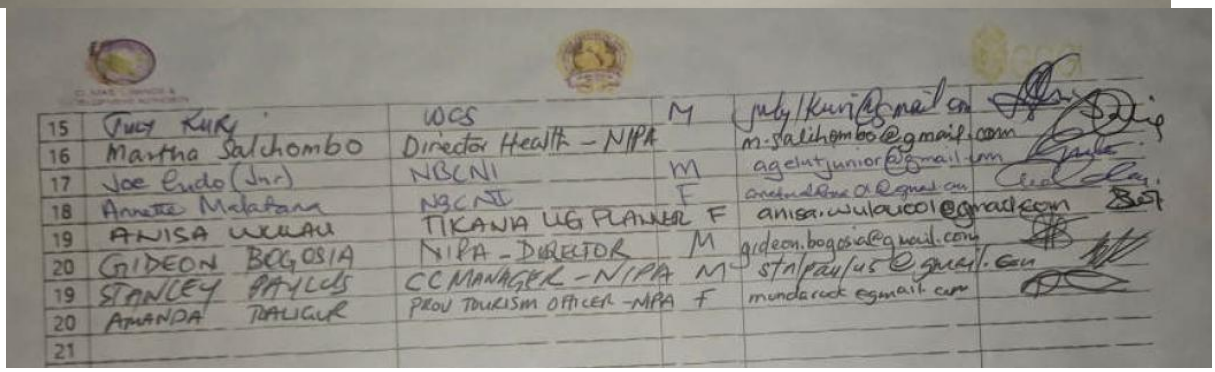
REGISTRATION FORM

Multistakeholder Consultation Meeting

Enhancing climate resilient water security in remote vulnerable region of New Ireland, Papua New Guinea

Location: GGGI and Joti & Daughters Conference Room
Date: 21st March 2024

	Name	Organization	Gender	Email or Phone Number	Signature
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7	BENJAMIN SAMUEL	UTUKUL ISLAND	M	Blank.	
8	STANLEY GUAT	UTUKUL Island	M	Chairman	
9	Pele Wunais Passingan	Upper Island	F	Not Applicable	
10	Rejoyce David	Upuas Island	F	74970174	
11	Solomon Demi	Upuas Island	M	—	
12	Gary Lagan	Kulinus	M	—	
13	GRAHAM CHAN	WARD 2. MEMBER	M	71752198	
14	Rebecca Samuel	WCS	F	rsamuel@wcs.org	



15	JUDY KUKY	WCS	M	judy.kuky@gmail.com
16	Martha Salchombo	Director Health - NIPA		m.salichombo@gmail.com
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20	AMANDA TALIGUR	PROV TOURISM OFFICER - NPA	F	munderock@gmail.com
21				