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: 3,469,627 (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: Click or tap to enter a date.

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. 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[7].

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[8], 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%[9]. Poverty, poor infrastructure, inaccessibility to basic services, corruption, safety, and security concerns, among other factors heighten the vulnerability of the local population[10]. 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[11]. The economy is dominated by the capital-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

[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] UNDP (2022). Human Development Report 2021-22: Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World. New York
[8] https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=PG (accessed 27 June 2023)
[9] https://www.adb.org/where-we-work/papua-new-guinea/poverty (accessed 30 January 2024)
[10] World Bank (2021). Climate Risk Country Profile, Papua New Guinea.
[11] https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=PG

impact of COVID-19 pandemic[12], 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[13]. Nevertheless, public debt remains high, accounting for 51% of GDP in 2022[14].

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[15]. The country ranks exceptionally low among global indicators on advancing gender equality and the elimination of violence against women and girls. Number of women in key leadership and decision-making roles remains 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[16]. 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. Women are faced with excessive workloads, malnutrition, poor access to safe water and healthcare service, and gender-based violence[17]. 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[18]. 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[19]. Women are increasingly recognized as leaders and are developing skills to move into elected office and other formal positions of authority[20]. Despite this progress, such barriers 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[21].

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[22,23].

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

[12] https://www.adb.org/sites/default/files/publication/27788/png-2022.pdf
[13] World Bank (2023): Papua New Guinea Economic Update, March 2023: Unlocking the Economic Benefits of Gender Equality
[14] https://assets.kpmg.com/content/dam/kpmg/pg/pdf/insights/National_Budget_2022_KPMG.pdf
[15] UNDP (2022). Human Development Report 2021-22: Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World. New York
[16] https://www.eastasiaforum.org/2022/09/02/where-are-the-women-in-pngs-parliament/
[17] JICA. 2010. Country Gender Profile: Papua New Guinea
[18] https://www.hrw.org/report/2015/11/04/bashed/family-violence-papua-new-guinea
[19] Department of Personnel Management, 2011, Gender Equity and Social Policy, PNG.
[20] USAID, 2013, Women's Economic Participation in Papua New Guinea: Achieving APEC Priorities for Gender Equality.
[21] SPC, 2012, Stock-take of the Gender Mainstreaming Capacity of Pacific Island Governments, PNG.
[22] Lambrou Y, Nelson S. Farmers in a Changing Climate: Food Security in Andhra Pradesh, India. Rome: FAO; 2010.
[23] Alber G. Gender, cities and climate change: thematic report prepared for cities and climate change global report on human settlements, 2011.

island in the world[24]. 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[25].

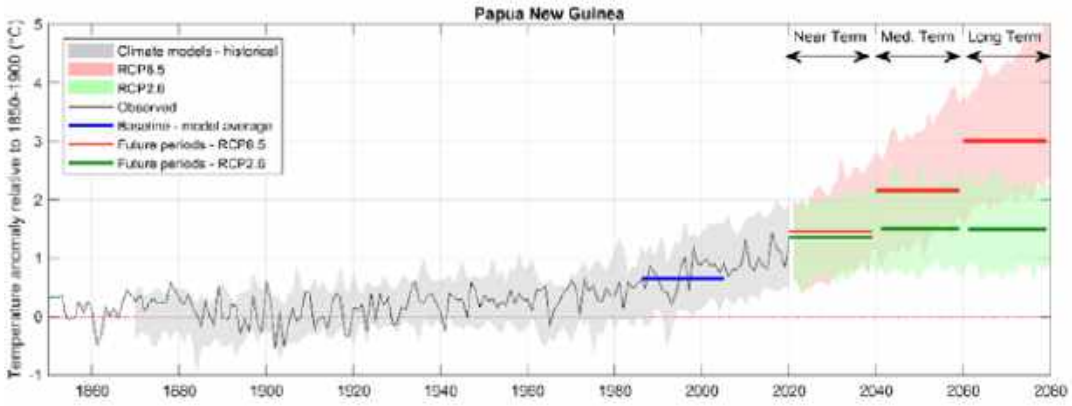
1.3 PNG Climate Context

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 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)[26].

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[27].

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[28].



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

[24] Cámara-Leret et al. (2020) New Guinea has the world's richest island flora. Nature 584, 579–583.
[25] https://soec.sprep.org/png/
[26] CCDA (2020). Papua New Guinea GCF Country Program
[27] World Bank (2021). Climate Risk Profile: Papua New Guinea
[28] CSIRO and SPREP (2021). 'NextGen' Projections for the Western Tropical Pacific: Current and Future Climate for Papua New Guinea.

warming that will be more significant for inland regions as compared to coastal areas[29]. Increase in average temperature will also lead to a rising number of hot days and warm nights and a decline in cooler weather[30].

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[31]. 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.

Figure 2. Average annual rainfall in PNG mainland relative to 1850 – 1900 (%)[32].

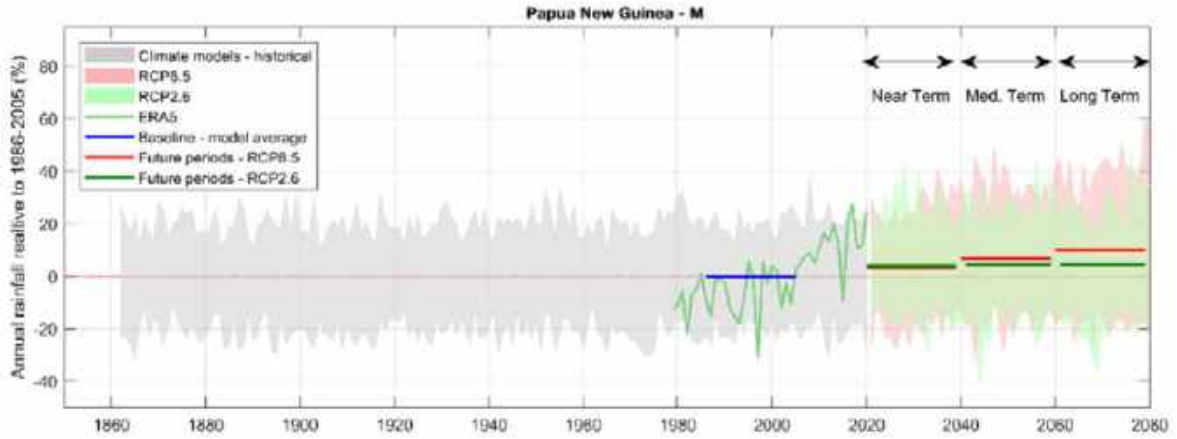
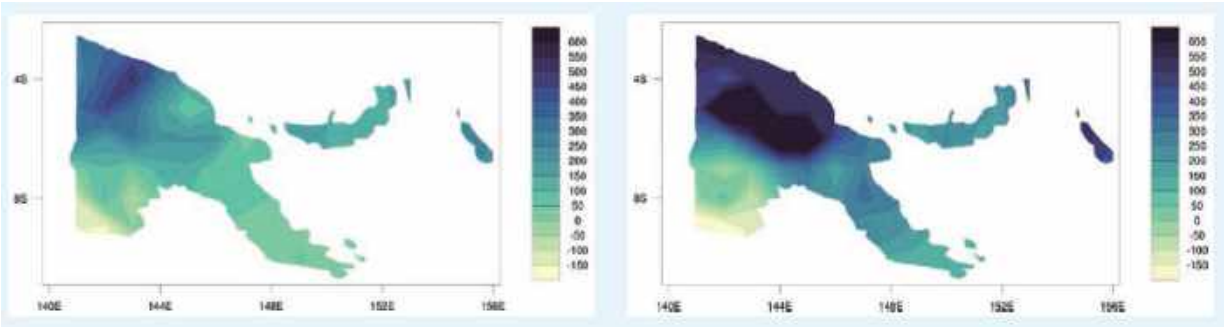


Figure 3. CMIP5 ensemble projected change in annual precipitation by 2040 – 2059 (left) and by 2080 – 2090 (right) relative to baseline under RCP8.5[33].



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[34]. The coastal

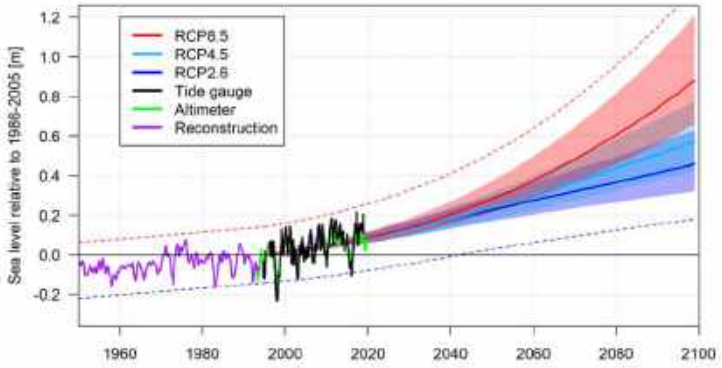
[29] World Bank: Climate Risk Country Profile, Papua New Guinea.
[30] https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/14_PCCSP_PNG_8pp.pdf
[31] World Bank. Climate Change Knowledge Portal (CCKP). https://climateknowledgeportal.worldbank.org/country/papua-new-guinea
[32] CSIRO and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

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[35]. 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.

Figure 4. Sea level rise projections for PNG[36].



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)[37]. Between 1890 and 2009, there were 15 widespread droughts in PNG, 13 of which were associated with El Niño events[38]. 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[39]. 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[40].

According to the PNG National Adaptation Plan[41], 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

[35] CCDA (2020). Papua New Guinea GCF Country Program
[36] CSIRO and SPREP (2021). 'NextGen' Projections for the Western Tropical Pacific: Current and Future Climate for Papua New Guinea.
[37] World Bank (2021). Climate Risk Profile: Papua New Guinea
[38] Cobon et al. (2016). Food shortages are associated with droughts, floods, frosts, and ENSO in Papua New Guinea. Agricultural Systems 145
[39] 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
[40] World Bank (2021). Climate Risk Profile: Papua New Guinea
[41] CCDA (2023). Papua New Guinea National Adaptation Plan

with Nauman et al., (2018) who suggest a large increase in drought frequency in the Oceania region[42].

Table 1. Climate projections for Papua New Guinea[43]

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[44], and 167th by the ND-GAIN Index 2023[45], 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[46]. In 2015-2016, ENSO related drought incident affected about 40% of the population with half a million people faced food shortages[47].

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[48;49;50;51;52]. In PNG, it is estimated that nearly 500,000 people throughout 2,000 coastal villages are vulnerable to weather extremes and flooding[53]. 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

[42] 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)
[43] GoPNG (2020). Enhanced Nationally Determined Contribution
[44] https://crisisresponse.iom.int/sites/g/files/tmzbdl1481/files/appeal/documents/2021-world-risk-report_0.pdf
[45] https://gain.nd.edu/our-work/country-index/rankings/ (accessed 30 January 2024)
[46] https://reliefweb.int/report/papua-new-guinea/drought-papua-new-guinea
[47] https://www.cfe-dmha.org/LinkClick.aspx?fileticket=AvmtAYhfkKw%3d&portalid=0
[48] GoPNG (2020). Enhanced Nationally Determined Contribution
[49] CCDA (2020). Papua New Guinea's Sustainable Development Goal 13 Roadmap.
[50] CCDA (2020). Papua New Guinea GCF Country Programme
[51] IOM (2015). Assessing the Evidence: Migration, Environment and Climate Change in Papua New Guinea
[52] UNDRR (2019). Disaster Risk Reduction in Papua New Guinea: Status Report 2019.
[53] CCDA (2023). Papua New Guinea National Adaptation Plan.

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[54]. The more frequent and intense rainfall events coupled with increasing sea-level rise are expected to intensify the risk of coastal flooding.

Figure 5. Sectoral impacts and vulnerabilities of Papua New Guinea[55]

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[56]. 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[57]. 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)[58]. Despite progress made to date, there remain significant capacity challenges in planning, finance and service delivery, especially at the subnational

[54] Papua New Guinea (2014). Second National Communication
[55] CCDA (2023). Papua New Guinea National Adaptation Plan
[56] Department of National Planning and Monitoring. (2020), Papua New Guinea's Voluntary National Review 2020.
[57] GoPNG (2023). Papua New Guinea Midterm Development Plan IV 2023 - 2027
[58] Department of National Planning and Monitoring (2015). PNG National Water, Sanitation and Hygiene (WaSH) Policy 2015 - 2030

level. Local level governments are constrained by remoteness, under-resourcing and low technical capacity[59].

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 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[60]. 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[61].

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[62].

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)[63]. 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[64]. 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[65].

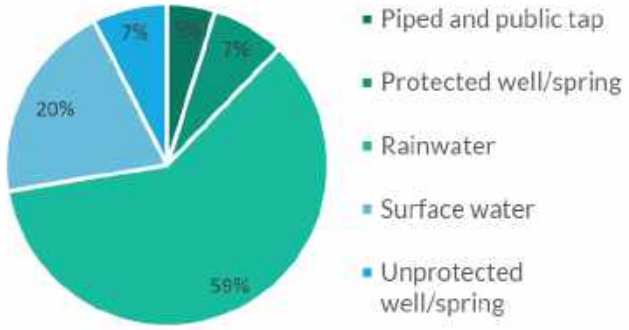
There is considerable uncertainty about precipitation trends in New Ireland as variability in rainfall trends over the years and complexity of rainfall patterns makes forecasting difficult. It was recorded that Kavieng has seen a decrease in wet season rainfall since 1950 with substantial variation in rainfall from year to year[66]. Estimates by the World Bank (2020) suggest a decrease in annual rainfall over the longer term in New Ireland[67]. Lastly, it is projected that vulnerability to drought will remain generally

[59] Department of National Planning and Monitoring. (2020) Papua New Guinea's Voluntary National Review 2020.
[60] https://www.un.org/en/climatechange/science/water-at the center of climate crisis
[61] World Bank (2021). Climate Risk Profile: Papua New Guinea
[62] GGGI (2022). Climate-Resilient Green Growth Strategy of New Ireland Province
[63] GGGI (2021). Climate-Resilient Green Growth Assessment in New Ireland
[64] D'Haeyer et al, (2017) Climate Risk, Vulnerability and Risk Assessment in the New Ireland Province in Papua New Guinea—Province and District Profile.
[65] Ganpat, Wayne G. and Wendy-Ann P. Isaac, Impacts of Climate Change on Food Security in Small Island Developing States, 2014.
[66] https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/14_PCCSP_PNG_8pp.pdf
[67] World Bank (2020). Papua New Guinea. Climate Data—Projections. Climate Change Knowledge Portal. World Bank Group.

higher in the northern part of New Ireland than in the south with intensified risk to agriculture and access to clean water[68]. 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 droughts[69].

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[70] (almost 60% in Figure 6). Access to rainwater is susceptible to episodes of drought[71] 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:

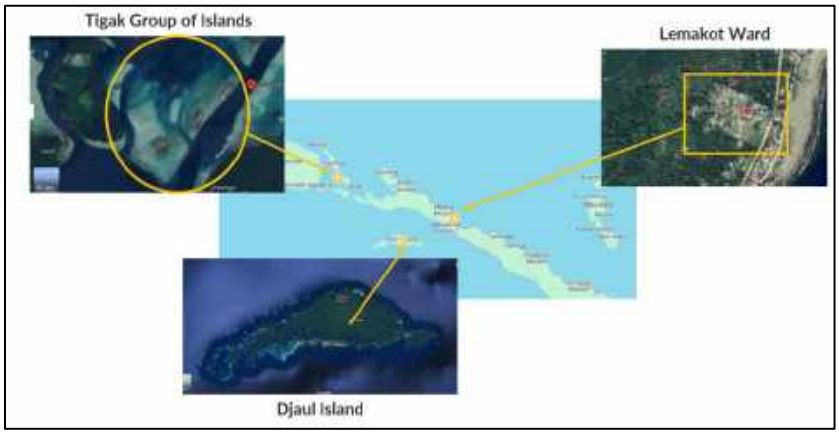
Djaul Island is located in the middle part of the province and can be accessed only by boat, which takes about 50 minutes from the mainland, after one and half hour drive from Kavieng town. There are six villages on the island, namely Piliwa, Lapai, Kaia, Kalaunapok, Sumuna, and Pantegom, with an estimated 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

https://climateknowledgeportal.worldbank.org/country/papua-new-guinea/climate-data-projections
[68] D'Haeyer et al, (2017) Climate Risk, Vulnerability and Risk Assessment in the New Ireland Province in Papua New Guinea—Province and District Profile.
[69] 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
[70] NSO and ICF. (2019). Papua New Guinea Demographic and Health Survey 2026 – 2018.
[71] GGGI (2021). Climate-Resilient Green Growth Assessment in New Ireland

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.

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) [72]. 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.

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

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 diseases[73]. 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.
- Finally, 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

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

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 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[74]. 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.

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

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	1,693,180
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.	Output 2.1 Climate change induced drought preparedness and response measures are implemented and WaSH within the province is well coordinated. Output 2.2 Monitoring, evaluation and learning enhanced to scale up water security practices	Provincial and district authorities and communities are better prepared and equipped to cope with climate change induced water scarcity issues through planned and coordinated efforts instilled by increased knowledge and best practices, taking into consideration gender	1,143,355

		equality and social inclusion.	
3. Project activity cost (A)			2,836,535
4. Project/Programme Execution cost (B) – (up to 9.5%)			328,664
5. Total Project/Programme Cost (A) + (B)			3,165,199
6. Project/Programme Cycle Management Fee charged by the Implementing Entity (up to 8.5%)			294,068
Amount of Financing Requested			3,459,267

Projected Calendar:

The project will be implemented over a four-year period from the beginning of 2025 until the end of 2028 with terminal evaluation at the end of 2028.

Milestones	Expected Dates
Start of Project/Programme Implementation	2025
Mid-term Review (if planned)	End of 2026
Project/Programme Closing	2028
Terminal Evaluation	2028

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.

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).

- Prioritization of poor households who will receive the rainwater harvesting tanks.
- Depending on the type of roof, the systems could be connected to the roof or have their own catchment areas.

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.

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. 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

- Support the bi-annual meetings of the Provincial Water Management and Coordination Committee (PWMCC)

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

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.

Output 2.2 Monitoring, evaluation and learning enhanced to scale up of water security practices.

This output aims to ensure long-term sustainability of the interventions through creating local technicians, participatory monitoring of project activities, and cross-learning to disseminate best practices and support scaling up of interventions to other locations. Activities under Output 2.2 include:

Activity 2.2.1 Training of community plumbers to provide repair and maintenance services.

Activity 2.2.2 Undertake participatory monitoring and evaluation of project activities.

- Baseline assessment, mid-term evaluation, and terminal evaluation by involving communities in collecting data
- 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 2.2.3 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); publish policy briefs and 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.

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 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

- 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.
- 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 disease such as diarrheal illness, 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:
    - Opportunities to generate additional income by women and youths especially when amount of time spent on collecting and carrying water will reduce, and when their family's basic needs are met as a result of better water security measures.
    - 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.

Economic benefits

- Economic benefits can derive from reduced time spent on water collection, avoided health cost related to sickness and exposure to untreated water for consumption, and finally avoided disaster response cost at a larger scale. This in turn leads 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).

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: 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.

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.

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.

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: Climate Change (Management) Act (amended 2022), Environment Act (2000) especially Environment (water quality criteria) Regulation and environmental protection provisions for groundwater, PNG Drinking Water Quality Standards (an adoption of WHO drinking water quality guidelines), Public Health (Drinking Water Quality) Regulation, National Water Supply and Sanitation Act 2016, Lands and Physical Planning Act, Environment Organic Law of Provincial and Local Level Government (provisions for District and local level approvals), and Disaster Management Act.

Table 2. 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.

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 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 New Ireland by Live & Learn and provides 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 monitoring and evaluation as well as learning and knowledge sharing activities. Project monitoring, evaluation and learning will be under the oversight of the Project Management Unit (PMU) and led by the M&E officer who will be based in the province as part of 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.

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 of priority interventions under the New Ireland's Climate Resilient Green Growth (CRGG) Strategy. Endorsed in 2022, 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 (see **Annex** 2 for letters) 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, PNG water, 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 4** for people met and consulted during a scoping mission). A consultation workshop was organized on 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. See **Annex 5** for list of participants in the consultation workshop.

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[75], and is projected to further decline over the course of century with major implications for water security. The SDG Report (2023)[76] highlights that about 2.2 billion people worldwide don't have access to safely managed drinking water, and IPCCC report (2022)[77] 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[78]. Communities with lack of water infrastructure, poor water management and governance will suffer the most as climate extremes intensify[79].

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[80] 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 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)[81] 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

[75] https://www.un.org/en/climatechange/science/climate-issues/water?gclid=CjwKCAiA1-6sBhAoEiwArqlGPg5M98JnsQgKCVTCO_skxaaT2Jn8saL9-4UW_Kx47mJ-25p9W7Yx2BoCil0QAvD_BwE
[76] United Nations (2023). The Sustainable Development Goals Report – Special Edition
[77] 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
[78] https://cdn.who.int/media/docs/default-source/wash-documents/who-tn-09-how-much-water-is-needed.pdf
[79] World Water Council (2018). Water infrastructure for climate adaptation: the opportunity to scale up funding and financing.
[80] Estimation made by three focal points based in the province. There is no official records.
[81] GoPNG (2023). Papua New Guinea Medium Term Development Plan IV 2023 - 2027

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. 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.

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 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.

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 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 4 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	All project components are aligned with the laws and regulations, and policy framework in PNG.	Low
Access and Equity	The project is being designed in a way that access to water is equitable and safe for all. Participation of women, minorities and highly vulnerable groups will be critical to the project's success. Without risk avoidance and reduction measures, however, there is also a	Medium The project activities are designed to engage and benefit communities, especially vulnerable people. Due to the complicated customary land tenure system

	potential risk of inequitable access or exclusion of some groups of people due to customary land-tenure system where resources belong to landowners.	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. Risk under this category will be closely monitored, documented and reported. Grievance redress mechanism will be set up to enable affected beneficiaries to voice their concerns.
Marginalized and Vulnerable Groups	The project aims to increase access to clean water supply, especially for vulnerable groups of people including disabilities, women, youth and elderly. The project does not have any activities that will not be unacceptable to the customs of the beneficiaries. The project will strictly maintain a non-discriminatory approach for all activities and is not expected to result in any risks to communities.	Low All parties will be consulted and involved to increase resilience of and avoid any risks to the most marginalized and vulnerable group.
Human Rights	The project does not involve any activities that could potentially be a breach of human rights. People-centered approach will be adopted for for all activities to ensure that people's and communities' rights are always protected.	Low All parties will be consulted to avoid human right risks.
Gender Equality and Women's Empowerment	By increasing the reliability of water supply, women will have less interruption and more time to do other productive jobs. It is expected that increased water security will increase food, WaSH, and income security. At the provincial level, the project will enhance the coordination mechanism on WaSH, ensuring that women are represented in such coordination. The Kavieng District WaSH Plan will also pay special attention to gender	Low The project will enhance gender equality and women's empowerment by engaging communities especially women and youths in managing and monitoring their water resources.

	equality, disability, and social inclusion to ensure equitable WaSH interventions throughout the district. At the community level, the project will support the establishment of Community WaSH Committees who will monitor and lead implementation of their water resources plan. The CWCs will be made up of representatives from all genders and various age groups. Dedicated Activity 2.1.5 will empower women and youths to be proactive involved in water management and advocate for hygiene practices. All of these will enable women to have a greater influence on how water is managed within communities and households.	
Core Labour Rights	The project will use labor from the communities for some unskilled tasks as part of in-kind contribution from communities or as paid laborers. Nevertheless, the project will ensure minors do not work on the sites and that national health and safety legislation is respected.	Low Monitoring of basic labor rights will be carried out throughout the project. Workers at the project sites will be provided with personal protective equipment.
Indigenous Peoples	There is a potential for indigenous people to be affected as resource or landowners.	Medium People-centered approach will be adopted for for all activities to ensure that people's and communities' rights are always protected. Stakeholder engagement plan will be developed and implemented to ensure that communities make a well-informed decision. Broad community support and consent from landowners will be obtained before proceeding to any community-based systems (rainwater harvesting tanks at community space, wells or groundwater, gravity-

		fed system).
Involuntary Resettlement	None of the project activities are envisaged to lead to relocation or displacement. No expropriation or relocation of people will be undertaken. Communities may be temporarily inconvenienced during installation of tanks, drilling of groundwater and construction of gravity-fed system. These are not permanent and will be minor in nature.	Low A Stakeholder engagement plan will be developed and implemented to ensure that communities are well-informed of project activities and how they will be affected.
Protection of Natural Habitats	While physical structures will be installed and/or built, they generally have a minor footprint in these locations. However, gravity-fed surface water systems and groundwater systems may render some risks to the surrounding environment and will need to be taken into consideration.	Medium 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	Vegetation clearance for establishment of groundwater and/or gravity-fed water system may result in loss of biodiversity on those sites	Low Vegetation clearance will be minimized as much as possible and only areas required for infrastructure facilities will be cleared. Selection of proposed construction site areas will focus on avoiding sensitive habitats, informed by site assessment and ESIA.
Climate Change	Household and community storage could be impacted by storm surges and king tides especially in Djaul and Tigak. Some GHG emissions are related to importation of water filters and transportation of equipment (tanks, pipes, pumps, etc.) to communities, especially by boat to Djaul and Tigak.	Low Tanks will be positioned or oriented with caution to consider potential barrage of storm surges. Where catchment area needs to be constructed, it will be made resilient to storms by reinforcing with steels.

		Attempt will be made to identify locally made ceramic water filters to minimize GHG emission related to transportation of water filters from outside of PNG. UNICEF has explored the idea of supporting local businesses to manufacture this in PNG.
Pollution Prevention and Resource Efficiency	Since 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.	Medium The project team will ensure that waste materials are transported out of communities and disposed of at the official site. Agreement of Cooperation with contractor (suppliers or construction contractors) will stipulate that they are responsible for proper disposal of waste materials.
Public Health	The project aims to enhance access to water security, thus improving the health and well-being of communities. However, there may be some risks related to contamination of water that could lead to the spread of water-borne disease. To address this, the project will provide water treatment to ensure that water is safe for consumption. Secondly, there is 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.	Low Safety and protective equipment will be provided to workers who are working on site. Agreement of Cooperation with contractors and suppliers will stipulate this. Construction sites will be demarcated with visible cones or fencing, if necessary, to ensure that community members don't walk into the areas where construction is taking place.
Physical and Cultural Heritage	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.	Low Monitoring of project site selection.
Lands and Soil Conservation	There are no discernible risks to land and soil conservation from the project's	Low

	activities. Construction activities may lead to soil exposure, erosion and compaction	Monitoring of project site selection and construction.

PART III: IMPLEMENTATION ARRANGEMENTS

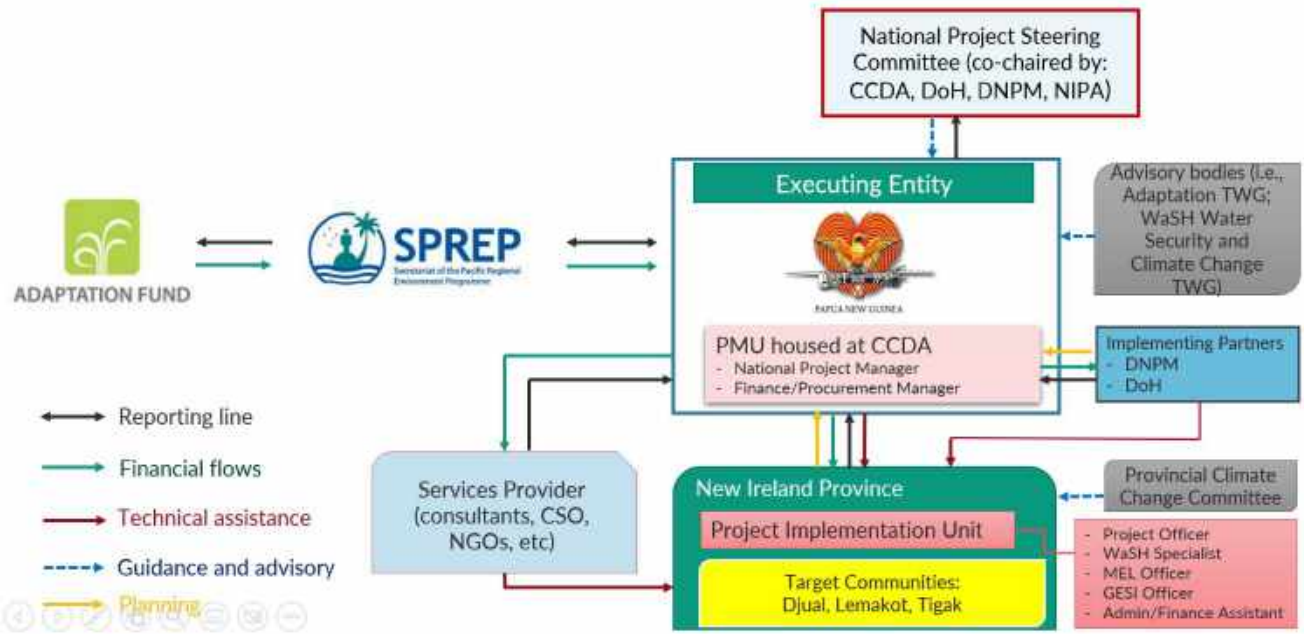
A. Describe the arrangements for project/programme implementation.

The project implementation mechanism will be at two levels: national and subnational levels pertaining to practice within the Government system as follows:

Executing Entities

CCDA will be the Executing Entity for this project and will be responsible for guiding the implementation of project activities in close collaboration with DNPM, DoH and the New Ireland Provincial Administration as the Implementing Partners

Figure 8. Proposed Implementation Arrangement



CCDA is the government agency responsible for coordinating and implementing PNG's climate change policies and programs to help PNG adapt to the impacts of climate change and to reduce its greenhouse gas emissions. CCDA is the overall body responsible for the National Adaptation Plan and will oversee the development, implementation, and evaluation of sectoral climate change adaptation plans in priority sectors and achievements of PNG's adaptation targets. CCDA will be responsible for guiding the project implementation in line with the CCDA climate change adaptation division priorities and guidelines. Their responsibility will also be extended to effectively communicate with the NIP provincial climate change office and other important stakeholders on the project implementation.

CCDA will ensure that all project activities are implemented in accordance with AF and SPREP policies and standards, and in line with the policies and priorities of the Government of PNG. CCDA will contract and manage staff under the Project Management Unit (PMU), which will be housed at CCDA, and the Project Implementation Unit (PIU) based in New Ireland. CCDA will assign one staff member to be a Project Director to provide oversight and guidance on project implementation.

DNPM chairs the National Water, Sanitation and Hygiene Commission Board. DNMP is responsible for

WaSH sector budgetary allocation and sets national targets for WaSH development. In line with the PNG National WaSH policy 2015 – 2030, DNPM will be responsible for coordinating the delivery of district WaSH Plans in line with its mandate to monitor rural WaSH at the provincial level. The Water and Sanitation Hygiene Programme Management Unit is housed under DNPM. It will also support the institutional strengthening at the sub-national level, especially the Provincial WaSH committee and establishment of community-based WaSH committees, and finally monitoring of WaSH data in its database system. DNPM also coordinates the technical working group on WaSH, Water Security and Climate Change Integration.

DOH is a key implementing department for the first phase of the NAP 2022-2030, at both national and regional levels for adaptation activities and planning under health. DoH sets water and sanitation quality standards with its provincial, district and community environmental health officers assisting with rural WaSH service delivery. In addition, DoH is responsible for public health initiatives such as the Healthy Island Approach, which promote safe drinking water, sanitation and hygiene. DoH will be responsible for guiding and informing the project implementation unit on any WaSH-related updates that may be necessary to ensure that the target communities have equitable access to safe convenient, and sustainable water supply. DoH will also play a key role in community awareness raising programs for water, sanitation and hygiene practices.

National Project Steering Committee (NPSC)

NPSC will comprise high-level representatives from relevant authorities and departments including CCDA, National Department of Health (DoH), Department of National Planning and Monitoring (DNPM), and New Ireland Provincial Administration (NIPA). The NPSC will be co-chaired by CCDA, DoH, and New Ireland Provincial Administrator. Members of the NPSC will include the National Disaster Center, Provincial and Local level Government Authority (DPLGA), Department of Community Development and Religion (DCDR). Representatives of NGOs and CSOs will have an observer status and participate in an annual meeting. NPSC will meet twice a year to provide strategic direction and guidance to the project: overseeing project implementation and monitoring progressive achievement of the project objectives; approving workplans, progress reports, and other deliverables submitted by the Project Management Unit (PMU); resolving issues and policy decision; approving scope changes and ensuring that project responds to the national priorities.

Project Management Unit (PMU)

PMU consists of two core staff: a National Project Manager, and Finance and Procurement Officer. PMU will serve as a secretariat to NPSC and report to 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. The PMU will be further supported by a Provincial Project Implementation Unit based in New Ireland.

Project Implementation Unit (PIU)

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, M&E officer, Gender Equality and Social Inclusion Officer, and Administrative and Finance Assistant. It is crucial that key project staff are 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. The head of the PIU will

furnish regular reports to the Executing Entity through the PMU.

Advisory Bodies

At the national level, the project will be coordinated with the Adaptation Technical Working Group (TWG) coordinated by CCDA, and the WaSH, Water Security and Climate Change Integration TWG coordinated by DNPM. These two bodies could provide guidance and advisory input at the national level to ensure alignment and complementarity. The PMU can also make a progress report presentation at the meetings of these two TWGs to highlight key achievements, challenges and lessons learned. At the provincial level, PIU will work closely with the Provincial Climate Change Committee (PCCC) and take guidance and advisory inputs to ensure that project activities are effectively implemented.

B. Describe the measures for financial and project/programme risk management.

Key risks associated to financial and project management are briefly discussed below, and will be further assessed and addressed during full funding proposal.

Table 5. Financial and project risk management

Risk	Level	Mitigation measures
Delayed disbursement of funds impedes timely implementation of project activities	Medium - High	The fund will flow from Adaptation Fund to SPREP. Request for disbursement will be made by PMU, signed off by CCDA and submitted to SPREP to release the funds. The funds will then be transferred to the imprest account to be managed by CCDA. Payments will then be made to New Ireland based on quotations and invoices where the Project Implementation Unit is located to undertake planned activities on the ground. To avoid delays, project progress report and fund request will be prepared, communicated and submitted on a timely manner by CCDA, to SPREP and AF and relevant stakeholders to ensure adequate feedback and speed up fund's disbursement.
Political risk related to change in the policies and priorities, and turnover of senior staff affect project implementation	Low	This risk is considered low because the project is designed to support the implementation of NAP and NDC, which is a commitment by the GoPNG to improve resilience of their people in food and water security, health and wellbeing. In addition, the risk will be mitigated through effective stakeholder engagement strategy especially at the national level to monitor any potential change in policy directions and propose implementable actions. Mid-term evaluation as part of Activity 2.2.2 will also confirm a continued relevance of project's interventions.
Insufficient transparency and accountability of project implementation, monitoring and financial management procedures	Medium	Three (3) levels of security ensure transparency and control of operations and also mitigate the risk of distortion and dysfunction related to management: (i) The fact that only one person cannot conduct an operation in its entirety; (ii) the implementation of accounting self-audits by the PMU; (iii) Audit performed by an independent auditor (budgeted). The project will undertake regular financial monitoring and

		prepare quarterly financial report and accounting reports which will be submitted to Project Director and members of NPSC.
Fluctuations in foreign exchange rate result in unpredictability of funds for project implementation	Low	Financial monitoring and adaptive management of the project budget will be undertaken to re-programme funds as necessary to ensure that any fluctuation in foreign exchange rates has a minimal impact on project activities.
Lack of coordination between national (PMU) and provincial level (PIU).	Low	Annual and quarterly workplans and budgets will be developed by PMU and PIU. Monthly and weekly project meetings (virtual) will take place between PMU and PIU to report progress, challenges and weekly workplan. ICT tools (Zoom, Teams, WhatsApp group) will be used to foster communications.
Lack of integration of GEDSI into project design and implementation results in inequitable distribution of project benefits	Medium	GEDSI assessment will be undertaken during full proposal stage. During project implementation, a full-time GEDSI officer will be hired as part of PIU to develop a GEDSI strategy and action plan that guides GEDSI integration across the project interventions.
Project implementation delays due to lack of qualified personnel and consultant	Medium	Clear Terms of Reference will be prepared early on and published widely through various channels. Consultant performance will be closely monitored to assess progress made towards achieving agreed deliverables within the agreed timeframe.
Lack of engagement of beneficiaries and project stakeholders especially landowners will affect the project implementation. In the context of PNG where approximately 97% of land is held by traditional owners under customary principles of landownership	Low - Medium	This can be mitigated by extensive and active engagement with target communities during full proposal development in terms of identification and assessment of areas for gravity-fed surface water, groundwater, and existing limestone cave water sources. A Free Prior Informed Consent (FPIC) will be undertaken at the early stage of project implementation to obtain community and landowners' consents on project activities. This risk can also be mitigated by implementing effective stakeholder engagement strategy and plan to maintain strong relationships and good communications with local communities.
Social instability and unrest in the target communities such as land conflicts and tribal conflict lead to delays or disruptions of project implementation	Low - Medium	This will be sufficiently managed through an adaptive project management planning approach and safety and security measures for project operations. A clear plan and strategy for community engagement will be undertaken by the project team.
Increase in frequency and intensity of natural hazards and extreme weather events impact efforts to implement adaptation measures	Medium	Although such risks cannot be eliminated, the project team will monitor weather forecast and propose necessary adaptive measures around planning and execution of project activities in the event of a natural hazard especially trips to Djaul and Tikag, which involves a boat ride.
Insufficient technical capacities of executing entity to implement the project	Low	This will be mitigated by recruitment and support of core project staff with suitable and adequate expertise and experience at both PMU and PIU. PIU will also ensure smooth implementation of activities at the provincial level and support vertical coordination between the national and provincial level.

Lack of maintenance related to water assets	Medium	This will be addressed through a set-up of CWCs at the village level with Operation and Maintenance plan (Activity 2.1.4), related trainings as well as awareness raising program with local communities on O&M, and training of community plumbers.
Lack of engagement of beneficiaries and project stakeholders especially landowners will affect the project implementation. In the context of PNG, approximately 97% of land is held by traditional owners under customary principles of landownership.	Medium	This can be mitigated by extensive and active engagement with target communities during full proposal development in terms of identification and assessment of potential sites for community tanks, limestone cave, etc . A Free Prior Informed Consent (FPIC) will be undertaken at the early stage of project implementation to obtain community and landowners' consents on project activities. This risk can also be mitigated by implementing effective stakeholder engagement strategy and plan to maintain strong relationships and good communications with local communities.

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Based on a review of any potential adverse impacts of project activities and in alignment with the principles of the Adaptation Fund (Section K), the project is classified as Category B. Potential adverse impacts resulting from this project are small-scale in scope, limited to the project area, reversible, and can be avoided, minimized or addressed using recognized good environmental and social management practices. To ensure that the project minimizes the risk of adverse environmental and social impacts from the project, an environmental impact assessment will be conducted, and an environmental and social risk management plan will be developed at the outset of the project to ensure that risks are avoided and, where they are not, detected in a timely manner and mitigated properly. During the consultation workshop, participants also suggested conducting an assessment and water testing to ensure the sources of water are clean. Gravity-fed surface water and groundwater systems will involve dedicated environmental and social impact assessment during project implementation to further refine the environmental management plan and measures.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan, in compliance with the ESP and the Gender Policy of the Adaptation Fund.

The monitoring, evaluation and learning (MEL) system of the proposed project will follow formal guidelines, protocols and tools used and adopted by the AF and SPREP as well as laws and policies of the Government of PNG. The project will have a dedicated MEL officer to oversee this. MEL system will be developed to generate information to: assist with planning of project activities at various levels of operations; assess and identify improvements to the relevance, effectiveness, efficiency, sustainability and likely impact of interventions funded by the project; communicate to decision makers, the public and other stakeholders; contribute to sectoral reporting for policy-makers and planners; and contribute to global learning to support climate-resilient green growth of the project areas and the country. Data and information generated through the project will feed into the WaSH Management Information System being managed by DNPM.

E. Include a results framework for the project proposal, including milestones, targets

and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework, and in compliance with the Gender Policy of the Adaptation Fund.

To be developed at full proposal elaboration

F. 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)[82]	Project Objective Indicator(s)*	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Enhancing access to reliable and safe water supply of rural communities in New Ireland through optimization of access to available water sources and enhanced institutional capacity and coordination, contributing to improving water security in the face of changing climate, thereby improving health and well-being of populations especially women and young children for their resilience building.		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	
		Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socio-economic and environmental losses	2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	
		Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction process at local level	3.2. Percentage of targeted population applying appropriate adaptation responses	

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

Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Increased access to reliable 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. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	1,693,180
Improved forward-looking response capacity, planning and coordination to enhance water security in the face of climate-induced events.		Output 2.1: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	1,143,355
		Output 3.1: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1 No. of news outlets in the local press and media that have covered the topic	
		Output 3.2: Strengthened capacity of national and subnational 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	
		Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No. of policies introduced or adjusted to address climate change risks (by sector)	

		Output 8: Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	

** 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*

G. 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.

Please see **Annex** 3 – Detailed Budget

H. 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*: 06/13/24*

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 Implementing Entity Coordinator: Salome Tukuafu	
Date: *06/27/24*	Date: *06/27/24*
Project Contact Person: Filomena Nelson	
Tel. And Email: filomenan@sprep.org (685) 21929	

[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.

Annex 1 – Endorsement Letter from the Designated Authority (ATTACHED)

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) 341 4286 I Mobile: (+675) 7700785 1or 77007955 I Email: garau.podi@ccda.gov.pg I Website: www.ccda.gov.pg

13th June 2024

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 RESILIENT 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 endorse 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 Change and Development Authority.

Yours sincerely,

Climate Change & Development Authority Common Seal

Debra Sungi

Acting Managing Director

Climate Change and Development Authority
Government of Papua New Guinea

Annex 2 – Letter Of Requests by GoPNG

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

22nd August, 2023

Mr. Sefanaia Nawadra
The Director General
The Secretariat of the Pacific Environmental Program
Apia, Samoa

Dear Mr Nawadra,

SUBJECT: Request for support from SPREP as the Regional implementing Entity for development and submission of project on rural water supply for New Ireland to the Adaptation Fund

The Papua New Guinea (PNG) Climate Change Development Authority (CCDA) continues to support climate change-related projects in accordance with our country's priorities to reduce the adverse impacts and risks posed by climate change on our economy, communities, and people. We have embarked on this endeavor to accelerate access to international climate finance in close collaboration with our strategic development partners including the Global Green Growth Institute (GGGI) whose PNG Country Office and Team is embedded in CCDA.

CCDA has received a request for support from New Ireland Provincial Administrator, through the GGGI, to explore opportunities to build a project on increasing access to water supply for resilience building in vulnerable communities of New Ireland Province. Improving the accessibility and quality of water sources has been identified as one of the priorities in the Social Services Sector under the endorsed Climate Resilient Green Growth (CRGG) Strategy of New Ireland, which is also in line with the PNG's National Adaptation Plan (NAP). In its capacity as the Designated Authority for the Adaptation Fund in Papua New Guinea, CCDA gives its full support and endorsement for this project.

Following the success of the USD 10 million - Adaptation of Small-Scale Agriculture for Improved Food Security of Resilient Communities in Papua New Guinea (ASSA), which was approved by the Adaptation Fund in March 2023, we confirmed with the Adaptation Fund Secretariat that the remaining balance for PNG single country project is USD 3,469,627. Therefore, we would like to allocate this amount for the said project for New Ireland province to improve access to water supply on Djual

Island and Tigak Islands that collectively have a population of approximately 4,000 people.

In this respect, the project concept note, and subsequent full proposal, is expected to be jointly developed by the Pacific Climate Change Center (PCCC) at SPREP and GGGI, in line with the needs of local communities and the national adaptation priorities. Both organizations will work collaboratively to meet the expected submission deadline in January 2024.

We are looking forward to your support as the Regional Implementing Entity to the Adaptation Fund to progressing this proposed project idea for successful funding by the Adaptation Fund. Please find attached relevant letters of request by GGGI and New Ireland for your noting.

Yours Sincerely,

.....

Mr. William Lakain
Acting Managing Director
Climate Change and Development Authority

Cc: *Mr. Sakiusa Tuisolia, Country Representative, GGGI PNG*

Mr. Moses Taram New Ireland Acting Provincial Administrator

Annex 3 – Detailed budget

Component	Output	Activity	Budget Account Description	Descriptions	Unit Cost (USD)	# of Unit	Year 1 (USD)	Year 2 (USD)	Year 3 (USD)	Year 4 (USD)	Total (USD)
Component 1 - Increase access to reliable and clean water supply	Output 1.1: Rainwater capture is maximized through optimal mix of community and household interventions	1.1.1. Improve existing rainwater harvesting systems	Equipment	Equipment (rooftop materials, gutters, downpipes)	30,000	3	90,000				90,000
			Labor	Labor cost	5,000	3	15,000				15,000
		1.1.2. Provide additional rainwater harvesting systems for community buildings	Procurement	Equipment (rainwater tanks - 9,500 liters, gutters), logistics and installation	3,400	50		169,986			169,986
			Equipment	Spare parts for RWH	300	50		15,000			15,000
		1.1.3. Provide rainwater harvesting systems for the most vulnerable households	Procurement	Equipment (rainwater tanks - 5,500 liters, gutters, catchment), logistics and installation	2,900	50		145,014			145,014
			Equipment	Spare parts for RWH	200	50		5,000	5,000		10,000
		Total Output 1.1 Cost					***105,000***	***335,000***	***5,000***	***-***	***445,000***
	Output 1.2: Alternative sources of water are optimized to reduce reliance on harvested rainwater	1.2.1. Protect and optimize groundwater wells from more frequent climate change induced storm surges and contaminations including drilling of new borehole and installation of solar-pumps	Equipment	Materials and equipment (concrete slaps, surface raising, etc) + labor	1,000	20	20,000				20,000
			Procurement	Solar pumps, tanks and installation	10,000	14			140,000		140,000
			Consultant	A consultant to conduct groundwater surveys + ESS	25,000	1		25,000			25,000
			Contracting	New borehole drilling	14,000	4			56,000		56,000
			Workshop	Training on O&M for solar pumps	3,000	2			6,000		6,000
		1.2.2. Implement a gravity-fed surface water system in Djaul	Outsourcing	A firm to undertake site assessment, ESS, and design of gravity-fed water system in Djaul	40,000	1		40,000			40,000
			Outsourcing	A firm to design and construct gravity-fed water system including training of O & M for villagers	200,000	2			400,000		400,000
			Workshop	Training of communities on GFWS	3,000	2			6,000		6,000
		1.2.3. Provide low-cost decentralized water filtration system.	Procurement	Water filters (communities and households)	83,580	1			83,580		83,580
		Total Output 1.2 Cost					***20,000***	***65,000***	***691,580***	***-***	***776,580***
	Support implementation of Component I		Travel	Lumpsum/year for field visit and support	15,000		15,000	15,000	15,000		45,000

				implementation of the outcome							
			Workshop	Lumpsum cost for community buildings during data collection and installation	3,000		3,000	3,000	3,000		9,000
			Personnel	National Project Manager (30%)	48,000	30%	14,400	14,400	14,400	14,400	57,600
			Personnel	Finance and Procurement Officer (30%)	36,000	30%	10,800	10,800	10,800	10,800	43,200
			Personnel	Project Officer (50%)	42,000	50%	21,000	21,000	21,000	21,000	84,000
			Personnel	WaSH Specialist (70%)	42,000	70%	29,400	29,400	29,400	29,400	117,600
			Personnel	M&E Officer (40%)	36,000	40%	14,400	14,400	14,400	14,400	57,600
			Personnel	GEDSI Officer (40%)	36,000	40%	14,400	14,400	14,400	14,400	57,600
	Component I - Total Cost						**247,400**	**522,400**	**818,980**	**104,400**	**1,693,180**
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.	Output 2.1 Climate change induced drought preparedness and response measures are implemented and WaSH within the province is well coordinated.	2.1.1. Develop a provincial/LLG contingency plans and Standard Operating Procedures (SOPs) for climate change induced drought response	Consultant	Design and develop training modules on drought risk management and contingency planning	25,000	1	25,000				25,000
			Workshop	Training for provincial and LLG on drought risk management	3,000	2	6,000				6,000
			Consultant	Develop Standard of Procedures for drought early warning	25,000	1		25,000			25,000
			Workshop	Training of Provincial/LLG on SoP	3,000	2		6,000			6,000
		2.1.2. Enhance provincial multi-stakeholder coordination in WaSH	Workshop	Bi-annual workshop of PWMCC	3,000	7	3,000	6,000	6,000	6,000	21,000
		2.1.3. Support Kavieng District to develop its WaSH Plan	Outsourcing	WASH PMU DNPM to support development of Kavieng WASH Plan including WaSH data collection	206,355	1		206,355			206,355
		2.1.4. Develop and implement community-level drought contingency planning in target communities	Consultant	Design and develop training package on community-drought contingency planning and SoP	25,000	1	25,000				25,000
			Set-up	Set-up of Community WaSH Committees (CWC)	1,500	11	16,500				16,500
			Support	Support operation of CWC (meeting, data collection, etc.)	500	11		5,500	5,500	5,500	16,500
			Workshop	Training of Village Development Committee on contingency planning and SOP	2,000	4		8,000			8,000

			Consultant	Design and develop a water-balance assessment and access plans for community	25,000	1		25,000			25,000
			Workshop	Training on water balance assessment	2,000	4		8,000			8,000
			Consultant	Review and propose CWC legal right and suitable tariff	25,000	1			25,000		25,000
		2.1.5. Enhance women and youth's leadership through best practices and community awareness programs on efficient usage (demand management) and hygiene practices	Consultant	Design and develop training package on water safety plan, conservation, hygiene and sanitation	25,000	1			25,000		25,000
			Workshop	Training of women's and youth	2,000	5			10,000	10,000	20,000
			Awareness	Awareness program with youths and women	10,000	1	10,000	10,000	10,000		30,000
			Workshop	Training on GEDSI in WaSH	2,000	5		10,000		6,000	16,000
		Total Output 2.1 Cost					***85,500***	***309,855***	***81,500***	***27,500***	***504,355***
	Output 2.2 Monitoring, evaluation and learning enhanced to scale up of water security practices.	2.2.1. Training of community plumbers to provide repair and maintenance services.	Workshop	On-site training of community plumbers	2,000	5			10,000		10,000
		2.2.2 Undertake participatory monitoring and evaluation of project activities	Set-up	Setting up of M & E information system	30,000	1	30,000				30,000
			Data collection	Baseline data collection	15,000	1	15,000				15,000
			Evaluation	Midterm (Y2) and terminal evaluation (Y4)				25,000		30,000	55,000
		2.2.3. Conduct cross-learning, develop and publish knowledge products	Travel	Travel for cross learning visits among participating communities	5,000			5,000	5,000	5,000	15,000
			Workshop	Annual coss-learning meetings	3,000			3,000	3,000	3,000	9,000
			Consultant	Develop policy briefs, technical reports on best practices	15,000				15,000	15,000	30,000
			Publication	Publish reports and policy briefs	3,000				3,000	3,000	6,000
		Total Output 2.2 Cost					***45,000***	***33,000***	***36,000***	***56,000***	***170,000***
	Support implementation of Component II		Travel	Lumpsum/year for field visit and support implementation of the Component II	11,500	4	11,500	11,500	11,500	11,500	46,000
			Workshop	Lumpsum cost for community meetings	5,000	3		5,000	5,000	5,000	15,000
			Personnel	National Project Manager (30%)	48,000	30%	14,400	14,400	14,400	14,400	57,600
			Personnel	Finance and Procurement Officer (30%)	36,000	30%	10,800	10,800	10,800	10,800	43,200
			Personnel	Project Officer (50%)	42,000	50%	21,000	21,000	21,000	21,000	84,000

		Personnel	WaSH Specialist (30%)	42,000	30%	12,600	12,600	12,600	12,600	50,400
		Personnel	M&E Officer (60%)	36,000	60%	21,600	21,600	21,600	21,600	86,400
		Personnel	GEDSI Officer (60%)	36,000	60%	21,600	21,600	21,600	21,600	86,400
	Component II - Total Cost					**244,000**	**461,355**	**236,000**	**202,000**	**1,114,355**
(A) Project Activity Cost						**491,400**	**983,755**	**1,054,980**	**306,400**	**2,836,535**
Project Execution Cost	National Project Manager	Personnel	NPM to coordinate project implementation and reporting (40%)	48,000	40%	19,200	19,200	19,200	19,200	76,800
	Finance and Procurement Officer	Personnel	Project finance and procurement (40%)	36,000	40%	14,400	14,400	14,400	14,400	57,600
	Administrative and Finance Assistant	Personnel	Administrative and Finance Assistant (100%)	18,000	100%	18,000	18,000	18,000	18,000	72,000
	Office supplies	Supplies cost	Lumpsum per year for stationaries, tonners etc	4,000		4,000	4,000	4,000	4,000	16,000
	Office equipment	Furniture	Workstations for project staff (desk and chair)	1,000	7	7,000				7,000
	Laptops and printers	IT equipment	7 laptops and 2 printers	13,664		13,664				13,664
	Communication cost	Communications	Lumpsum per year	2,400		2,400	2,400	2,400	2,400	9,600
	Travel	Travel	Travel to support project implementation (lumpsum/year)	11,000		10,000	10,000	10,000	10,000	40,000
	Workshop	Workshop	Bi-annual workshop of project steering committee (lump sum/year)	4,000		4,000	4,000	4,000	4,000	16,000
	Auditing	Financial audit	Lumpsum per year	3,000		3,000	3,000	3,000	3,000	12,000
	Contingency	Contigency	Miscellaneous (bank fees, mail couriers, etc)	2,000		2,000	2,000	2,000	2,000	8,000
(B) Project Execution Cost						**97,664**	**77,000**	**77,000**	**77,000**	**328,664**
(A) + (B) Total Project Cost						**589,064**	**1,074,335**	**1,118,400**	**383,400**	**3,165,199**
(C) Implementing entity fee (8.5%) of total grant amount										**294,068**
Amount of funding requested/Grant Amount										**3,459,267**

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

NIP Water Supply Project CN Consultation Meeting Record Sheet

GGGI

Date 25th Sept 2023.

Name	Sex	Organization	Contact#/Email	Signature
Hanley Logoso	m	NIPA - Legal	74601269 hanley.logoso88@gmail.com	
Samuel Liray	M	NIPA - Auditor	73539569 selanlitan@gmail.com	
Gideon Bogosia	M	NIPA - Director	71646596 gideon.bogosia@gmail.com	
Edward Latigi	M	CEO - Economics	esprosrocapital@gmail.com	
Moses Taram	M	Provincial Administrator	71159846 Mosesperi.taramfidik@gmail.com	
Ruben Robin Kiro	M	CCDA - REP Adaptation & Project	72283504 robinruben304@gmail.com	
Phonesavanh Latmany	M	GGGI	Phonsavanh.latmany@gggi.org	

NIP Water Supply Project CN Consultation Meeting Record Sheet

GGGI

Date 25/9/23

Name	Sex	Organization	Contact#/Email
Greg T. Seth	M	Kavieng Urban LLG	72622970
Sikal E. Kelep	M	Kavieng Urban Ward 6	73209248
Bennis Tuka	M	Field Officer Kulla	71895270
Meven Boas	M	Manager	7333171
Thomas Tohian	M	Ward 3 Member	

Meeting Record Sheet

Date 25/9/23

Name	Sex	Organization	Contact#/Email
Dominic Sahamie	M	New Ireland Health Authority	70430895 dsahamie@gmail.com
Martha Salihombo	F	NIPA	70261406 m.salihombo@gmail.com
MATHEW JOHNSTON	M	LIVE & LEARN NETWORK	mathew.johnston@livelearn.org

GGGI

NIP Water Supply Project CN Consultation Meeting Record Sheet

Date 26/9/2023

Name	Sex	Organization	Contact#/Email
HENRY MARLIE	M	DOW 4H	74555589 marliesporter@gmail.com
GARY NASA	M	WATER PNG	7895671 gnasa@waterpng.com.pg
TERENCE TASIA	M	MANAGER	73025448 tmetasia@gmail.com
ANDREW TOPOT	M	TIKANA LTD	71982858 atopot@gmail.com
GRAHAM CHAN	M	✓ ✓	71752198
HAROLD D PAPAE	M	KULG	7175 9817 hdpapae@gmail.com

(1)

GGGI

NIP Water Supply Project CN Consultation Meeting Record Sheet

Date 27/9/2023.

Name	Sex	Organization	Contact#/Email
FLORENCE. COPLAND	F	LEMAKOT HEALTH CENTRE CCHS.	71514386
MERLYN MAR	F	Lemakot Health Centre – CCHS	79742928 abiahmar522@gmail.com
RAYMOND KAUILE	M	TIKANA LLG WARD COUNCILOR	
MARY TURUCHAI	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 MALATANA	F	NBC, KAVIENG	73867586
PHILIP TAMELA	M		72653210
PIUS KAPILIS	M	LEMAKOT ONE COMMUNITY VPC CHAIRMAN	74854837
SEVATIUS MANARA	M	LEMAKOT 2 VPC CHAIRMAN	—

(2)

GGGI

Supply Project CN Consultation Meeting Record Sheet

27/09/23.

Name	Sex	Organization	Contact#/Email
RONALD BARAI	M	WARD RECORDER.	73290407
JEREMIAH. NORMAN	M	V.P.C CHAIRMAN	72938688
SAMSON PELL.	M	V.P.C CHAIRMAN	
LAWRENCE MAILENA	M	V.P.C CHAIRMAN	79180202.
SALE PATRICK	M	V.P.C CHAIRMAN	
GAMUI MAIREM	M	V.P.C CHAIRMAN	
PETER UNAHOMI	M	TIKANA LLG –	71479985 –
JULY KURI	M	LLEE	73921553 –

(3)

Supply Project CN Consultation Meeting Record Sheet

27/9/25

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 KAMWIL	M	YOUTH CHAIRMAN	72390475
OBED MAKIS	M	BAKAL	
TOLO BISAK	M	LAW + ORDER.	

(4)

Supply Project CN Consultation Meeting Record Sheet

27/9/25

Name	Sex	Organization	Contact#/Email
ISAREL NORMAN RONALD BARAI	M	YOUTH CHAIRMAN	7983 7735
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

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
GELAN SANGAU	M	LAW & ORDER.	72310217
PHILIP TUTUMAN	M	SCHOOL TEACHER.	79136958

IIP Water Supply Project CN Consultation Meeting Record Sheet

Date 28/09/23.

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

IP Water Supply Project CN Consultation Meeting Record Sheet

Date 28/9/23

Name	Sex	Organization	Contact#/Email
KADAI BARRY PASSINGAN	MALE	Kulinus Community ~~ENGAGE~~ Circuit / Kulinus	74501437 / kpassingan@gmail.com
Solomon Demi	✓	✓ Kulinus Community	73073654 / sdemi@gmail.com
CELLIA MANDARIO	female	✓ Kulinus Community.	—
ESTHER - GIBSON	FEMALE	KULINUS COMMUNITY	—
JOTHAM - WATTAIN	MALE	KULINUS COMMUNITY	—
SILAS VOCAL	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	76456011	
3	Ray Kangu	M	WaSH	Department of Health	73001023	
4	Iki Peter	M	Acting Manager-Adaptation Branch	CCDA	77107840	
5	Benedict Goiye	M	Adaptation Officer	CCDA		Ben
6	Jacob Ekinye	M	General Manager-A&P	CCDA	71421997	
7	Estella Bunbun	F	WASH PMU	DNPM	78496503	
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 So-ongulcu	F	Adaptation Officer	CCDA	75208657	
12	RENAMYA	M	GGGI ↔ DCR		73188676	

* Sharon Tubal – GGGI / SPREP (RIE – Philemma. – Rupeni.
17 participants.

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
1	F. Gordon Nokei	[illegible]	M	fgnokei@gmail.com	[signature]
2	RAYMOND KAVKU	TIKANA LLG, WRD 09	M	raymondkavku09@gmail.com	[signature]
3	HERMAN BUBY	[illegible]	M	hermanbuby@gmail.com	[signature]
4	JEREMIAH NORMAN	DJAUL ISLAND WD 18	M	[illegible]@gmail.com	[signature]
5	CHRIS MISSION	DJAUL ISLAND.	M	[illegible]	[signature]
6	KADAI PASSINGAN	KULINUS ISLAND	M	kpassingan@gmail.com	[signature]
7	BENJAMIN BARRUS	UTUKUL ISLAND	M	[illegible]	
8	STANLEY GUAT	UTUKUL Island	M	Chairman	[signature]
9	Pala Wunais Bessingan	Upuas Island	F	NOT Applicable	[signature]
10	Rejoyce David	Upuas Island	F	74970174	[signature]
11	Solomon Dem.	Upuas Island	M	—	[signature]
12	Garry Lapan	Kulinus	M	—	[signature]
13	GRAHAM CHAN	WARD 2. MEMBER	M	71752198	[signature]
14	Rebecca Samuel	WCS	F	rsamuel@wcs.org	[signature]
15	July Kuri	WCS	M	julykuri@gmail.com	[signature]
16	Martha Salihombo	Director Health - NIPA		m.salihombo@gmail.com	[signature]
17	Joe Endo (Jnr)	NBCNI	M	agentjunior@gmail.com	[signature]
18	Annette Malatana	NBCNI	F	[illegible]	[signature]
19	ANISA WULAU	TIKANA LLG PLANNER	F	anisa.wulaucool@gmail.com	[signature]
20	GIDEON BOGOSIA	NIPA - DIRECTOR	M	gideon.bogosia@gmail.com	[signature]
19	STANLEY PAYLUS	CC MANAGER - NIPA	M	stnpaulus@gmail.com	[signature]
20	AMANDA PALIGUR	PROV TOURISM OFFICER - NIPA	F	[illegible]@gmail.com	
21					