ADAPTATION FUND

FULLY DEVELOPED PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Strengthening the Adaptive Capacity of Coastal Communities in Fiji to Climate Change through Nature-Based Seawalls

Country: Fiji

Thematic Focal Area: Coastal zone management

Type of Implementing Entity: Regional Implementing Entity

Implementing Entity: Pacific Community (SPC)

Executing Entities: Ministry of Agriculture and Waterways (MoAW)

Amount of Financing Requested: 5,764,000 (in U.S Dollars Equivalent)

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

NOTE: The LOE 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 proposal has been submitted before including at a different stage (concept, fully-developed proposal)

☐ This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date: Click or tap to enter a date.

Please note that fully-developed proposal documents should not exceed 100 pages for the main document, and 100 pages for the annexes.

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Project/Programme Background and Context:

Overview

Fiji comprises 332 islands, with 110 inhabited and is home to 924,610 people (2021)[1], approximately 75% of whom live within 5 km of the coast, and 27% within 1 km^2. It is an economic hub in the Pacific, but is highly vulnerable to external shocks, including climate change. Between 1999 and 2018, Fiji was ranked 13th most affected country by extreme weather events[3], and currently ranks 15th among countries with the highest disaster risk due to high exposure to extreme weather events and sea-level rise[4]. Small Island Developing States (SIDS) such as Fiji are affected disproportionally by climate change compared to continental land masses.

Fiji's geography is characterised by high and low islands, with 12% of the urban and 6% of the rural population residing in low-lying areas close to the coastline. Such households are at risk from temporary flooding due to storm surges, cyclone impacts and flash floods, and permanent inundation due to sea-level rise. In addition, SIDS such as Fiji are heavily dependent on the functioning of coastal ecosystems, and their economies are highly sensitive to climate fluctuations.

While Fiji's national carbon dioxide equivalent emissions are statistically insignificant, accounting for just 0.006% of global emissions[5], climate-related impacts are increasingly undermining the country's development prospects. Sea levels are encroaching on coastal villages, eroding shorelines and inundating fertile soil with saltwater. Extreme weather events – particularly cyclones and storm surges – are becoming more severe and more frequent, destroying houses, farms, roads and livelihoods in the process. Crucially, most Fijian communities have long derived their livelihoods, food security, social connections and sense of security from the coasts, riverbanks, and nearby ecosystems that surround them. Coastal erosion driven by rising seas and intensifying storms is endangering churches, houses and farmland, in some cases degrading existing hard infrastructure seawalls. With these rising costs and risks, most Fijian communities struggle to access the technical and financial resources needed to effectively adapt to intensifying climate impacts. These communities remain vulnerable to the effects of sea-level rise due to limited capacities of institutional, financial, and technical structures to adapt to the increased threat.

The proposed project will implement site-specific coastal protection measures with long-term climate change and ecological benefits. Unlike seawalls constructed with man-made materials, such as concrete, nature-based sea walls offer protection against storm surges and king tides, while slowing down erosion thanks to a combination of locally-sourced boulders and local plant species; further, Nature-based Seawalls (NbS), once established, provide important ecosystem services and habitat for endemic species that will result ensure greater resilience to climate impact in the long-term. By enabling a locally-led process for the planning, design, implementation and maintenance processes of the NbSs, the project will target 2,466 people across 14 climate-vulnerable Fijian communities. Further, the project will build the capacity of Fiji's Ministry of Agriculture and Waterways (MoAW), target communities and other stakeholders such as extension structures to manage these interventions and implement similar measures in other communities.

Socioeconomic Context

From 2011 to 2019, Fiji's annual Gross Domestic Product (GDP) increased by 34% from USD 4.1 million to USD 5.5 million[6], but then contracted nearly 20% in 2020 and 2021 due to the COVID-19 pandemic. At the national level, its economy is dependent on natural resources and ecosystems. It is estimated that Fiji's marine ecosystem services are valued at USD 2.5 billion per year[7]. Tourism, anchored by Fiji's beaches, coral reefs and tropical climate, comprises nearly 40% of the GDP[8],

[1] World Bank Data. Fiji Overview. Accessed 22/05/2023.
[2] Australian Aid (2022) Pacific Risk Profile – Fiji. Available here.
[3] Global Climate Risk Index 2020. Available here.
[4] World Risk Report 2020. Available here.
[5] GoF (2018) Fiji Low Emission Development Strategy 2018-2050. Available here.
[6] https://countryeconomy.com/gdp/fiji
[7] https://www.environment.gov.to/2020/05/21/fijis-ocean-waters-generate-2-5billion-full-control-of-eez-by-2030/
[8] IFC (2020) Fiji COVID-19 Business Survey: Tourism focus. Available here.

while agriculture (including crops and fishing) is also a significant driver of growth at 14.5% of GDP[9]. Crucially, 41.5% of households in Fiji are involved in fishing and coastal activities[10]. The populations of all 14 communities included in this project rely largely on farming and fishing for their livelihoods.

SIDS have fragile economies in the sense that they rely on a narrow range of exports for income and are dependent on importing food and fuel which can be susceptible to price shocks. They are also remote and small in size, resulting in high transportation costs to distant markets and small economies of scale. Extreme events can have a large impact on the country's GDP and key income sectors such as tourism, fisheries and agriculture. Research has estimated the economic impact of climate change in the Pacific reaching 12.7% of annual GDP by 2100 under a business-as-usual scenario, and still reaching 4.6% of GDP under a low emissions scenario[11].

Fiji's GDP is USD 4.3 billion USD (2021)[12]. The country ranks as middle income with approx. 4,700 USD per capita[13] but with a much lower level in the rural areas. 24 % of the people live below the national basic need poverty line[14]. Over a third (37%) of Fijians derive their income from agriculture[15] and in addition to the impacts on crop yield discussed in the climate analysis below, agricultural output will be negatively influenced by climate change due to impacts on health and labour productivity.

Tourism, which accounts for 40.3% of GDP and provides 36.5% of jobs[16], is particularly vulnerable to climate change[17]. Rising sea levels and coastal erosion will affect the quality and quantity of beach space. Research has shown that tourism revenue may be reduced by 18% by 2030 because of climate change[18]. Extreme weather events can discourage tourists from visiting an area and degrade the surroundings that attract them, such as beaches and coral reefs. The tourism industry is highly reliant on freshwater availability, and the impacts of climate change on water security will have knock-on effects on tourism operations. Coral and mangrove restoration, and marine parks and protected areas establishment, are important interventions which can restore environmental degradation and improve resiliency to climate change.

The Fijian economy is already quite vulnerable to extreme climatic events such as cyclones, floods, and droughts, with the costs of storm surge impacts for individual events at times as high as a few percent of the annual GDP. A subjective ranking of key climate change impacts and vulnerabilities for Fiji identifies coastal resources as being of the highest priority in terms of certainty, urgency, and severity of impact, as well as the importance of the resource being affected. In February 2016, cyclone Winston had a devastating impact on infrastructure, the agriculture sector, the sugar industry, and public finances. The government spent out 4 % of the GDP on the reconstruction of schools, roads, bridges, and other infrastructure where the cyclone left the equivalent of 20% of national GDP in damages[19].

With the impacts of climate events such as cyclones creating a large drain on national resources and negative economic growth over the last few years, public debt is expected to increase steadily, imposing a risk to debt sustainability and hampering national ability to finance the necessary changes. This was compounded by the COVID19 pandemic. Consequently, although significant investment is needed to strengthen Fiji's resilience to climate change and natural hazards, national resources are limited and significant investment is required from Overseas Development Aid and external sources such as multilateral climate Funds.

[9] World Bank Data. Agriculture, forestry and fishing, value added (% of GDP). Fiji 2021. Accessed 23/05/2023.
[10] https://www.agriculture.gov.fj/documents/census/VOLUMEI_DESCRIPTIVEANALYSISANDGENERALTABLEREPORT.pdf
[11] ADB, The Economics of Climate Change in the Pacific. Available here.
[12] World Bank Data. Fiji 2021 Gross Domestic Product (US$)
[13] Ibid. GDP per capita (US$)
[14] GoF (2020) Household Income and Expenditure Survey 2019-2020. Available here.
[15] Ibid.
[16] IFC (2020) Fiji COVID-19 Business Survey: Tourism focus. Available here.
[17] World Bank, 2021. Climate Risk Country Profile – Fiji. Available here.
[18] World Bank (2017) Climate Vulnerability Assessment (CVA) Fiji. Available here.
[19] World Bank (2017) Resilience and love in action: Rebuilding after Cyclone Winston. Available here.

Social and Gender Assessment

Climate change is not gender-neutral, as natural disasters and climate change have disproportional impact on diverse groups of women based on pre-existing vulnerabilities and inequalities in Fijian society. Disaster and climate risks are a greater threat to women's socioeconomic resilience than to men's, as women start from a position of having less secure, lower-paid work, and a high level of domestic violence and workplace sexual harassment that impact their capacity to develop and prosper.

On average, the people of Fiji experience 3 to 4 major disaster events over their lifetime[20]. Even as women are disproportionately impacted by disasters and climate change in negative ways, women's participation in humanitarian decision-making and leadership is considered low across the Pacific Island countries, from household decision-making to national legislatures. Women are less likely to receive critical information to prepare for humanitarian disasters and are less likely to influence decisions in community decision-making bodies and consultations on disaster risk management and climate change adaptation[21].

Although there are many gaps in statistical data, much is understood about the gendered impacts of sudden-onset disasters in Fiji based on Post Disaster Needs Assessments, evaluations of response efforts, and case studies of disasters. Two issues surfaced following Tropical Cyclone Winston in Fiji: increases in gender-based violence in temporary shelter and affected communities, and greater impoverishment of women in recovery and reconstruction. Moreover, the role of women in food production—through subsistence farming or growing crops for income—is likely to be significantly impacted by disasters and climate change.

Projected climate changes create risks to food security for families and communities. Changes to coastal marine fisheries and reduced availability of fish stocks due to the changing climate disproportionately affect women whose livelihoods and food security rely on them. In this context, protection of coastal resources is imperative in sustaining the livelihoods of vulnerable women. Women's participation in decision-making concerning climate change adaptation and resilience-building, environmental and natural resources management, and development planning is critical[22].

Women in Fiji represent a high percentage of the population in poor communities that depend largely on natural resources for their livelihoods, particularly in rural areas where they shoulder the major responsibility for household water supply and energy for cooking and heating, as well as for food security. Yet women have limited access to, and control over, environmental goods and services; and they have negligible participation in decision-making and distribution of environment management benefits.

In rural communities, local norms and distribution of work shape women's unique roles in domestic and productive uses of natural resources; often the primary collectors of water, fuelwood, and non-timber forest products, women are integral to the effective management of fast-depleting natural resources and the ecosystems services that they support, and studies show that women's leadership in managing natural resources can yield many positive environmental and social results[23]. Research shows that, at the local scale, rural women encounter key barriers to participation and benefit from nature-based solutions; NbS interventions are ultimately implemented at the local level in communities, where the distribution of power and assets, socioeconomic and gender roles and norms, and women's individual attributes are crucial factors influencing outcomes[24].

In Fiji, currently there is limited literature that comprehensively traces the positive impact of rural women's voice, leadership, and meaningful engagement in decision-making in coastal zone management or the effectiveness of nature-based solutions to climate change. This programme presents an opportunity to help bridge this crucial gender data gap and overcome barriers to

[20] ADB (2022). Women's Resilience in Fiji: How Laws and Policies Promote Gender Equality in Climate Change and Disaster Risk Management.
[21] UNW (2022). Gender Equality Brief for 14 Pacific Island Countries and Territories.
[22] ADB (2022). Women's Resilience in Fiji: How Laws and Policies Promote Gender Equality in Climate Change and Disaster Risk Management.
[23] The World Resources Institute. (2023). Working Paper: Enabling Women as Key Actors in Nature-based Solutions. https://www.wri.org/research/enabling-women-key-actors-nature-based-solutions.
[24] Ibid.

participation.

To provide further gender context to the 14 Fiji villages engaged in this nature-based seawalls programme, community consultations were facilitated with approximately 544 participants, 47% of which were women and 3% children or youth below 18 years old. Community members validated that their main livelihoods and income-generating activities were tourism, fishing, farming, and semi-commercial production of crops, fruits, and vegetables. Where there are existing mangroves, they engage in crab harvesting, and also engage in farming and fishing for subsistence. Across diverse geographical locations, a common challenge is limited access to primary markets and social services due to the remoteness of their villages from the main town.

Some gender-differentiated qualitative data were available, such as in the western Saoiko village where beekeeping for women was identified as a previous livelihood opportunity, though its sustainability was poor due to damages caused by cyclones, the continual cost of rebuilding, and financial constraints. Rural women were also engaged in a livelihood initiative where they produced handicrafts and hand-printed or handwoven materials that were marketed locally and abroad. In Soliyaga village, the Soliyaga Women's Group leads the harvest of crown-of-thorns starfish as organic manure for their mangrove nurseries.
As part of their engagement in the programme, the communities agreed to provide "assistance in the nursing and planting of mangroves and maintenance of vetiver". Less clear in the available data is the gender-differentiated roles in this assistance and maintenance – most likely this would fall upon women – and the ways in which this responsibility is distributed most equitably to ensure the benefits are, in turn, received equitably. Integrating gender and social inclusion in nature-based solutions is essential to its success and sustainability[25].

In this process, comprehensive safeguarding mechanisms for the prevention of sexual exploitation, abuse, and harassment (SEAH) are similarly necessary. As an example, the communities agreed to allocate lodging onsite for external or outsourced contractors building the seawalls, to save on travel time. Safety and security guidelines must be in place, as development interventions or climate adaptation actions must ensure SEAH risks are low for the women, children, and other vulnerable sectors of the community. As another example, tourism development as a result of improved climate adaptation and natural resources may also pose risks for sexual exploitation and abuse, particularly of women and girls[26]. Such considerations are mitigated in the ESMP and the Gender Action Plan. Please see Annexes 1 and 2.

[25] World Bank (2023). Integrating Gender and Social Inclusion in Nature-Based Solutions: Guidance Note. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099060123165042304/p1765160ae46bb0aa0aefa0235601f9d0c6.
[26] Fiji Women's Rights Movement (2017). Pacific women demand climate justice: Women's voices from the Pacific Islands region. https://www.fwrm.org.fj/.

Climate Context

Fiji is highly vulnerable to climate impacts, which will largely exacerbate existing vulnerabilities. It is ranked as the 15th country with the highest disaster risk globally[27], a situation that will worsen as climate impacts intensify. Compiled research identifies the following five most pressing climate hazards facing the country as increases in the occurrence and intensity of: **rainfall, temperatures, tropical cyclones, sea levels and ocean acidification.** An analysis of historical climate trends, projections, and associated impacts on livelihoods and ecosystems is provided below.

Overview

Temperatures in Fiji remain relatively constant throughout the year, averaging around 23°C–25°C in the dry season (May-October) and 26°C–27°C in the wet season (November-April), for the latest climatology covering the period 1991–2020[28]. Greater seasonal variation is seen in the precipitation regime, with an average of around 250–400 mm of rainfall per month in the wet season and 80–150 mm per month in the dry. Periods of drought are known to occur during El Niño periods. Annual precipitation shows some spatial variation, Fiji's most populous island, Viti Levu, sees much stronger precipitation on its east side (3,000–5,000 mm) compared to its west (2,000–3,000 mm). Tropical cyclones are a major feature of climate in the Fijian region and are another variable influenced both in terms of intensity and location by El Niño Southern Oscillation (ENSO)[29].

Historical trends

Temperature increase

Average annual temperature shows year-to year variability, with an overall warming trend over the 1850–2020 period. There is also a larger inter-annual variation in temperature between years caused by the complexity of the weather system through the intersection of El Nino Southern Oscillation (ENSO) events and the South Pacific Convergence Zone (SPCZ). It appears likely that all years since 2000 are warmer than the pre-industrial climate average. While Fiji's temperature increase over the 2011–2020 period is lower than the global average, current temperatures are still at +0.7°C compared to pre-industrial levels (1859–1900)[30].

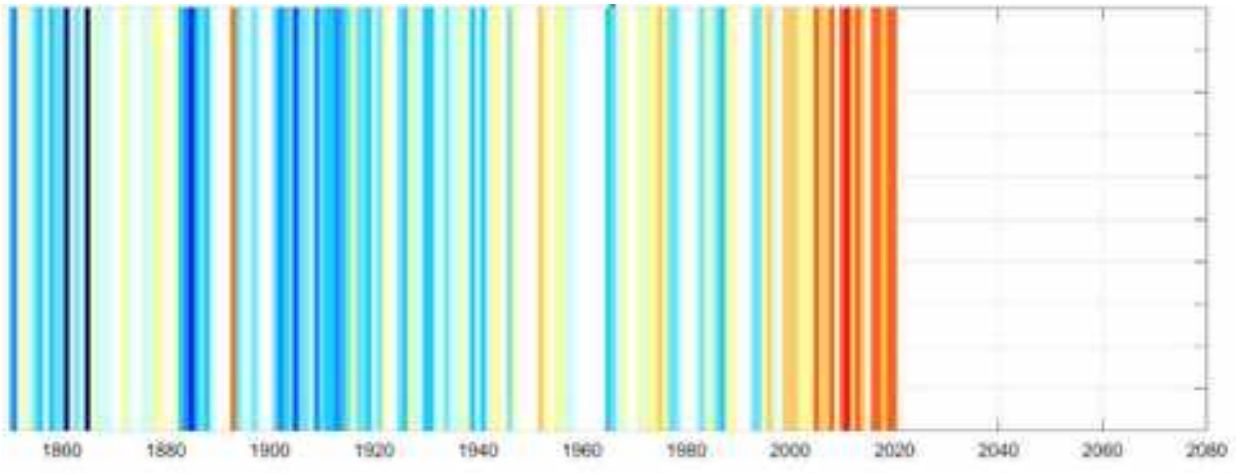


Figure 1 Fiji temperatures relative to 191-1990 through time, presented as climate stripes (Berkeley dataset)

As shown in Figure 1, there is a clear overall rising trend in the number of cooler than average days toward warmer than average days since 1850, with the trend intensifying since 2000[31]. Maximum temperatures[32] have increased by 0.15°C per decade in Suva and 0.04°C per decade at Nadi Airport (Figure 2)[33]. Minimum temperatures have increased by 0.26°C per decade in Suva and by 0.13°C

[27] Bündnis Entwicklung Hilft and IFHV. 2020. World Risk Report 2021.
[28] World Bank (2021) Climate Risk Country Profile. Fiji. Available here.
[29] Chand, S.S. and Walsh, K.J. (2011). Influence of ENSO on tropical cyclone intensity in the Fiji region. Journal of Climate, 24, 4096–4108.
[30] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.
[31] Ibid.
[32] Note: Long-term climate records are available for two locations: Suva and Nadi Airport.
[33] Pacific-Australia Climate Change Science and Adaptation Planning Program, 2015. Current and future climate of the Fiji Islands. Available here.

at Nadi Airport, showing a greater increasing trend than maximum temperatures[34].

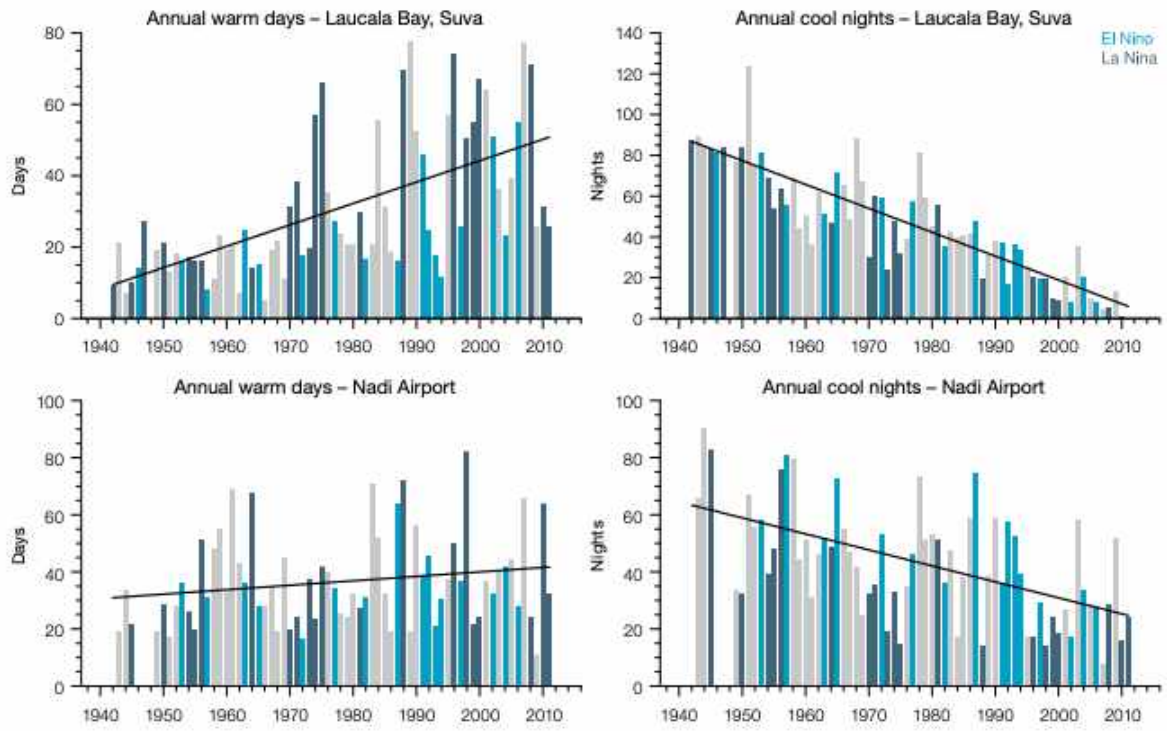


Figure 2 Annual total number of warm days and warm nights at Suva and Nadi Airport

Precipitation

Rainfall is affected by the SPCZ as air rising over warm water where winds converge results in thunderstorm activity. Historical records indicate that Fiji receives 250–400 mm of rain per month during the wet season (November to April), compared to monthly precipitation of 80–150 mm during the dry season (May to October). Over the 1901– 2020 period, there has been substantial variation in rainfall from year to year[35].

No significant trend in annual precipitation can be derived since 1960 while averages for all major climate models considered show no statistically significant change in annual rainfall for Fiji compared to pre-industrial baseline levels (1850-1900) – some models show increase, some decrease and the model ensemble average shows no change[36].

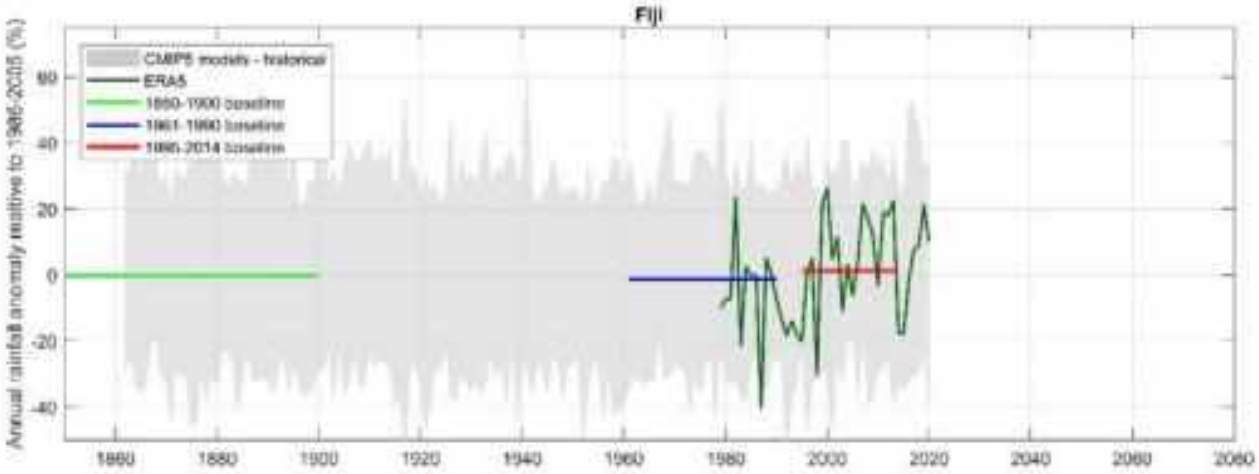


Figure 3 Area-average of Fiji annual rainfall (%) relative to the 1986-2005 period

Tropical cyclones

Tropical Cyclones (TCs) typically affect Fiji between November and April. Roughly 20 TCs affect

[34] Ibid.

[36] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.

Fiji's Exclusive Economic Zone per decade (based on 42 years of data). The number of TCs varies widely from year to year. Over the period 1969–2010, TCs occurred more frequently in El Nino years than in La Nina years.

In April 2020, Tropical Cyclone Harold hit Fiji and was followed by a second tropical cyclone, Yasa. These cyclones caused flooding and extensive human and economic damage, including 83% of cropland damages in the country[37]. Tropical cyclone Winston impacted 62% of the country's population in 2016, damaging or destroying power and communications, houses, schools, health clinics, medical facilities and crops, with damages costing F$2 billion. Most households do not have insurance and have to rebuild homes with personal savings, and women and children stay in churches or with relatives during reconstruction. On average, tropical cyclones cost F$152 million in asset losses, and losses from 100-year cyclones cost 11% of Fiji's GDP[38].

Sea-level rise

Since 1993, Fiji has experienced a sea-level rise of 0.10 m (at a rate of 6 mm per year) which is larger than the global average of 2.8-3.6 mm per year[39]. This is higher than the global average of approximately 0.05 m during the same period. This higher increase may be partly related to natural fluctuations that take place year-to-year or decade-to-decade caused by phenomena such as ENSO events.

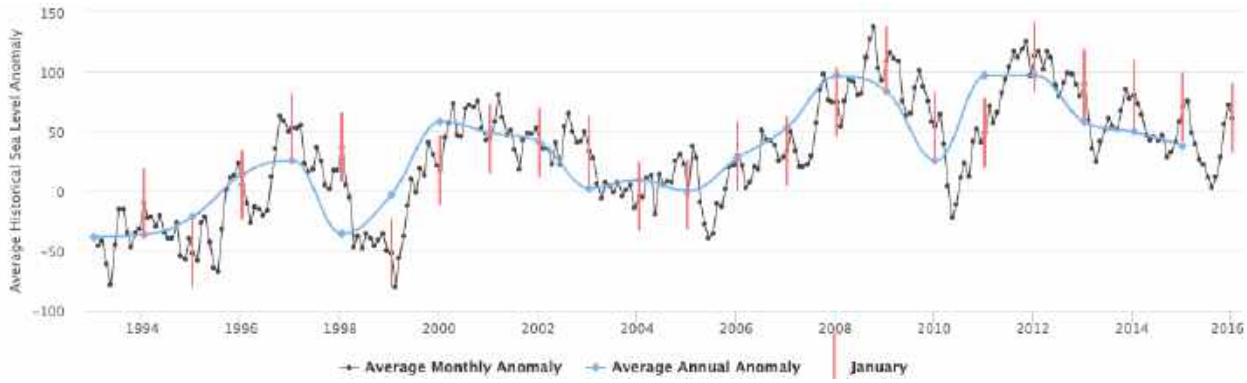


Figure 4 Historical sea level for coastal Fiji (1993-2015), observed anomalies relative to mean of 1993-2012

Ocean acidification

Since the 18th century, ocean acidification has been slowly increasing in Fiji's coastal waters. Progressive decrease of seawater pH of 0.08±0.02 pH units was observed between 1900 and 2000, which has shown to be strongly affected by regional processes such as the SPCZ and the Pacific Decadal Oscillation. Increased emissions of CO2 have decreased the pH of the tropical Pacific Ocean by 0.06 pH units since the beginning of the industrial era[40].

Projections

Temperature increase

Projections for all emissions scenarios indicate that the annual average air temperature and sea surface temperature (SST) will increase in the future in Fiji. Figure 5 shows temperature change under a very high emissions pathway in the pink shaded band (RCP8.5), and a very low emissions pathway in green (RCP2.6), with the model averages shown as thick lines. In the near term (2020 2039) the range of projected temperature change is similar for both emissions pathways, but in the medium term (2040-2059) the pathways begin to separate, and by the long term (2060-2079) the pathways give very different outcomes. By 2080 there is almost no overlap. By 2030, the warming is 0.6°C (all RCPs), by 2050 it's 0.7°C (RCP2.6) to 1.3°C (RCP8.5), and by 2070 it's 0.7°C (RCP2.6) to 1.9°C (RCP8.5), relative to 1986-2005[41].

[37] World Meteorological Organisation. State of the Climate in the South-West Pacific. Available here.
[38] World Bank, 2017. Climate Vulnerability Assessment – Making Fiji Climate Resilient. Available here.
[39] https://world.350.org/pacific/files/2014/01/1_PCCSP_Fiji_8pp.pdf
[40] Pacific-Australia Climate Change Science and Adaptation Planning Program, 2015. Current and future climate of the Fiji Islands. Available here.
[41] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.

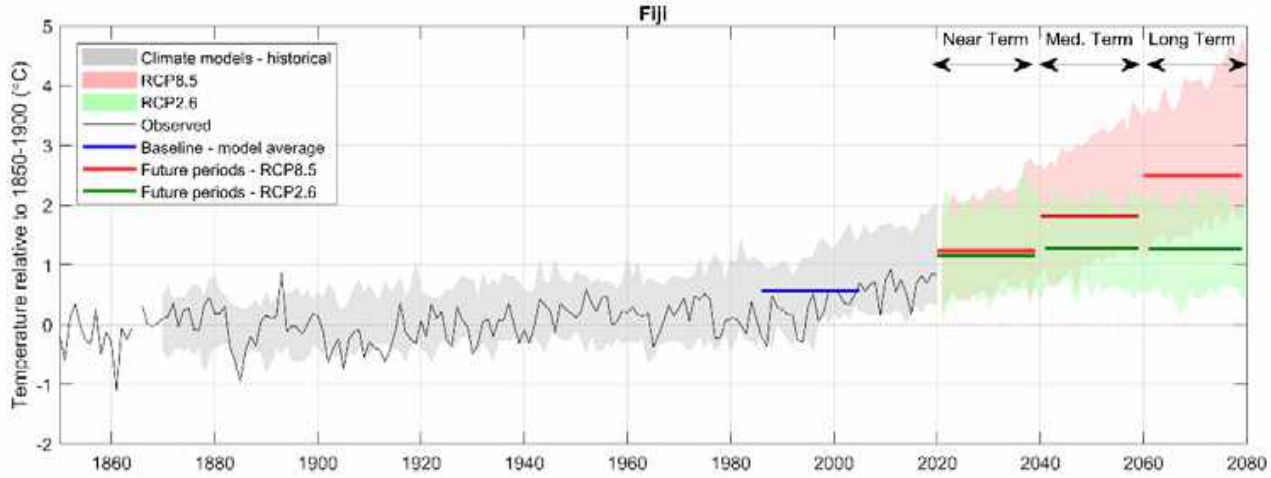


Figure 5 : Average annual temperature of Fiji relative to 1850-1900 (°C; grey band indicates the range of five global temperature datasets)

Projected temperature rises in Fiji are similar to the global average, with a 2.7°C average rise projected for the end of the century under the highest emissions pathway (RCP8.5) for Fiji, and 3.7°C projected globally. Increases in the annual maximum and minimum temperatures are slightly higher, but still significantly below the global estimates. There is some seasonality in projected temperature rises, with the warmest months January to April (the wet season).

	Average Daily Maximum Temperature		Average Daily Temperature		Average Daily Minimum Temperature	
	2040–2059	2080–2099	2040–2059	2080–2099	2040–2059	2080–2099
RCP2.6	0.7 (0.3, 1.2)	0.7 (0.1, 1.3)	0.7 (0.3, 1.2)	0.6 (0.1, 1.3)	0.7 (0.2, 1.2)	0.7 (0.1, 1.3)
RCP4.5	0.9 (0.3, 1.5)	1.3 (0.7, 2.0)	0.9 (0.4, 1.5)	1.3 (0.8, 1.9)	0.9 (0.4, 1.4)	1.3 (0.8, 1.9)
RCP6.0	0.9 (0.4, 1.4)	1.7 (1.0, 2.5)	0.9 (0.3, 1.4)	1.7 (0.9, 2.5)	0.9 (0.3, 0.9)	1.7 (0.9, 2.5)
RCP8.5	0.1.3 (0.7, 1.9)	2.7 (2.0, 3.7)	1.3 (0.7, 1.8)	2.8 (2.0, 3.6)	1.3 (0.7, 1.8)	2.8 (2.0, 3.7)

Figure 6 Projected anomaly maximum, minimum and average daily temperatures for Fiji[42]

Precipitation

While little change is projected in total annual rainfall, changes are potentially larger under higher emissions scenarios toward the end of the century. For example, the projected change for annual rainfall to 2030 ranges from -7 to +11% in all RCPs, but by 2070 the range is -9 to +9% under very low emissions (RCP2.6), and -15 to +15% under very high emissions (RCP8.5). The intensity and frequency of extreme rainfall days are projected to increase during the 21st century. Projections suggest a decrease in dry season rainfall and an increase in wet season rainfall. These factors are likely to increase flood risk in Fiji. Figure 7 below shows the average annual rainfall in the Fiji region relative to 1850-1900 (%)[43].

[42] World Bank (2021) Climate Risk Country Profile. Fiji. Available here.
[43] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.

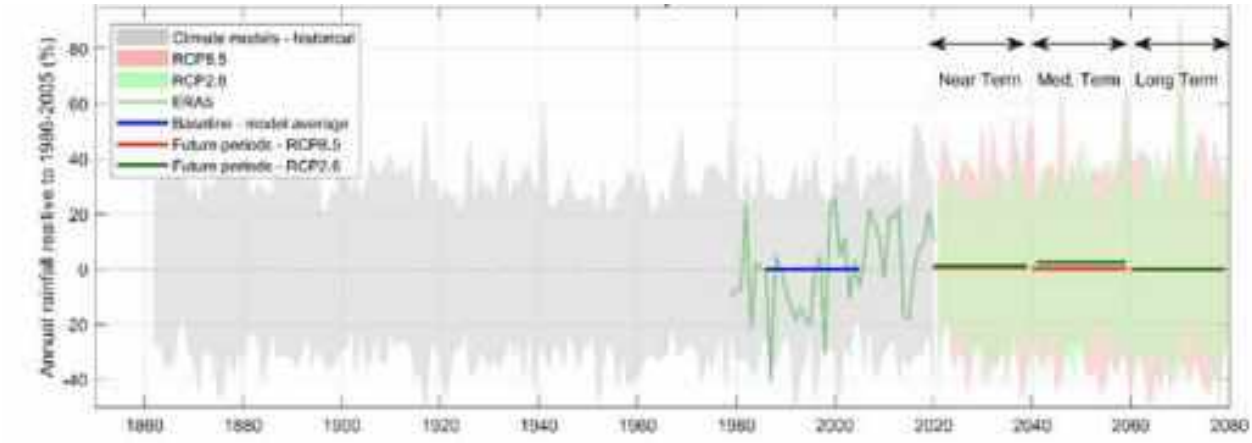


Figure 7 Average annual rainfall in the Fiji region relative to 1850-1900 (%) (CMIP5 models)

Extreme weather events

Tropical cyclones – Projections for the southwest Pacific region show a decrease in the frequency of TCs by the late 21st century (high confidence) and an increase in the proportion of more intense events (medium to high confidence). There is also high confidence that sea level rise will increase TC-related storm surge events, and medium to high confidence that TC rainfall rates will increase[44]. Maximum cyclone wind speeds are projected to increase between 2-11%, and rainfall intensity will increase 20%[45]. The proportion of category 4 and 5 tropical cyclones are projected to increase in the medium to long-term[46].

Extreme rain events – It is projected that there will be more extreme rain events, with a small decrease in the proportion of time in drought[47]. Further, research from the Australia Bureau of Meteorology and CSIRO (2014) projects with high confidence that extreme rainfall events will increase in frequency and intensity[48]. Projections show that a 1 in 20-year event will increase by 6mm under RCP2.6 and 36mm under RCP8.5 by the end of the century. This is in line with global projections, which show that extreme rainfall events are increasing in intensity with temperature.

Floods – Using a pessimistic scenario - Climate Model Inter-comparison Project 5 (CMIP5) projections under an RCP8.5 emissions scenario – floods are projected to increase river discharge by 23% by 2050 and 36% by 2100, with an increase in low-magnitude, high-frequency floods[49]. For low-magnitude floods, river discharge can cause a large increase in the flooded area, because water can travel much further across floodplains with a small increase in water height. 1 in 10-year fluvial (river) **flood** events are projected to increase by 13% by 2050 and 19% by 2100.

Heat waves – Models predict that the probability of heat waves will increase significantly under all emissions pathways. The current median probability is 3%, and this is projected to rise to 10% under RCP2.6 and increase to 50% under RCP8.5[50].

Sea-level rise

Under RCP projections it is predicted that sea levels will continue to rise in Fiji. This increase is likely to be between 0.09–0.18 m by 2030 (similar values for all RCPs), and an increase of 0.66–1.21 m by 2100 under RCP8.5 relative to 1986–2005 levels[51].

[44] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.
[45] https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/1_PACCSAP-Fiji-11pp_WEB.pdf
[46] World Bank, 2017. Climate Vulnerability Assessment – Making Fiji Climate Resilient. Available here.
[47] https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/1_PACCSAP-Fiji-11pp_WEB.pdf
[48] World Bank (2021) Climate Risk Country Profile. Fiji. Available here.
[49] World Bank (2021) Climate Risk Country Profile. Fiji. Available here.
[50] Ibid
[51] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.

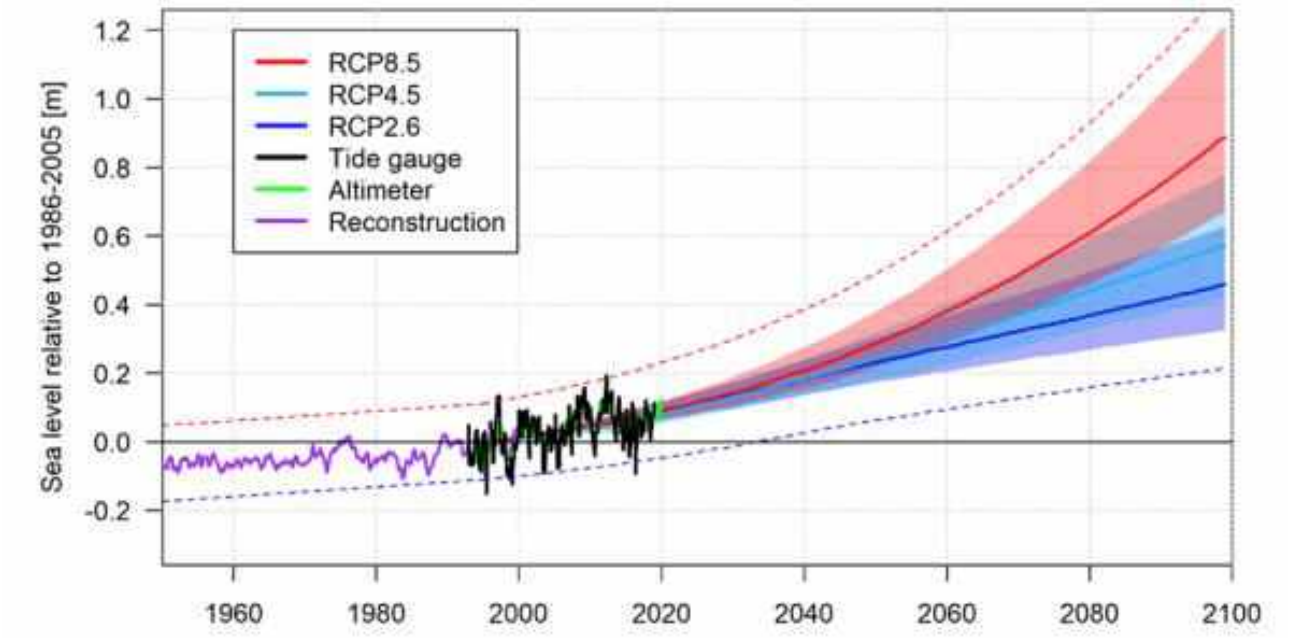


Figure 8 Tide-gauge records (purple) and satellite records (green) for sea-level data in Fiji. Multi-model mean projections from 1995-2100

The sea-level rise combined with natural year-to-year changes will increase the impact of storm surges and coastal flooding. Larger rises than currently predicted could be possible, particularly as understanding about the impacts of the ice sheet melting on sea-level rise improves.

Ocean acidification

Under all emissions scenarios, ocean acidity in Fiji will continue to increase over the 21st century, with greater changes under high emissions scenarios. The impact of acidification on reef ecosystem health will be compounded by other stressors including coral bleaching, storm damage and fishing pressure. Based on the RCP8.5, tropical Pacific pH is projected to decrease by a further 0.15 units from the historical 1986–2005 period into the 2040–2060 period. Saturation levels greater than 4 are considered optimal for coral calcification, while levels less than 3.5 are considered very low for a healthy reef system to continue reef-building. Projections suggest that by 2050, the tropical Pacific region will have shifted to sub-optimal conditions, with aragonite saturation levels between 3 and 3.5. This represents a drop of approximately 0.6 in the tropical region, corresponding to a decline in coral calcification rate of about 10%[52].

[52] Johnson et al. (2016) Pacific Islands Ocean Acidification Vulnerability Assessment. Available here.

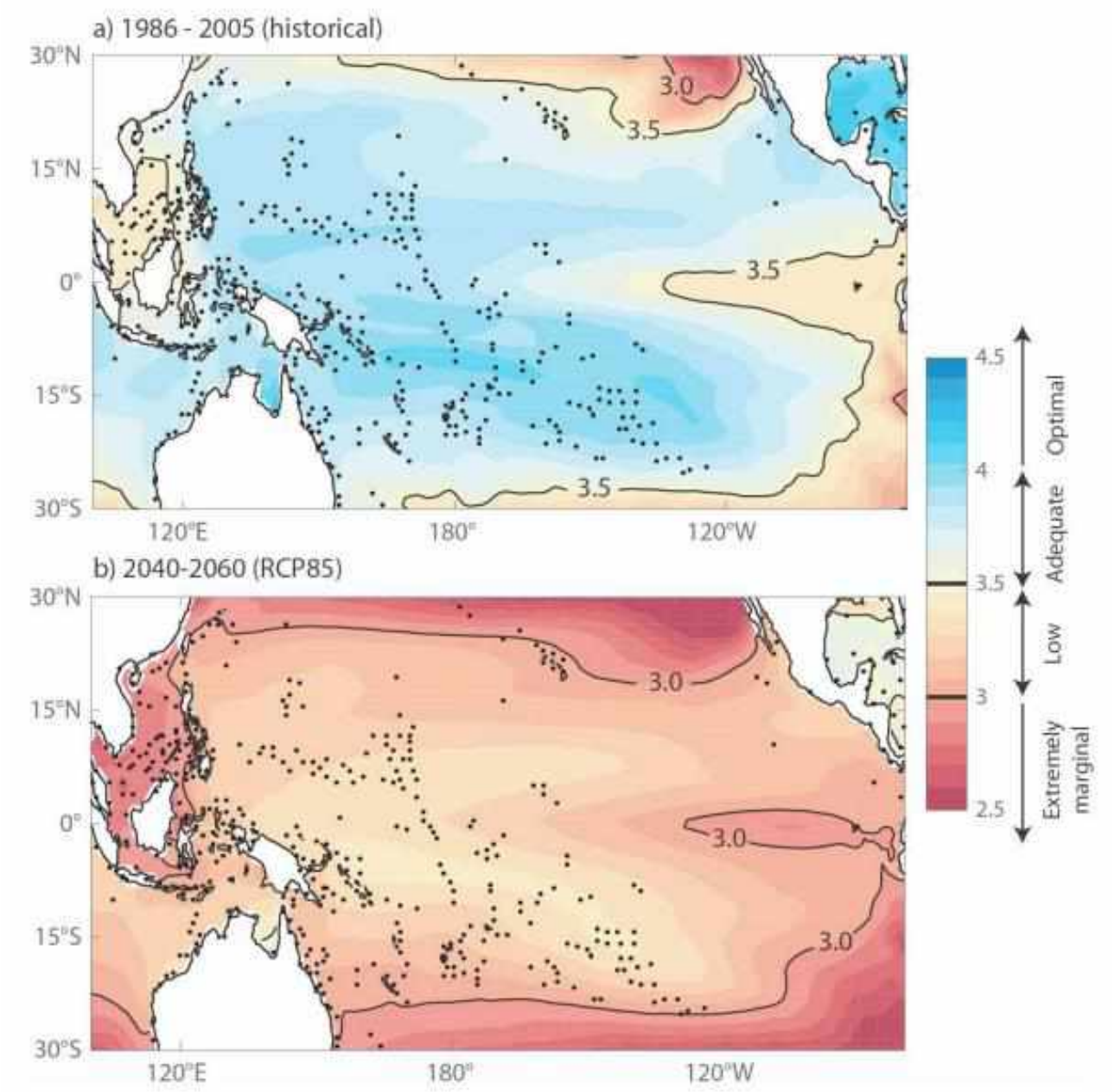


Figure 9 Aragonite saturation projections for the Western Pacific

Impacts on livelihoods and ecosystems

The consequences of projected climate change impacts for Fiji's development trajectory are significant. Intensifying climate drivers are endangering the vital ecosystems and natural resources – particularly coral reefs, coastlines, forests, farmland and river catchments – that support Fiji's agriculture, fisheries and tourism sectors, on which the majority of the population relies. For instance, 93.3% of Fijians derive their first or second income from coastal fishing[53], while almost 40% of the population relies on tourism for income generation.

Recurring and intensifying extreme weather events such as tropical cyclones and storm surges are repeatedly damaging or destroying vital public infrastructure such as electricity and water stations, roads, schools and hospitals. For example, from 2016 to 2019, the GoF spent nearly USD 351 million rebuilding the schools, hospitals, and other public buildings damaged by Tropical Cyclone Winston, but only completed roughly two-thirds of the required repairs in that period. From 2020 onwards, Fiji experienced the impacts of TCs Yasa, Harold, Gita and Keni which hit in quick succession, inflicting another USD 81 million in damages to public infrastructure.

The Government of Fiji suggests that the scale of flood risk is generally underestimated due to the

[53] Johnson et al. (2016) Pacific Islands Ocean Acidification Vulnerability Assessment. Available here.

number of smaller scale events that go unreported. The accounting of floods conducted by the GoF reported significant losses caused by both fluvial and pluvial floods (2.6% and 1.6% of GDP per year respectively)[54]. Although there remains uncertainty on the range of future precipitation changes, historical flooding is strongly correlated with La Niña periods, driven by heavy and prolonged rainfall associated with cyclones that cause both pluvial and fluvial flooding. Additionally, flooding is also driven by coastal dynamics, such as storm surges associated with cyclones, and worsened by existing factors such as coastal erosion.

The Fijian government has consequently been forced to spend significant sums in recovery from climate-induced losses and damages by rebuilding and repairing vital infrastructure. This diverts investment into proactive resilience-building through measures such as seawalls to protect vulnerable communities. It is estimated that investment of USD 1 in climate resilience can save USD 6 in response measures whilst NBS approaches are widely reported to provide high-cost benefits in comparison to conventional approaches[55, 56]. This ultimately frees up national resources for improving public education, strengthening the healthcare system, and providing further national resources for helping subsistence farmers adapt and scale climate-resilient agricultural practices. Table 1 Summary of climate change and climate-related hazards affecting Fiji and associated impacts below provides a high-level summary of key climate hazards and their associated impacts on livelihoods, ecosystems and populations.

Table 1 Summary of climate change and climate-related hazards affecting Fiji and associated impacts

Climate Hazards	Evidence of impacts
Water resources	
Extreme rainfall and floods • Extreme rainfall is likely to be more often and more intense • Flooding is projected to become more frequent and severe under moderate and severe scenarios[57] • 1 in 10-year river flood events projected to increase by 13% by 2050[58]	• Soil erosion and landslides puts water infrastructure at particular risk during extreme weather events[59] • During heavy rainfall periods water will become contaminated from water runoff from erosion and greater sedimentation • Higher risk of climate-sensitive disease outbreak could be more frequent at any time of year rather than being seasonal due to higher temperatures and extreme rainfall events[60]
Sea level rise • Sea level rise up to 20 to 50cm by 2070, increasing the impact of storm surges and coastal flooding[61]	• Freshwater in coastal areas will be subject to saline intrusion from sea level rise, making coastal particularly vulnerable • Sea level rise will raise water tables and affect in-ground septic and sewer pumping systems, and groundwater will be contaminated by saltwater intrusion, threatening water security and health
Tropical cyclones • **Tropical cyclones will have greater intensity of 2-11%**	Tropical cyclones and associated storm surges damage will impact drinking water resources availability[62]
Agriculture and food resources	
Sea level rise • **Sea level rise up to 20-50cm by 2070 across the region, increasing the impact of storm surges and flooding[63]**	• Coastal inundation will submerge arable lands and lead to saltwater intrusion of soils and cultivations • Prime land for agriculture in coastal areas will be affected by sea level rise, tidal surges and salinity intrusion[64]

[54] World Bank (2021) Climate Risk Country Profile. Fiji. Available here.
55 https://press.un.org/en/2019/sgsm19807.doc.htm
56 https://www.worldbank.org/en/news/feature/2023/05/22/assessing-the-benefits-and-costs-of-nature-based-solutions-for-climate-resilience-a-guideline-for-project-developers
57 Republic of Fiji, 2018. National Adaptation Plan.
58 World Bank (2021) Climate Risk Country Profile. Fiji. Available here.
59 Republic of Fiji, 2018. National Adaptation Plan.
60 Republic of Fiji, 2018. National Adaptation Plan.
[61] Pacific Climate Change Science – country reports
[62] World Bank (2021) Climate Risk Country Profile. Fiji. Available here.
[63] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.
[64] Republic of Fiji, 2018. National Adaptation Plan.

Climate Hazards	Evidence of impacts
	• Coastal and marine ecosystems will be impacted including mangrove dieback from coastline recession, declining coral reef health and declining numbers of fin fish and commercial invertebrates • Sea level rise will result in waterlogging of community grounds and saltwater intrusion into wells impacting health through reduction of potable water sources. • Salt water contamination of water sources will result in loss of agricultural productivity or saline damage to agricultural land beyond inundation areas and lead to livelihood decline and degradation of soils.
Precipitation, extreme rainfall and floods • **Extreme rainfall is likely to be more often and more intense, especially in La Nina phases of ENSO.** • **Flooding is projected to become more frequent and severe under moderate and severe scenarios [65]** • **Uncertain rainfall change in the region. Low certainty of decreasing annual mean precipitation** • **Increased interannual variation caused by ENSO fluctuations**	• Heavy precipitation events will lead to increased soil erosion, resulting in topsoil loss and decreased productivity of agricultural systems • Increasing intensity of rainfall events will put crop production at risk and waterlog food gardens, and sugar crops • River and coastal flooding will lead to loss of fertile land • Heavy rainfall periods will exacerbate soil erosion and sediment run-off, threatening coral reefs and coastal and lagoon fisheries
Coastal zone protection and natural resource management	
Extreme rainfall and floods • **Extreme rainfall is likely to be more often and more intense**	Climate change will exacerbate an already fragile forestry ecosystems from logging and human development. Impacts include landslides and soil erosion from extreme rainfall that can result in greater soil run off.
Sea level rise • **Sea level rise up to 20=50cm by 2070 across the region, increasing the impact of storm surges and flooding[66]**	• Sea level rise and the resulting saltwater intrusion that stems from coastal floods will result in damage to infrastructure and houses, making portions of the island nation uninhabitable[67]. • Coastal and shoreline erosion will result in loss of houses, coastal roads, water standpipes and graves. • Risk of community displacement
Disaster risk reduction	
Extreme rainfall • **Extreme rainfall is likely to be more often and more intense**	• Impacts from flooding include loss of life, infrastructure and house damage, and interruption to services and supplies • Fiji is vulnerable to an increase in fluvial floods losses of 40% and pluvial losses of 45% by 2050, exceeding 5% of GDP[68]
Tropical Cyclones • **Tropical cyclones will have greater intensity of 2-11%** • **Cyclones are likely to become more frequent during El Nino years**	• Landslides are more likely due to cyclones, storms and heavy rainfall events and are likely to increase with climate change as heavy precipitation events and cyclone intensities increase • A significant increase in the cost of climate change-related disasters, with projections of asset losses from floods and cyclones costing up to 30 percent higher than current averages[69] • Storm surges will result in frequent inundations of community lands and infrastructure. Degrading vital

[65] Republic of Fiji, 2018. National Adaptation Plan.
[66] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.
[67] World Bank, 2017. Climate Vulnerability Assessment – Making Fiji Climate Resilient. Available here.
[68] Ibid.
[69] World Bank, 2017. Climate Vulnerability Assessment – Making Fiji Climate Resilient. Available here.

Climate Hazards	Evidence of impacts
	services, destroying homes or businesses and accelerating salt water intrusion impacts in the longer-term.
Sea level rise • **Sea level rise up to 20=50cm by 2070 across the region, increasing the impact of storm surges and flooding[70]**	• Coastal erosion, inundation and waves overtopping into villages are exacerbated by storm surge events • Wave-driven flooding is projected to make many atoll islands and coastal areas uninhabitable by 2050 without adaptation interventions
	Health
- **Temperature** - **Increasing temperatures of 1.6-1.7C by 2041-2070 under RCP4.5[71]**	• Rising sea levels coupled with warmer temperatures and stronger El Niño patterns increase the island's susceptibility to deadly food- and water-borne diseases[72]. In the case of community damage associated with climate shocks (e.g. storm surge) contaminated waters and damaged infrastructure can lead to increased disease outbreaks. • Increasing morbidity and mortality from extreme weather events,[73] • In the Pacific islands, the occurrence of malaria and dengue fever is increasing and is projected to increase further from climate changeand is exacerbated through poor sanitation associated with coastal climate shocks[74]. • Health impacts can also be as a result of other indirect climate change drivers such as increased stress and reduced wellbeing from loss of livelihoods or infrastructure damage[75]. • Freshwater scarcity, droughts and storms can degrade sanitation and hygiene[76]
- **Sea level rise** - **Sea level rise up to 20-50cm by 2070 across the region, increasing the impact of storm surges and flooding[77]**	

[70] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.
[71] GCF-WMO Climate Information Platform
[72] World Bank, 2017. Climate Vulnerability Assessment – Making Fiji Climate Resilient. Available here.
[73] IPCC 2014: Small islands. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.
[74] Ibid.
[75] Ibid.
[76] Ibid.
[77] CSIRO, SPREP and Australian Aid (2021) "NextGen" Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Technical Report. Available here.

Adaptation barriers and needs

In addition to vulnerability and exposure factors presented above, and projected climate change impacts, the following adaptation barriers continue to hamper coastal zone protection and disaster risk reduction processes and efforts. For each barrier, a description is provided along with an explanation of the project's contribution to address this barrier.

Table 2. Summary of climate adaptation needs and barriers to achieving greater climate change adaptation in coastal communities.

Barrier to adaptation	How the project will address the barrier(s)
Information and knowledge barriers	
Limited outreach and education at community level: Current education and extension systems in Fiji are not able to ensure that communities have access to up-to-date knowledge on climate and weather trends, their impacts, resilient coastal zone management and NbS solutions, resilient housing and settlements, and awareness of the environmental, economic and social impacts of not taking action. Specifically, information on impacts and hazards is not always readily available for coastal communities. In addition, language and terminology were noted as major barriers in the communication of information and warnings to the community[78].	Communities require further understanding and awareness of climate threats to and impacts on their livelihoods. To remedy this, under Output 1.1 the project will roll out awareness raising and training activities for both vulnerable communities in the 14 target sites as well as MoAW extension officers. Awareness and training materials will be developed in English and I-Taukei language to ensure understanding of project climate change impacts and vulnerabilities from all audiences. In preparation for the establishment of communities of practice gathering MoAW extension officers, village leaders and communities, the project will consult with communities to understand local perspectives on resilient coastal management to enable the integration of indigenous knowledge and practices into NbS design and maintenance. Knowledge exchange between communities in the same province will be facilitated through the organisation of inter-village workshops to exchange information on lessons learned and best practices for the establishment of nature-based seawalls. Further, the proposed project will create ties with the WMO project to provide up to date information on hazard mapping and early warning systems to communities (more information on this can be found in the relevant section on baseline projects). Taken together, these activities will enhance communities' abilities to act proactively to adapt to climate change rather than to rely on reactive responses from the national level.
Lagging monitoring and evaluation efforts: current information-sharing arrangements, compatibility and management do not allow for systematic M&E processes to be carried out on the impacts of climate change[79]. Further, climate information services often do not reach vulnerable populations at an appropriate time, nor are communicated in a way end-users can understand and act upon.	As explained above, the proposed project under Activity 1.1.2 and Activity 1.1.3 will provide cross-cutting technical assistance to MoAW extension offices in order to capacitate local offices in adaptation planning, implementation and monitoring. Current information sharing arrangements and monitoring processes are not systematised across the board, and findings and lessons learned from the local level do not reach national decision-making spheres. Conversely, knowledge and information on best practices for the implementation of NbS solutions do not trickle down to local level planners, decision makers and ultimately communities. Through the institutional gap assessment of MoAW extension offices, and the development of improved SOPs, the proposed project will support the establishment of clear communication channels and responsibilities

[78] World Bank (2017) Climate Vulnerability Assessment. Making Fiji Climate Resilient. Available here.
[79] Ibid

Barrier to adaptation	How the project will address the barrier(s)
	between national and sub-national climate change practitioners.
Technical barriers	
Inadequate technical and operational capacity of MoAW extension officers to plan and implement adaptation and NbS solutions and methodologies: Adaptation solutions for addressing coastal erosion are complex and often require significant technical inputs and engineering design (whether artificial or ecological) that go beyond traditional knowledge systems. Consequently, access to extension structures for technical support is essential for communities to adopt adaptation measures. To date MoAW human resources are limited in number and are lacking updated standards and SOPs required to implement climate resilient solutions at the local level.	To bridge the information gap between MoAW extension offices and national development and adaptation planning institutions, under Activity 1.1.2 the proposed project will support the development of an institutional capacity assessment across MoAW extension structures, to identify gaps and opportunities to enhance institutional, communication, learning and technical standard operating procedures (SOPs). These improved SOPs will include updated organogram of institutional responsibilities and communication channels; guidelines on systematic reporting and learning; improved prioritization matrix and methodology to select the most vulnerable communities and suitable adaptation options; and updated technical specifications for NbS design and construction.
Limited standardization of climate data and tools: Data collection and aggregation systems are currently not standardised. Data is not always collected across the country in a comparable and aggregable form, making it hard to coordinate and plan decisions based on holistic and informed analysis or vulnerabilities. Current, GIS and MoAW apps require refinement and updates to enable more meaningful data use to inform decisions.	Under Activity 1.1.3 the project will support the modernization and systematisation of data collection and storage principles to enhance data use among MoAW extension offices. This will consolidate locally relevant information and data within provincial extension structures, therefore improving the planning and delivery of NbS solutions by local agents for local communities. The updated data platforms and tools will be made accessible to Divisional Offices (DOs), or Provincial Council Offices (PCOs) and MoAW extension structures.
Inadequate infrastructural design of seawalls, leading to null adaptation or maladaptation: The MoAW seawall design has been developed as a “one-size fits all” option to combat coastal erosion and floods and climate impacts of low to medium impact, and fails to account for context-specific factors. As a result, the MoAW design as it stands cannot guarantee sufficient protection for vulnerable communities and assets, with an investment lifetime that is insufficient in light of the exposure of communities and the scale and magnitude of projected impacts.	For the definition of technical specifications and the finalisation of the seawalls design plans, under Activity 2.1.1. the project will integrate the latest design recommendations and engineering improvements (from other baseline projects and using findings from project-funded studies and assessments), to update the MoAW seawall design. Further, these recommendations will be included in the improved SOPs to be developed under Activity 1.1.2 and shared with MoAW extension agents to inform the design and construction of future seawalls beyond the project lifetime.
Financial barriers	
Insufficient domestic resources: Available government resources in climate adaptation have been greatly reduced in recent years due to several damage and loss responses in relation to frequent impacts from Category 5 TCs and the COVID-19 pandemic. Consequently, domestic climate finance resources for proactive disaster risk reduction investments are greatly depleted. The finances required to ensure climate change adaptation in Fiji are estimated to add up to 100% of GDP in the next ten years[80]. Multilateral/international climate finance resources are needed to provide	The proposed project aims to support the Government of Fiji bridge the adaptation financing gap by unlocking grant financing for the construction of NBSs in 14 target villages. These resources will immediately reduce the exposure of communities to projected climate impacts and save on costs relating to the relocation of communities under a business-as-usual scenario (i.e. without AF funding). Further, AF resources will be channelled towards the update and standardization of MoAW Standard Operating Procedures, which will improve processes at the national and subnational levels to implement

[80] World Bank (2017) Climate Vulnerability Assessment. Making Fiji Climate Resilient. Available here.

Barrier to adaptation	How the project will address the barrier(s)
sufficient financial support for concrete adaptation investments.	resilient solutions. These improved SOPs will encompass all processes across the NbS project cycle, from guidelines on systematic reporting to an updated prioritization matrix and methodology to identify the most vulnerable communities in urgent need of assistance, to updated guidelines for scoping studies and ESS assessments. MoAW extension agents will therefore be capacitated to deliver adaptation priorities at the local level. Further, the MoAW NbS manual will also be updated with the latest science-based engineering considerations and recommendations to enhance the impact potential of NbSs. AF resources will therefore be transformational to reduce the exposure of communities and assets throughout Fiji beyond the project lifetime.
Governance and Institutional barriers	
Limited community engagement and integration of local indigenous knowledge in adaptation planning processes: There is frequently insufficient community involvement during the design and implementation of climate change adaptation projects. The status quo is a top-down approach that doesn't include input from vulnerable communities. There is also insufficient engagement of women and other marginalised groups in adaptation planning.	Early and meaningful community engagement has been a central element of the project preparation phase, with three rounds of community consultations conducted as part of the scoping exercise, ESS assessment, and collection of consent forms for material and resource extraction. Further during project implementation, under Activity 1.1.1 a stocktake of local and indigenous perspectives on coastal zone management and protection will be carried out in order to include these findings into the updated MoAW SOPs and seawall designs. Additionally, biannual meetings will be organized gathering Communities of Practice (composed of MoAW extension agents and community leaders and selected members) to unpack and process lessons learned through the implementation of NbS solutions. The findings from the COPs will be compiled and systematised into the improved SOPs and disseminated to national development and climate change decision-makers. Finally, continuous community engagement will be a prerequisite for the implementation of construction activities under Outcome 2, whereby communities will provide unskilled labour and consent for the utilization of locally sourced construction materials (boulders and clay) for the construction of NbSs.
Limited vertical communication: There is currently limited vertical communication across extension levels (community to decision makers). This generates unclear understanding of the effects of climate change and its differential impacts on vulnerable and marginalised communities in remote areas. As a consequence, decision makers do not have the requisite information to make informed decisions on priority actions.	Several mechanisms will be established under the proposed project to address the limited communication and knowledge exchange between MoAW extension structures, and from communities to MoAW extension structures. First, under Activity 1.1.1, training on climate change projections and impacts on livelihoods and populations will be provided jointly gathering community leaders, members and extension agents. This will foster communication and sharing among stakeholders in preparation of the establishment of Communities of Practice later under this activity. Training on NbS approaches for coastal zone management and protection will also be provided to a broader audience combining communities and extension agents. Further, Communities of Practice meetings and

Barrier to adaptation	How the project will address the barrier(s)
	workshops will be organised biannually to compile lessons learned and information on the implementation of NbSs. The COPs will promote active and voluntary participation of end-users and technical staff to foster engagement and ownership of project results while encouraging continuous communication and feedback among stakeholders. Lastly under Activity 1.1.1, over the fence learning will be encouraged through the organization of inter-village or provincial workshops gathering communities from the project sites and neighbouring villages. This will enable tribal leaders and community members to exchange knowledge on NbSs and disseminate lessons learned and benefits associated with the seawalls. Beyond the promotion of horizontal knowledge transfer among communities, through their participation in the COP meetings, MoAW extension officers will learn how to best engage with and provide assistance to communities based on the feedback received. The findings from these meetings will be compiled and included in the improved SOPs on communication channels and responsibilities to be developed as an output of Activity 1.1.2.

Selection of the project areas

The proposed project will support GoF in implementation of nature-based seawalls in 14 vulnerable coastal communities to enhance their resilience to increased climate impacts. All 14 sites are indigenous I-Taukei communities with historical connection to the land, subsistence economic activities, and demonstrated climate vulnerability. These 14 were selected based on their climate vulnerability, technical analysis of the suitability of the intervention, and willingness to support project design and implementation.

Figure 10: Map of Fiji highlighting location of target communities

Methodology

The Ministry of Agriculture and Waterways under its NbS programme has a Coastal Protection Works, Policy and Procedures. The Policy establishes a foundation for the provision of coastal protection activities and identifies procedures for programme delivery.

In the initial stage, affected communities/villages submit a written request for coastal protection work to the (MoAW) through Divisional Office (DO), or Provincial Council Office (PCO). The 14 villages in this proposal each wrote to the DO's office requesting assistance from the MoAW for aNbS. Furthermore, the affected communities/villages are represented by the village head (turaga-ni-koro) and the head of landowning unit (turaga-ni-mataqali).

Under the Ministry's Coastal Protection Policy, the selection criteria explain the climate vulnerability matrix used for selection of communities. After receiving the written request, a detailed scoping is carried out by the MoAW technical team. MoAW investigates severely affected communities based on the MoAW emergency rating indicators, between 1 to 5, (5- critical risk, 1 – very low or insignificant risk). The risk matrix considers 5 important factors and tallied to a score of 100. These are, (i) distance from king tide to nearest infrastructure, (ii) percentage of coastal vegetation available, (iii) frequency of cyclones per year, (iv) frequency of storm surges per year and (v) Number of

infrastructures affected.

The risk matrix and scoring system is explained below:

Rating		Description	Total score	Level of Risk
5	Extreme	Happening now, or will occur monthly	Between 80-100	Critical Risk
4	High	May occur every 6-12 months	Between 60-79	High Risk
3	Moderate	May occur in 1-2 years	Between 40-59	Medium Risk
2	Low	May occur in 2-4 years	Between 20-39	Low Risk
1	Very low	May occur in 5-10 years	Between 0-19	Insignificant risk

Parameters for Scoring:

Score	20	15	10	5	0
Distance from king tide to nearest infrastructure	0-5 m	5-10m	10-15m	15-20m	>20m
Percentage of coastal vegetation	<10%	10-25%	25-50%	50-80%	>80%
Frequency of cyclones per year	>3	3	2	1	0
Frequency of storm surges per year	>3	3	2	1	0
Number of infrastructures affected	>10	5-10	2-5	1-2	0

Furthermore, the site for selection needs availability of resources for a successful seawall construction. MoAW investigates the availability of raw materials based on the MoAW investigative rating indicators, between 1 to 5, (5- excellent, 1 – very poor). The material availability scoring considers 5 important factors and tallied to a score of 100. These are, (i) boulder availability – minimum 1.2m, (ii) availability of mangrove seedling, (iii) availability of vetiver seedlings, (iv) availability of skilled and unskilled labour and (v) availability of backfill materials. The material available matrix and scoring system is explained below:

Rating		Description	Total score	Level of Risk
5	Excellent	All resources available in the village	Between 80-100	Insignificant Risk
4	Good	All resources available within 1km	Between 60-79	Low Risk
3	Average	All resources available within 5km	Between 40-59	Medium Risk
2	Poor	Major lack of adequate resources	Between 20-39	High Risk

Rating		Description	Total score	Level of Risk
1	Very poor	No materials available	Between 0-19	Critical risk

Scoring for Material Matrix:

Score	20	15	10	5	0
Boulders - minimum 1.2m	In village	0.5-1km	1km-3km	3-5km	Not available
Mangrove seedlings	In village	0.5-1km	1km-3km	3-5km	Not available
Vetiver seedlings	In village	0.5-1km	1km-3km	3-5km	Not available
Skilled & Unskilled labour	In village	0.5-1km	1km-3km	3-5km	Not available
Rotten rock, soapstone and clay	In village	0.5-1km	1km-3km	3-5km	Not available

All 14 sites were scored as being exposed to extreme or high climate risk, but as having excellent or good material availability.

Vulnerability of the project areas

Based on the selection criteria and risk matrix system utilized by the MoAW, further analysis was conducted to determine the **exposure, sensitivity and adaptive capacity** of the proposed project sites following the methodology of the INFORM Risk Index[81]. **Exposure** to climate-related hazards such as coastal floods, storm surges and Tropical Cyclones (TCs) is categorized as “low” and “very high” among the project sites (in 1 and 4 provinces respectively). Exposure is understood as events that could occur and the people or assets potentially affected by their impacts. For Fiji as a whole and in the project sites, these are: coastal flood and inundation, erosion, Tropical Cyclone, riverine flood and earthquakes. As economic activities are overwhelmingly of subsistence nature, and assets located within meters of the shoreline, the impact of a Category 3 or 4 event such as a TC would have devastating consequences on the community, undermining means of subsistence with saltwater intrusion into arable fields; destruction of housing and public buildings and assets; and threats to human lives.

Sensitivity (or vulnerability) is defined as the susceptibility of communities to identified hazards (exposure). The sensitivity of the target provinces to projected climate impacts ranges from “low” to “very high”, as follows: 2 villages with “low” sensitivity, 2 with “medium” sensitivity, and 1 with “very high” sensitivity. Sensitivity encompasses the following human and development-related indicators:

- Development and deprivation
- Inequality
- Aid dependency
- Vulnerable groups such as:
    - Elderly persons
    - Disability persons
    - Children under the age of 5

Finally, the **adaptive capacity (or lack of coping capacity)** of target communities is ranked from “medium” to “very high”, with the most remote locations displaying the lowest coping capacity, whereby 4 provinces are ranked as “very high” inability to absorb shocks, and one 1 as “medium”. Adaptive capacity is measured utilizing institutional and infrastructure-related indicators, which inform on the resources available to communities to help absorb a climate-related shock. These

[81] https://unosat-geodrr.cern.ch/dss/FJI/Diagnostic/

indicators are:

- Disaster readiness
- Governance
- Physical infrastructure such as:
  - Electricity access
  - Access to health facilities
  - Availability of improved building materials
  - Access to improved sanitation
  - Access to improved water sources
  - Road connectivity
  - Internet access
  - Availability of mobile cellular

Ranking range	Category
0 – 4.4	Very low
4.4 – 5.0	Low
5.0 – 5.7	Medium
5.7 – 6.2	High
6.2 – 10	Very high

Table 3 INFORM Risk Index categories

Overall, all targeted provinces display high to very high levels of vulnerability to identified climate hazards, with 4 provinces (Macuata, Cakaudrove, Nadroga-Navosa and Lomaiviti) showing high risk, and 1 province showing a very high risk from a climate-induced disaster (Ra-Nakorotubu). Table 4 provides the exposure, sensitivity and adaptive capacity scores and overall ranking by target province.

N	Province	Tikina	Village	Exposure	Sensitivity	Adaptive capacity	Overall ranking
Vanua Levu							
1	Macuata	Dogotiki	Qaranivai Village	6.3/10	5.6/10	6.5/10	6.1/10 (High)
2		Nodogo	Soqobiau Village				
3		Nadogo	Visoqo Village				
4		Macuata-i-wai	Namama Village				
5	Cakaudrove	Saqani	Saqani Village	7.2/10	4.4/10	6.7/10	6.0/10 (High)
6		Saqani	Sese Village				
7		Tawake	Tawake Village				
8		Cakaudrove-i-wai	Loa Village				
Viti Levu							
9	Nadroga-Navosa	Korolevuiwai	Taqage Village	7.4/10	5.0/10	5.4/10	5.8/10 (High)
10		Raviravi	Nabila Village				
11	Ra-Nakorotubu	Nalavitilevu	Nayavuira village	4.4/10	7.4/10	7.5/10	6.2/10 (Very high)
12		Kavula	Nayavutoka Village				
13		Nakorotubu	Saioko Village				
Maritime							
14	Lomaiviti	Koro	Nabuna Village	7.2/10	4.6/10	7.0/10	6.1/10 (High)

Table 4 Analysis of exposure, sensitivity and adaptive capacity of target communities based on INFORM Risk Index methodology

To illustrate the high vulnerability of targeted villages to climate change risks, hazard maps were developed to display the location of each village in relation to given climate hazards, namely coastal flooding, tropical cyclones, and storm surges. For coastal flooding, maps have been generated from DEMs (Digital Elevation Models) with height above sea level where areas are categorized as follows: 0 - 2 m. (Very high risk), 2 - 4 m. (high risk), 4 - 6 m. (Moderate), 6-8 m (Low risk), and 8-10 m (Very low risk). All target villages are located in very high and high risk areas, as presented in Figure 11

and Figure 12 and for Viti Levu and Vanua Levu respectively.

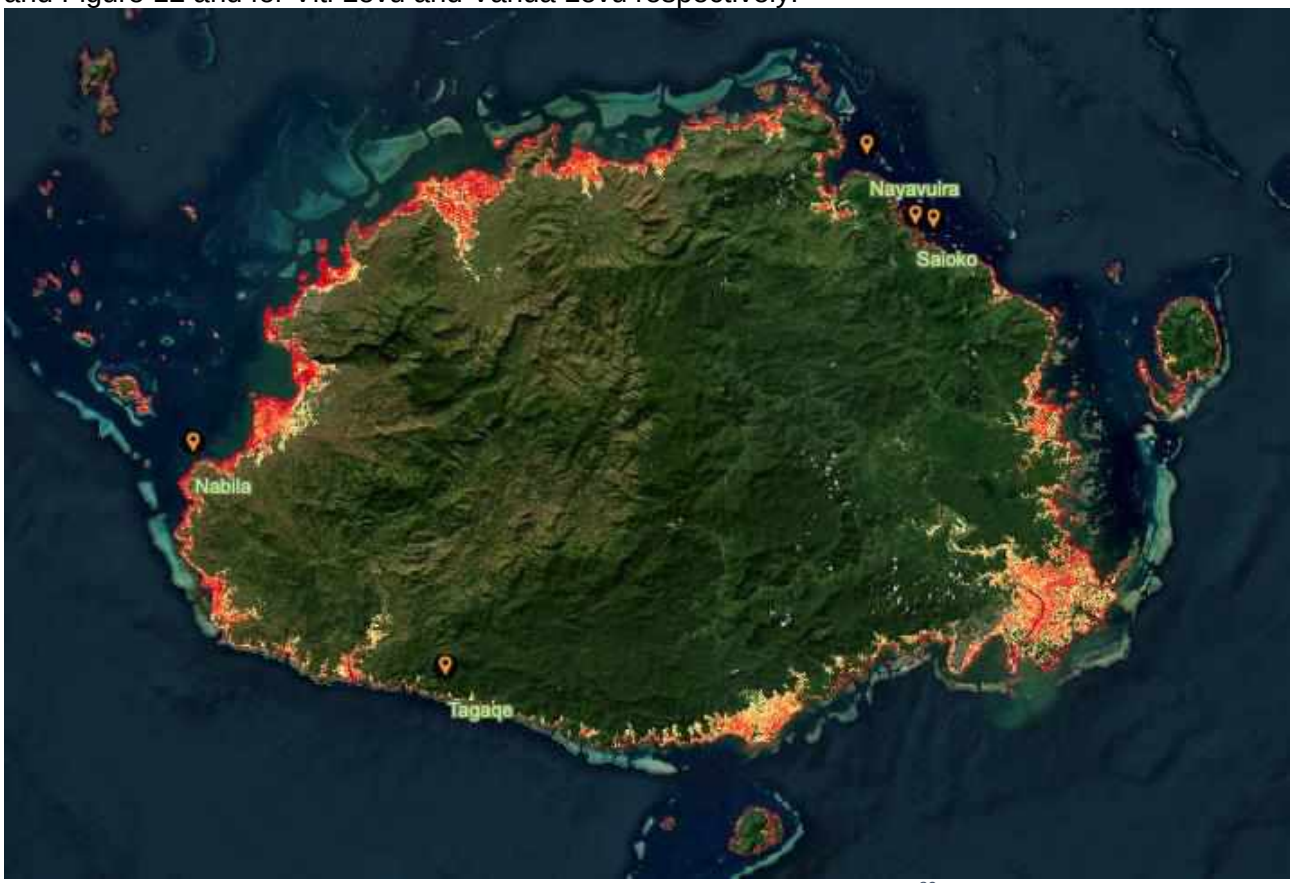


Figure 11 Hazard map for coastal flooding - Viti Levu[82]

Figure 12 Hazard map for coastal flooding - Vanua Levu

For Tropical Cyclones, maps were generated using the value of wind intensity (for example, maximum 1-minute sustained wind speed in the case of TCs) that is expected to be exceeded at

[82] UNOSAT 2022)

least once in a 100-year time return period[83] (using Saffir-Simpson scale). This occurrence is ranked from medium to very high probability across all 14 villages, with only 2 ranking as medium probability while the other 12 rank as high and very high. Hazard maps for TCs for Viti Levu and Vanua Levu are provided in Figure 13 and Figure 14 below.

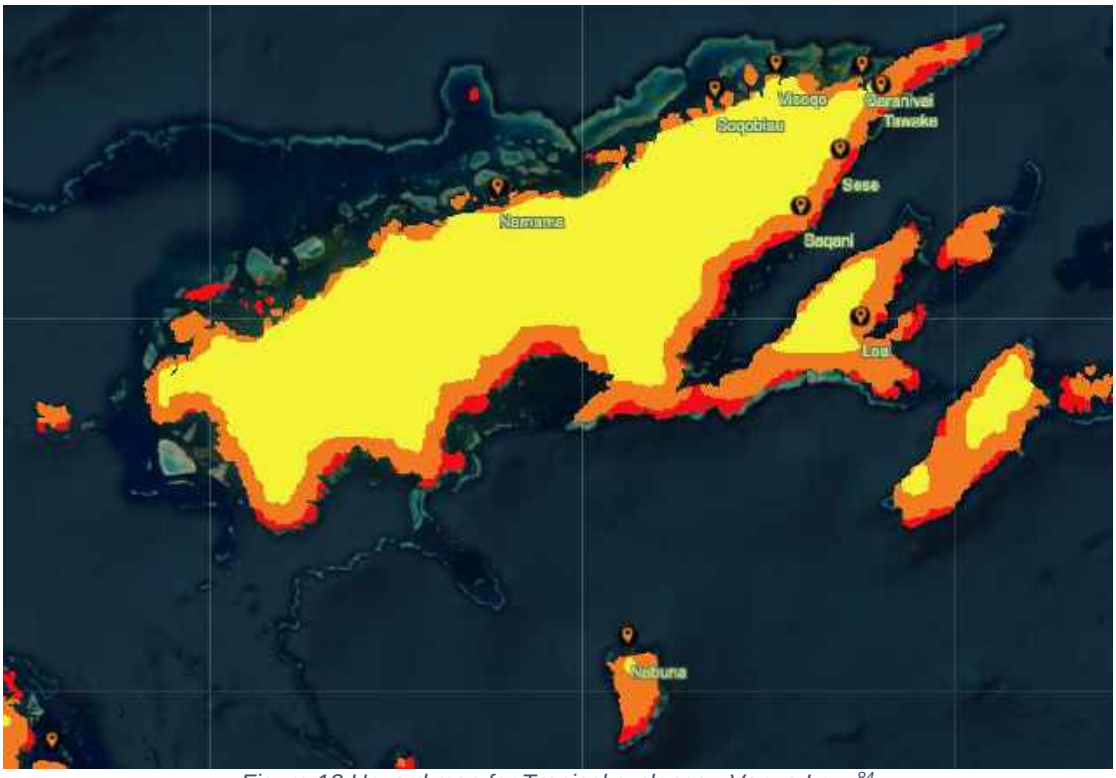


Figure 13 Hazard map for Tropical cyclones - Vanua Levu[84]

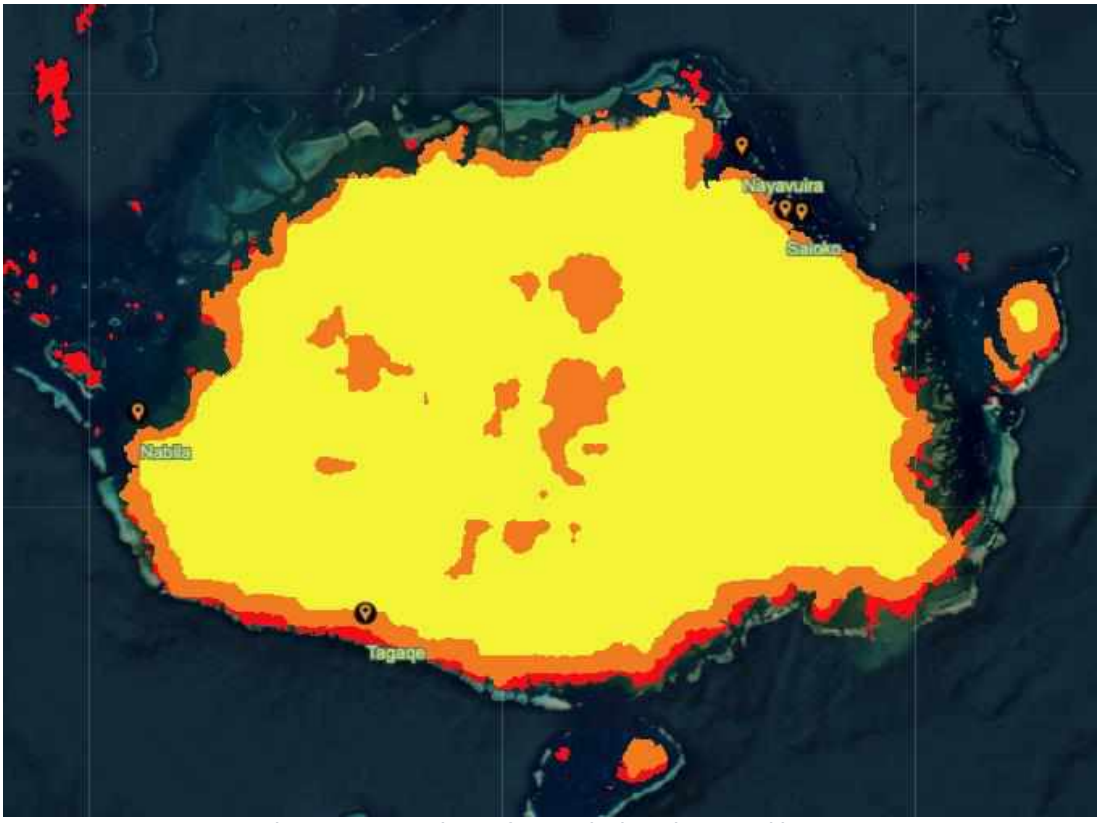


Figure 14 Hazard map for Tropical Cyclones - Viti Levu

Lastly for storm surges, hazard maps were compiled using SRTM elevation data where areas with

[83] Using PACGEO Data from 2017, updated post TC Winston.
[84] PACGEO 2017

elevation lower than 6.5 meter above sea level are marked as high risk of storm surge. All 14 target villages are located in near coastal areas, where assets and households are located within meters of the shoreline. Hazard maps of storm surges for Viti Levu and Vanua Levu are provided in Figure 15 and Figure 16 below.

Figure 15 Hazard map for storm surge - Vanua Levu[85]

Figure 16 Hazard map for storm surge - Viti Levu

[85] SRTM 2020

Direct and Indirect Project Benefits by Site

Overall, the project will directly benefit 2,466 individuals through the construction of sea walls. It will also indirectly benefit the approximately 30,000 individuals who are currently living in coastal indigenous Fijian communities that are vulnerable to climate change impacts and who will benefit from the project's efforts to build the institutional capacity of MoAW extension offices. Just under half of total direct beneficiaries will be women. Table 3 provides a summary of target communities and beneficiaries.

Table 5. List of selected sited and break down of beneficiary number per site disaggregated by gender.

N	Province	Tikina	Village	Seawall Length (m)	Population Distribution 2022		
					Male	Female	Total
Vanua Levu							
1	Macuata	Dogotiki	Qaranivai Village	100	48	48	96
2		Nodogo	Soqobiau Village	250	20	8	28
3		Nadogo	Visoqo Village	150	53	47	100
4		Macuata-i-wai	Namama Village	60	25	23	48
5	Cakaudrove	Saqani	Saqani Village	350	120	102	222
6		Saqani	Sese Village	400	94	82	176
7		Tawake	Tawake Village	280	46	50	96
8		Cakaudrove-i-wai	Loa Village	320	206	144	350
Viti Levu							
9	Nadroga / Navosa	Korolevuiwai	Tagaqe Village	400	174	209	383
10		Raviravi	Nabila Village	300	148	151	299
11	Ra-Nakorotubu	Nalavitilevu	Nayavuira village	310	46	46	92
12		Kavula	Nayavutoka Village	520	74	56	130
13		Nakorotubu	Saioko Village	360	86	104	190
Maritime							
14	Lomaiviti	Koro	Nabuna Village	520	118	138	256
Total				**4,320**	**1,258**	**1,208**	**2,466**

Profiles of the selected project sites, and description of resilience outcomes

Table 6 below shows a summary of sites, project activities, and impact on resilience.

Table 6 Description of selected project sites and proposed interventions

Site	Site Description	Current climate vulnerabilities	Proposed intervention and impact on resilience
Loa Village	The Loa village is located on the Northern Coastline of Vanua Levu in the tikina of korocau and province of Cakaudrove. It is about 2 hours' drive from Savusavu Town. **Coordinates are 16 o40'25.25'' S, 179 o49'18.88'' E.**	The Loa village is suffering from enhanced coastal erosion. The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes long time to dry out which also causes damages to the backyard garden. An approximate 15 meters of coast has eroded since 1990 and some houses are also endangered by this rapid coastal erosion.	The constructed seawall will be 320 metres long in the eroded area. It will run parallel to the coast. It will protect: - 47 residential houses - 1 church - 5 acres of village residential land - 30 acres of agricultural land from ongoing coastal erosion and saltwater intrusion. It will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
Namama Village	The Namama village is located on the Northern Coastline of Vanua Levu in the tikina of Seaqaqa and province of Macuata. It is about 15 minutes' drive from Seaqaqa shopping centre. **Coordinates are 16 o26'25'' S, 179 o08'17'' E.**	The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes long time to dry out which also causes damages to the backyard gardening as a result. An approximate 10 meters of coast has eroded since 1989. This coastal erosion also causes big risk to the main road which is partially washed away. During the inspection, it was observed that during high tide, the saltwater intrudes under 2 houses and floods the village compound which is at lower ground. The existing seawall which was built in 1995 is heavily degraded and the land area is limited and restricts the village expansion. The site requires 60m of NbS to minimise the impact of flooding/coastal erosion.	The 60 metres NbS at Namama village will protect - 10 residential houses, - 1 village hall - 1 church. Additionally, the project will provide security to 5 acres of village residential area, 5 acres of land under agriculture with a possibility of the mataqali to expand into the total 199 acres of village land. The village produces cassava, dalo, kumala, yam, bele, eggplants and cabbage. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

Site	Site Description	Current climate vulnerabilities	Proposed intervention and impact on resilience
Qaranivai Village	The Qaranivai village which is located on the Northern Coastline of Vanualevu in the tikina of Dogotuki. **Coordinates: (16.130553 o S, 179.422614 o E)**	Wave action has eroded a huge portion of the shoreline, it has been noted that the village shoreline is continuing to be eroded and Shoreline gradient is mild. The coastal shoreline eroded areas are about 30m to the nearest house. According to the Turaga ni Koro it is their main concern is the village shoreline side where before, the service bus used as roundabout, and people use to travel to the Tikina of Udu as this is their boat landing area. Also, the length of the project 100m of NbS seawall.	The 100 metres NbS at Qaranivai village will protect 12 residential houses, 1 village hall and 1 church. Additionally, the project will provide security to 20 acres of village residential area, 1000 acres of land under agriculture with a possibility of the mataqali to expand into the total 2175 acres of mataqali land. The village produces cassava, dalo, vudi, breadfruit, cabbage, lettuce, bean, tomato, cucumber, and ginger for income. The village also relies heavily on fishing and yaqona production. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
Saqani Village	The Saqani village is located on the Northern Coastline of Vanua Levu in the tikina of Saqani and province of cakaudrove. It is about 2 hours' drive from Savusavu Town. **Coordinates are 16 o28'28.64'' S, 179 o42'41.65'' E.**	The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes long time to dry out which also causes damages to the backyard gardening as a result. An approximate 20 meters of coast has eroded since 1987. This coastal erosion also causes big risk to the nearby houses which has its compound partially washed away. During the inspection, it was observed that during high tide, the saltwater intrudes under 4 houses and floods the village compound which is at lower ground. The existing seawall which was built in 1970 is heavily degraded and the land area is limited and restricts the village expansion. The site requires 350m of NbS to minimise the impact of flooding/coastal erosion.	The 350 metres NbS at Saqani village will protect 34 houses, 1 village hall, 1 church, I kindergarten,2 government quarters, 1 playground. Additionally, the project will provide security to 7 acres of village residential area, 300 acres of land under agriculture with a possibility of the mataqali to expand into the total 2450 acres of mataqali land. The village produces cassava, dalo, kumala, bean, bele, moca and eggplants for income. The village also relies heavily on fishing, cattle, bee keeping and yaqona production. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

Site	Site Description	Current climate vulnerabilities	Proposed intervention and impact on resilience
Sese Village	The Sese village is located on the Northern Coastline of Vanua Levu in the tikina of Saqani and province of cakaudrove. It is about 2 and half hours' drive from Savusavu Town. **Coordinates are 16 o22'21.44'' S, 179 o47'06.98'' E**.	The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes long time to dry out which also causes damages to the backyard gardening as a result. An approximate 10 meters of coast has eroded since 1980. This coastal erosion also causes big risk to the nearby houses which is partially washed away. During the inspection, it was observed that during high tide, the saltwater intrudes and causes damages to 6 houses and floods the village compound which is at lower ground. Some houses are at the risk of collapsing into the sea due to excessive coastal erosion. The land area is limited and restricts the village expansion. The site requires 400m of NbS to minimise the impact of flooding/coastal erosion.	The 400 metres NbS at Sese village will protect 28 houses, 1 village hall, 1 church, I kindergarten, and 1 playground. Additionally, the project will provide security to 9 acres of village residential area, 300 acres of land under agriculture with a possibility of the mataqali to expand into the total 4910 acres of mataqali land. The village produces cassava, dalo, kumala, kumala, yam, vuci, bean, bele, moca, cabbage and eggplants for income. The village also relies heavily on fishing and yaqona production. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
Sogobiau Village	The Sogobiau village which is located on the Eastern Coastline of Vanualevu in the tikina of Nadogo. **Coordinates: 16.154989 o S, 179.325307 o E)**	The village have vulnerable threats of sea-level rise, inundation of tides, increased intensity of storm surges and coastal erosion. An approximate 10 meters of coast has eroded since year 2000 and the village has lost precious limited land due to severe erosion along the coast due to the heavy impact of waves surge at the main village frontage for housing. During the site visit, it was observed that during spring high tide and cyclones, the saltwater intrudes into 4 houses and the land area is limited and restricts the village expansion. The site requires 250m of NbS seawall and 1km of drainage works within the village.	The 250 metres NbS at Soqobiau village will protect 9 houses and 1 church. Additionally, the project will provide security to 10 acres of village residential area, 30 acres of land under agriculture with a possibility of the mataqali to expand into the total 200 acres of mataqali land. The village produces cassava, kawai, yam, vuci for income. The village also relies heavily on fishing and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

Site	Site Description	Current climate vulnerabilities	Proposed intervention and impact on resilience
Tawake Village	The Tawake village which is located on the Northern Coastline of Vanualevu in the tikina of Tawake. **Coordinates: 16.5131 o S, 179.5138 o E)**	According to the village headman (Turaga Ni koro) during high rainfall and spring high tide the spring level goes up to 0.5m above ground level. Another major problem faced is coastal erosion in Tawake village has lost precious limited land due to severe erosion along the coast due to the heavy impact of waves surge at the main village frontage. During the site visit, there are 8 houses which are partly damaged with the old existing seawall located at the village frontage already eroded. Existing drains need for re-alignment for the outlet to the sea with the village location on the bottom of a hill.	The 280 metres NbS l at Tawake village will protect 40 residential houses, 1 village hall, 1 church, 1 health centre and a playing field. Additionally, the project will provide security to 30 acres of village residential area, 40 acres of land under agriculture with a possibility of the mataqali to expand into the total 150 acres of mataqali land. The village produces cassava, vuci, breadfruit, cabbage, lettuce, beans, tomato, cucumber, and eggplants for income. The village also relies heavily on fishing, yaqona, cattle and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
Visoqo Village	The Visoqo village which is located on the Eastern Coastline of Vanualevu in the tikina of Nadogo. **Coordinates: 16.130345 o S, 179.394387 o E)**	The village has vulnerable threats of sea-level rise, inundation of tides, increased intensity of storm surges and coastal erosion. An approximate 10 meters of coast has eroded since 2002 and the village has lost precious limited land due to severe erosion along the coast due to the heavy impact of waves surge at the main village frontage for housing. During the site visit, it was observed that during spring high tide and cyclones, the saltwater intrudes into 6 houses and the land area is limited and restricts the village expansion. To solve this problem as in 1998, the villagers of Visoqo have endeavoured to construct a low existing stone masonry seawall and level is very low and is submerged during high tide. The site requires 150m of NbS.	The 150 metres NbS at Visoqo village will protect 22 residential houses, 1 church, 1 hall, 1 Nursing station, 1 playing field and 4 govt qrts. Additionally, the project will provide security to 12 acres of village residential area, 60 acres of land under agriculture with a possibility of the mataqali to expand into the total 400 acres of mataqali land. The village produces cassava, taro, yam vuci, sweet potato, cabbage, lettuce, beans, tomato, cucumber, and eggplants for income. The village also relies heavily on fishing, yaqona and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

Site	Site Description	Current climate vulnerabilities	Proposed intervention and impact on resilience
Nabila Village	Nabila village which is located on the Western Coastline of Viti Levu in the tikina of Raviravi. It's about 55km from Sigatoka Town. **Coordinates: -17.520484, 177.161672 or 17.521185 o S,177.161006 o E)**	The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. An approximate 20 meters of coast has eroded since 1985. The village has limited land availability for housing and agriculture. Flooding of the area is due to the big catchment area that surrounds the village the location of the village below the hills, makes it prone to flooding. During the inspection, it was observed that during high tide, the saltwater intrudes into houses which are close to the sea. The land area is limited and restricts the village expansion). The site requires 300m of NbS to minimise the impact of coastal erosion. A drain runs through the village discharging the runoff waters from the upper catchment out to the sea	The 300 metres NbS at Nabila village will protect 195 residential houses and 2 church. Additionally, the project will provide security to 6 acres of village residential area, 30 acres of land under agriculture with a possibility of the mataqali to expand into the total 1500 acres of mataqali land. The village produces cassava, dalo, yams, bele, bananas, kumala, sugarcane, cabbage, pumpkins, beans, tomato, cucumber, and eggplants for income. The village also relies heavily on cattle, poultry, goat, orchids, and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
Nayavuira village	Nayavuira Village is located on the North-eastern coast of Viti Levu Island. Its is part of the Western Division under the district of Nakorotubu in the province of Ra. It is about 2.5 hours drive from Rakiraki Town. **Coordinates: 17°26'23.87"S 178°17'52.1"E**	The village gets heavily inundated during king tides, with seawater reaching ankle height everywhere in the village and affecting village gardens and subsistence crops. The mean sea level is almost equivalent to the village ground level. Severe coastal erosion has been reported over the past decade, forcing 6 houses to move upfill away from the shoreline. MoAW received a request for assistance from the village in 2019.	The total length of the seawall at Nayavuira village will be 310 meters and protect 25 houses and a community hall from the impacts of coastal flooding and storm surges. The seawall will also provide protection to an evacuation and health centre which has been renovated following damages sustained during TCs Yasa and Ana. Additionally, the seawall will prevent saltwater intrusion in 3,000 acres of Mataqali land, where subsistence crops such as cassava, yam, breadfruit, sweet potatoes and bele are grown. Inhabitants also keep livestock for income and subsistence, such as pigs, about 60 cattle, 10 goats and a bee farm.

Site	Site Description	Current climate vulnerabilities	Proposed intervention and impact on resilience
Nayavutoka Village	The Nayavutoka village is located on the Western Coastline of Viti Levu in the tikina of Kavula and province of Ra. It is about 2.5 hours' drive from Rakiraki Town. **Coordinates are 17°32'50.9"S 178°24'04.1"E**	The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes long time to dry out which also causes damages to the backyard gardening as a result. The existing concrete has been badly damaged by the cyclones and the structures have become weak. The saltwater enters the village during king tides and cyclones, damaging the houses built near the seawall. During the inspection, it was observed that during king tide, the saltwater intrudes in more than 20 houses and floods the village compound which is just beside the project area. The site requires 520m of NbS to minimise the impact of flooding. The Village urgently needs attention to solve the coastal erosion and flooding issue as a long-term solution.	The 520 metres NbS l at Nayavutoka village will protect 41 residential houses, 1 community hall and 4 churches. Additionally, the project will provide security to 7 acre of village residential area, 11 acres of land under agriculture with a possibility of the mataqali to expand into the total 3000 acres of mataqali land. The village produces cassava, dalo, yams, vuci, cabbage, and watermelon for income. The village also relies heavily on cattle, yaqona, fishing and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
Saioko Village	The Saioko village is located on the Western Coastline of Viti Levu in the tikina of Nakorotubu and province of Ra. It is about 2.5 hours' drive from Rakiraki Town. **Coordinates are 17°32'29.7"S 178°22'20.7"E**	The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes long time to dry out which also causes damages to the backyard gardening as a result. An approximate 3 meters of coast has eroded since 2005 and some houses are also at risk of getting damaged by this rapid coastal erosion. Four houses were destroyed in TC Winston. During the inspection, it was observed that during high tide, the saltwater intrudes under 8 houses and floods the village compound which is just beside the project area. The site requires 360m of NbS to minimise the impact of flooding/coastal erosion. The Village urgently needs attention to solve the coastal erosion and flooding issue as a long-term solution.	The 360 metres NbS at Saioko village will protect 28 residential houses, 1 community hall and 4 churches. Additionally, the project will provide security to 7 acres of village residential area, 100 acres of land under agriculture with a possibility of the mataqali to expand into the total 3000 acres of mataqali land. The village produces cassava, dalo, yams, vuci, cabbage, bele, moca, cucumber, carrots, and eggplants for income. The village also relies heavily on cattle, yaqona, fishing and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

Site	Site Description	Current climate vulnerabilities	Proposed intervention and impact on resilience
Tagaqe Village	Tagaqe village which is located on the Western Coastline of Viti Levu in the tikina of Korolevuiwai. It's about 20 km from Sigatoka Town **Coordinates: 18.114892 177.392142 or 18.114899S177.391936E**	The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. An approximate 15 meters of coast has eroded since 1985. The village has limited land availability for housing and agriculture. Flooding of the area is due to the big catchment area that surrounds the village. The location of the village below the hills, makes it prone to flooding. During the inspection, it was observed that during high tide, the saltwater intrudes into 5 houses and the village hall. The existing seawall which was built in 1985 is heavily degraded. The land area is limited and restricts the village expansion). Also indicate the length of the project e.g.: the site requires 200m of NbS to minimise the impact of flooding/coastal erosion.	The 400 metres NbS at Tagaqe village will protect 68 residential houses, 1 Church, 1 Health Dispensary, Primary School, and a Kindergarten. Additionally, the project will provide security to 6 acre of village residential area, 50 acres of land under agriculture with a possibility of the mataqali to expand into the total 2000 acres of mataqali land. The village produces cassava, dalo, yams, vuci, bananas, cabbage, bele, moca, cucumber, pineapple, watermelons, and eggplants for income. The village also relies heavily on cattle, yaqona, horticulture, yasi, mangoes, oranges, fishing, and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
Nabuna Village	Nabuna Village is a coastal community on the northern end of Koro Island. **Coordinates are: (17°15'7"S 179°23'2"E)**	Nabuna experiences coastal flooding and severe coastal erosion, which residents attribute to intense gravel extraction along their coast used for roadworks in Koro. Nabuna was identified by the Divisional Commissioner's Office as a vulnerable coastal community to be prioritized. It was thus assessed for adaptation interventions by the Climate Change and International Cooperation Division and NDMO for suitable measures to reduce vulnerabilities and preserve vulnerabilities in the community. There are 43 households with a population of 256 to benefit from a new seawall. There are 118 males and 138 females. The existing vertical seawall is over 20 years old and severely eroded. MoAW conducted a scoping study in 2019 for upgrading the seawall. The village proposes a new seawall of 400m to protect their coast. Nabuna has a large volume of gravel which can assist during the construction of NbSs.	A NbS seawall can be considered to replace the severely eroded almost disappearing vertical seawall to prevent further erosion. The total length of the seawall will be 520 meters along the coast. The project will be carried out by the technical team of the MoAW. NbS project involves interactive processes before it is verified and approved for implementation. Main source of livelihoods is farming of taro, kava, and vegetables. There are also individual handicrafts sold in Suva

Project/Programme Objectives:

The overall project goal is to increase the climate resilience of vulnerable coastal communities in Fiji through the adoption of NbS coastal protection approaches for adaptation. The project will achieve this through two project-specific Objectives:

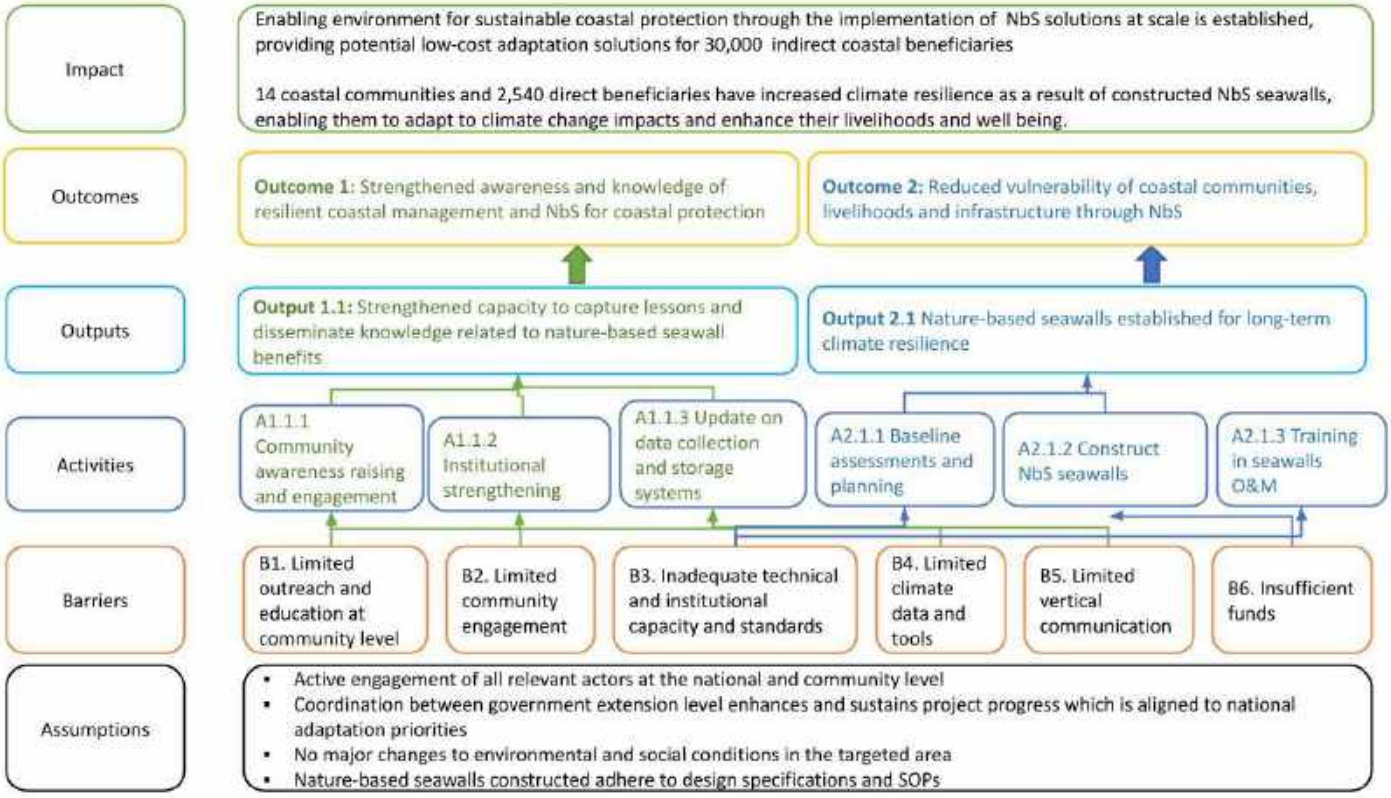
- Create an enabling environment for the scaling-up and rolling out of NbS coastal protection approaches across Fiji.
- Construct NbSs in 14 climate vulnerable coastal communities to enhance community resilience and increase extension structure capacity to implement NbS projects

Through the first objective, the project is targeting Outcome 3 of the Adaptation Fund (AF) Strategic Results Framework, by strengthening awareness and ownership of adaptation and climate risk reduction processes at local level. Its second objective contributes to Outcome 4 of the AF Strategic Results Framework by increasing adaptative capacity within relevant development sector services and infrastructure assets.

Theory of Change

The ToC articulates how this project will achieve the desired change by addressing the identified barriers to meet local-level adaptation needs and ultimately achieve the project objectives.

Figure 17: Theory of change diagram



Project/Programme Components and Financing:

Project Outcomes	Expected Concrete Outputs	Amount (US$)
Outcome 1: Strengthened awareness and knowledge of resilient coastal management and NbS for coastal protection	Output 1.1: Strengthened capacity to capture lessons and disseminate knowledge related to nature-based seawall benefits	630,600
Outcome 2: Reduced vulnerability of coastal communities, livelihoods and infrastructure through NbS	Output 2.1: Nature-based seawalls established for long-term climate resilience	4,369,411
Project Execution cost		312,500
Total Project Cost		5,000,011
Project Cycle Management Fee charged by the Implementing Entity		451,489
Amount of Financing Requested		**5,764,000**

Projected Calendar:

Milestones	Expected Dates
Start of Project/Project Implementation	January 2024
Mid-term Review (if planned)	June 2026
Project/Project Closing	December 2029
Terminal Evaluation	October 2029

PART II: PROJECT/PROGRAMME JUSTIFICATION

A. Project components and activities

The project will deliver an integrated package of adaptation interventions under two outcomes to address the root causes of vulnerability to climate change impacts associated with sea-level rise, Tropical Cyclones (TCs), saltwater intrusion and coastal erosion in at-risk coastal communities. The approach centres on a strong enabling environment for climate-resilient coastal protection as well as providing the funding needed to install NbSs in vulnerable sites. This financing of concrete adaptation action would enable communities to adapt to adverse climate impacts in the short-term and enhance their resilience in the long-term.

This approach responds to vulnerabilities identified as a national priority and detailed at the local level in selected priority communities as described above.

Selection of the project section. The project interventions will enhance resilience in target communities to ensure continued well-being and sustainable livelihoods without the need for relocation. Beyond the target communities, enhanced institutional capacity within the MoAW and other key stakeholders in extension structures will enable the upscaling of NbS approaches to coastal protection in other vulnerable sites across Fiji, providing support to additional communities that are not direct beneficiaries of concrete adaptation investments under this project. The project is composed of the following outcomes, outputs and activities.

Outcome 1: Strengthened National and community-level awareness and knowledge of resilient coastal management and NbS for coastal protection.

To date the design and implementation of resilience measures have largely been carried out using vertical means of communication and top-down approaches, with limited inputs from vulnerable communities. Although there is significant effort to roll out solutions for villages and population centres vulnerable to sea level rise and floods at the national level, the integration of local perspectives into adaptation planning processes remains limited due to the inadequacy of awareness materials for local communities. Effective awareness raising materials need to be developed in a language that end-users can understand, and include up-to-date, accessible information on projected climate change impacts on their livelihoods and ecosystems, and the benefits associated with the implementation of adaptation measures such as NbSs. This would allow communities to make informed decisions on the suitable and desirable adaptation solutions to be implemented at the village level, and strengthen the ownership and sustainability of these measures.

Further, at the regional and local levels, sub-national development planners lack access to locally relevant and downscaled information, data and maps on projected climate change impacts of sea-level rise, floods, and coastal erosion. Climate-related knowledge generation and aggregation is also constrained to major populations and economic hubs, such as Nadi Airport and Suva. This results in an insufficient integration of adaptation needs and priorities in sub-national planning processes, and a delay in the implementation of urgent resilience measures. Additionally, MoAW field offices and extension structures require technical support to enhance their ability to implement NbS solutions, as the planning, design and implementation of these measures require specific technical knowledge and skills. Under this Outcome, the project will support the identification of gaps in data collection and storage principles, and provide MoAW field offices with the necessary tools and knowledge to reconciliate the national and local levels.

Overall, Outcome 1 will strengthen the enabling environment for the enhanced uptake of NbS approaches for coastal protection in alignment with Objective 1 of the project. Activities under Outcome 1 will set the scene for the implementation of activities under Outcome 2 and secure the delivery of expected outcomes and results in the 14 project sites. This will be achieved through institutional capacity building focused on enhancing local community engagement processes, in accordance with lessons learned identified from baseline projects and the barrier analysis; increasing technical knowledge of NbS approaches across extension structures and improving data collection and management systems as well as improving bottom-up (vertical) communication channels between vulnerable communities and decision-makers.

Output 1.1: Strengthened capacity of government staff to capture lessons and disseminate knowledge related to nature-based seawall benefits.

Through this output the project will enhance institutional capacities for implementing NbS coastal protection measures across GoF extension structures and managing data flows for enhanced knowledge generation and dissemination. With this improved capacity, the GoF extension structures will have increased capacity to scale up and roll out NbS interventions across other vulnerable communities in need of coastal protection from climate impacts beyond the project. The enabling environment created under this output will provide benefits to approximately 30,000 individuals currently identified as living in coastal communities deemed highly vulnerable to predicted climate change impacts of seal level rise and floods. In addition, lessons learned on NbS approaches from the target sites will be aggregated and knowledge products developed to enhance engagement with these communities and improve the efficacy of NbS for future investments. This Output will be

achieved through the following activities.

Activity 1.1.1: Conduct awareness raising and community engagement consultations across all sites.

Through this activity, the project will engage with community leaders through Talanoa held at each of the 14 project sites. The PMU and selected technical partners will facilitate workshops and focus groups among communities, with dedicated workshops where female leaders and vulnerable members of the community will be able to take inclusive part in the discussion. Awareness-raising and training materials will be formulated in English and iTaukei language, with varying levels of complexity and adapted language and terminology tailored to the expected audience (village leaders, villagers, extension staff). All consultations, trainings and workshops will be designed and implemented under the principles of gender equality and social inclusion. In accordance with the Gender Action Plan presented in Annex 2, 50% of trainees will be women and youth, and all extension staff will be trained in gender-responsive NbS approaches

The objectives of this activity are manifold, including:

- **Provide technical training to community leaders, villagers and extension staff in the 14 target villages on the climate context and predicted climate impacts on livelihoods, ecosystems and assets** in the near- to mid-term (2030–2050), utilizing updated CMIP6 models and Shared Socioeconomic Pathways (SSPs), which integrate the analysis of future climate impacts with associated vulnerabilities. This will be presented in a meaningful way to match appropriate technical level for the target audience. Training will strengthen the knowledge of villagers and extension staff of the projected climate change impacts and enable them to make informed decisions on appropriate NbS solutions to implement.
- **Provide training to community leaders, villagers and extension staff in the 14 target villages on NbS approaches to combat the predicted climate impacts**, following international best practice and national standards and guidelines, such as IUCN Global Standard for Nature-based Solutions, and MoAW Coastal Protection Works, Policy and Procedures. The training workshops will present NbS solutions such as seawalls to the audience and link the benefits of NbSs with regards to identified climate change impacts affecting vulnerable communities. This training component will enhance knowledge and understanding of NbSs to the targeted audience and increase their ability to deliver them while increasing ownership of planning and implementation.
- **Conduct consultations with community leaders (inclusive of female leaders and ensuring gender considerations are met) at target sites on resilient coastal zone management planning**, and how best to integrate the NbS approach into community planning. A stocktake of local perspectives and know-how on coastal management and protection works will be carried out at the 14 project sites to inform the design and planning of NbSs. In addition to scoping studies and technical assessments, local community knowledge is of paramount importance to the success of the measures, as end-users of the infrastructures. These consultations will also ensure greater community-buy in, and directly contribute to the sustainability of the proposed solutions.
- **Create Communities of Practice (CoP) between technical knowledge (extension staff from local MoAW offices) and societal knowledge (community members from the 14 target sites) domains** to unpack and process lessons learned through implementation to enhance impact of NbS approaches. Throughout the project implementation period, CoPs will meet twice over the implementation period (in Year 2 and in Year 4) to exchange on the status of the seawalls since construction, lessons learned from implementation, and ways to enhance the planning and design process for future investments in other vulnerable communities. The CoPs will be constituted as part of the previous training and awareness raising activities on a voluntary basis for community leaders and villagers of the 14 target sites, and including local extension officers. The CoPs will promote the active participation of end-users and technical staff to maintain engagement and ownership of the project results. As outputs to the biannual meetings, the PMU will assist CoPs to produce snapshots of key outputs of the meeting, which will be reported to decision-makers at the national level to enhance their awareness of local perspectives of NbS solutions at implementation.
- **Encourage "over the fence learning" and enable community and tribal leaders to pass on knowledge in provincial telanoa's** to enhance horizontal knowledge transfer. To

facilitate this process, the PMU with support from local extension officers will organise biannual inter-village meetings (gathering communities in the same region within reasonable distance) to share their perspectives and lessons learned on the implementation of NbSs. In doing so, the activity will promote knowledge exchange among neighbouring communities to facilitate the uptake of NbS solutions such as sea walls in future projects. It can also be expected that this enhanced horizontal knowledge transfer and awareness of the benefits of seawalls will prompt neighbouring communities to reach out to MoAW and file requests for technical and financial assistance for the construction of seawalls, in accordance with the Coastal Protection Works Policy and Procedures.

Lastly, data and knowledge generated from Activity 1.1.3 and processed through improved systems under Activity 1.1.2 will allow for learning from ongoing and past NbS approaches to be synthesized and incorporated into knowledge products disseminated in the various community engagements. Additionally, knowledge outputs will be reported to national development planners and other MoAW field offices, to facilitate the integration of local perspectives in the planning of future NbS solutions elsewhere in Fiji.

Activity 1.1.2: Implement institutional strengthening of extension structures.

First under this activity, the project will undertake an assessment of institutional processes, knowledge processes, communication channels and materials across the MoAW extension structures. The PMU with support from selected international and national consultants will carry out this assessment to inform a technical review and enhancement of Standard Operating Procedures (SOPs) to improve workflows and processes within the MoAW. Current SOPs within extension structures are lacking standards and technical specifications or do not capture up-to-date information on past interventions i.e. lessons learned.

The improved SOPs will seek to include:

- Clear and step-by-step guidelines on how to carry out systematic reporting of on-going NbS projects and investments
- A Monitoring and Evaluation guide for reporting and evaluating the impact of past NbS projects and investments
- An updated organogram of institutional communication and responsibilities channels, including focal points at the regional level for communities to engage with
- Checklist and standards on how to engage with vulnerable communities who have requested technical and/or financial assistance from the MoAW Coastal Protection Programme (including Free, Prior and Informed Consent (FPIC) guidelines) and a Grievance Redress Mechanism
- Checklist and standards on how to engage with women and vulnerable groups, to ensure the NbS solutions proposed fully reflect women's needs and priorities, and ensure equal access
- Step-by-step guide covering initial scoping studies, environmental and social impact assessment, and vulnerability assessment of potential project sites
- Prioritization matrix and methodology to determine the most vulnerable villages in need of intervention or relocation, and associated guidelines to engage with village leaders and villagers (incl. gender-specific guidelines)
- Improved technical specifications and design of seawalls (to update the existing MoAW manual for seawalls construction)
- Step-by-step guideline on procedures to be followed for remediation if communities require technical assistance for seawalls maintenance or reparation.

Second, training will be provided through the project across MoAW 5 extension structures on the enhanced SOPs and guidelines to ensure that staff abide by the improved procedures to facilitate technical assistance to communities on planning and implementation of NbS coastal management improvements. To this end, the PMU will facilitate the organization of quarterly training workshops gathering staff from the 5 regional extension structures, supported by international and national technical partners. Where possible, the workshops will seek to include all women staff as applicable, and take place at a time and place that does not conflict with women's household or other professional duties to ensure engagement. Additionally, in accordance with the Gender Action Plan presented in Annex 2, all MoAW agents will be trained in gender-responsive NbS approaches.

This activity will enhance institutional abilities to utilise data captured from ongoing projects under Activity 1.1.3 and embed key lessons into institutional processes and decision to replicate and upscale NbS approaches more effectively, directly addressing information and knowledge barriers.

Activity 1.1.3: Strengthen data collection and storage principles to enhance data use for improved learning.

Through this activity, the project will undertake a gap assessment of data collection and management tools used at the field level to inform a consolidated and harmonised approach for consistency across MoAW field offices. The PMU with the support of selected international and technical partners will carry out this gap assessment with the collaboration of MoAW HQ and field offices.

Based on the outputs of the gap assessment, data collection approaches and indicators will be standardised and systematised across MoAW NbS operations. Standards will also be created for metadata collection to ensure that relevant data points are traceable and transparent to aid in data analysis. Further, current MoAW apps and data portals will be assessed, consolidated and refined to improve data storage and retrieval processes. These data capture, creation, description, storage, and sharing standards will aim to meet international open data principles[86] to facilitate greater use of data in decision-making both within the MoAW but also across the stakeholder landscape to maximize impact of interventions. This will ensure that: i) local-level data collection meets the requisite standards and needs, including for gender-responsive data and indicators; and ii) data can be aggregated for meaningful and informed analysis for decision making (tying into activity 1.1.2).

Training will be provided to selected MoAW extension officers in (quarterly workshops from Year 3 to Year 5) related to:

- Regular data collection and monitoring (for weather, climate, erosion and sea-level rise)
- Data compilation and reporting, development of weather reports and climate analysis based on weather data and observations
- Sex-, age-, and disability-disaggregated data in data collection and storage principles (targeting 100% of data collection at sites to have sex disaggregation)
- Dissemination of user-friendly data and information to different end-users, from sub-national development planners, to village leaders and vulnerable communities
- Data capture, creation, description, storage, and sharing standards
- Development and analysis of GIS and satellite maps

Through this activity, data quality, access and functionality will be enhanced to enable better knowledge generation, directly overcoming identified barriers relating to information, knowledge and technical barriers.

Outcome 2: Reduced vulnerability of coastal communities, livelihoods and infrastructure through NbS

The MoAW has identified coastal protection works and measures as a first national priority to adapt to projected impacts of climate change. However, due to the subsequent economic recession post-COVID-19, the GoF is unable to channel sufficient domestic funding flows to access all requests for assistance it received from vulnerable communities (114 to date and counting). To maintain social security services and essential national budgets as a result of shrinking revenues from tourism, the GoF has had to make cuts to budgets originally planned for coastal protection works, including NbSs. Further, in light of the urgency to provide assistance to vulnerable communities considering the scale and magnitude of on-going and short-term climate change impacts, solely relying on a future rebound of domestic sources of funding for resilience measures would be too little too late for a significant number of communities, where villages currently experience regular and intensifying floods, king tides, storm surges and cyclones.

Furthermore, coastal protection works such as seawalls require specific technical expertise and skills

[86] https://opendatacharter.net/principles/

for their planning, design and construction, which MoAW extension structures currently have limited capacity on. Ownership of coastal protection works has to date, been attributed to national level decision-makers and development planners, with an insufficient trickle down of knowledge and know-how to sub-national and local extension structures. As a result, extension officers are unable to adequately assist vulnerable communities and villages to implement NbS solutions, while communities lack awareness on the benefits of NbS solutions to the climate-related issues they currently face, and how to implement and manage them according to site-specific characteristics.

To remedy this, under this Outcome the project will support the design of NbSs in the 14 project sites according to best international practice, improved technical specifications (supported by Activity 1.1.2) and national guidelines. Furthermore, Outcome 2 will aim to improve the capacity of GoF extension agents across the country, increasing their ability to provide technical assistance to communities to enhance their resilience to climate change. Lessons learned from the implementation of the activities under this outcome will provide crucial refinements to streamline the process for future NbS approaches. This outcome thus directly aligns with the achievement of Objectives 1 and 2 of the project.

Output 2.1 Nature-based seawalls established for long-term climate resilience.

The output is specifically targeting 14 communities across the country to construct NbSs to enhance community resilience to the negative impacts of climate change. The NbSs design will be based on the MoAW model and updated to be site-specific based on international best practice and recent engineering developments and recommendations. The protection from storm surges, tropical cyclones and coastal floods will directly enhance the climate resilience of 2,466 (1,208 women) beneficiaries in the target communities and will enhance the technical capacity of MoAW extension agents in implementing NbS approaches. The output will be achieved through the following activities.

Activity 2.1.1. Conduct baseline technical surveys and refine context specific NbS seawall design specifications and management plans

Under this activity, the project will aim to address technical and knowledge barriers which have hampered the ability of MoAW extension officers to adequately plan and design NbS solutions that are context-specific and data-backed, as well as addressing financial barriers which prevent the GoF from mobilizing domestic resources for the design of context-specific NbSs. Therefore, AF resources will be channelled for the PMU to hire selected technical partners (both international and national consultants) to conduct the required technical surveys and assessments at each of the 14 project sites to enable the refinement of the MoAW seawall design according to site-specific characteristics.

As specified in the section “Selection of the project areas”, the project sites have been selected using a vulnerability analysis as well as a prioritization exercise in accordance with the MoAW’s Coastal Protection Works Programme, which requires extensive engagement and prior written consent from communities (including 80% of women as well as marginalised and indigenous groups) in order to begin implementation. At the time of writing this proposal, all communities across the 14 project sites have reached consensus and signed consent forms which have been collected as part of the detailed scoping studies and consultations, enabling the proposed project to carry out the site-specific technical assessments and design plans once approved.

The NbSs to be promoted under this project are hybrid designs, composed of “hard” and “soft” i.e. nature-based features. Typically, the MoAW model of nature-based seawalls is composed of four layers (armour, under layer, filter and core) which display the following design features:

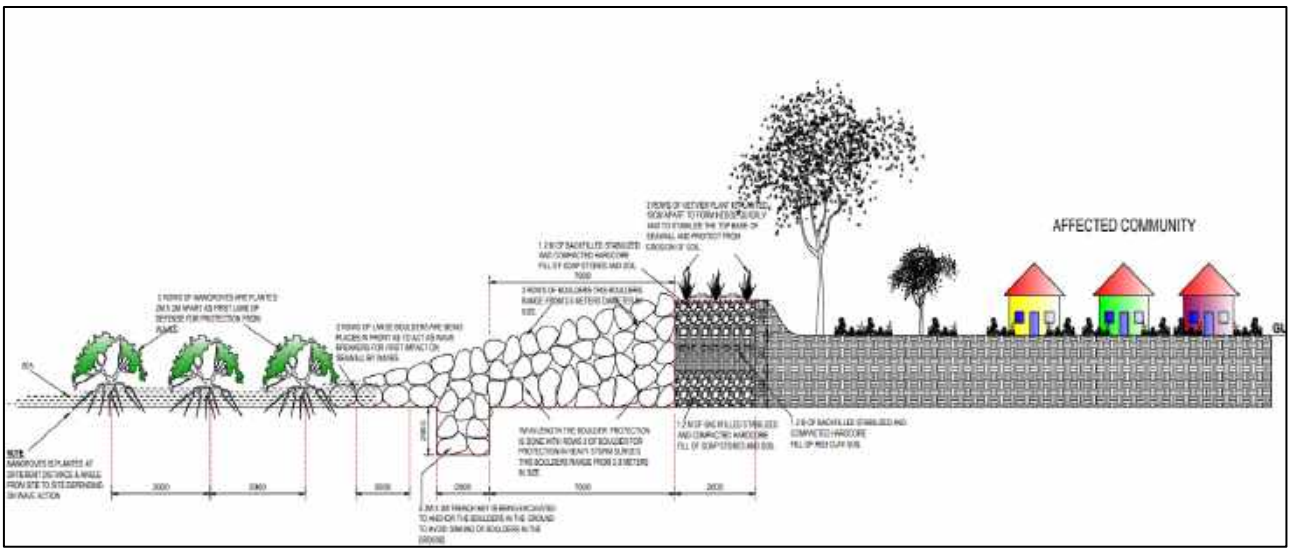
Category	**Name of feature**	**Description of design feature**
Hard structure	Hard rock seawall structure	A slope of 1:2.5 (vertical: horizontal) Three layers of rock of equal size making up the majority of the structure A trench designed to anchor the base of the structure (close to the toe of the structure Two layers of equally sized rock in front of the trench anchor
Nature-based structure	Mangroves	Three rows of mangrove seedlings planted seaward of the hard seawall structure, using the following native mangrove species:

		• *Rhizophora stylosa* • *Rhizophora samoensis* • *Rhizophora x selala*
Nature-based structure	Vetiver	Vetiver rows planted at the crest of the hard seawall structure
Hard structure	Backfill	Located behind the hard rock structure and including: A bottom and top layer of compacted and stabilized soap stones A middle layer of compacted and stabilized red clay soil
Hard structure	Geotextile	A non-woven, needle punched geotextile filter between the seabed and the base of the hard rock structure which then runs in between the hard structure and the backfill material before running landward over the top of the backfill material.

Table 7 Design features of MoAW seawalls

An illustration of NbS construction characteristics is provided in Figure 18 below.

Figure 18: Example diagram of NbS construction specifications



The MoAW seawall model does not include design considerations that are site-specific (currents, waves, storm surges, sea level rise etc.) which are required to inform the shape, dimensions, intended lifespan and durability of the seawall. Therefore, based on findings derived from stakeholder consultations and recent engineering studies and assessments[87] of the MoAW design model, the general amendments and design recommendations presented in Table 8 will be endorsed and included in the finalisation of the each of the 14 design plans. Further site-specific design specifications will be determined for each NbS seawall based on the technical analysis and assessments detailed further below as part of Activity 2.1.1.

NUMBER	CATEGORY	RECOMMENDATION
1	Hard structure: Core and backfill	Inclusion of a core in the design (utilising backfill material) which establishes the slope upon which the rock armoured structure can be built
2	Hard structure: Rock grading and layering	Re-design of rock layering: - A typical double layer of rock armour, with rock sizing and grading based upon a hydraulic stability assessment (using CIRIA 2007 methodology) - A typical double layer of underlayer rock with the selected sizing being a function of the rock armour sizing
3	Hard structure: Toe	Re-design of the toe and trench-key anchor details as follows: - Layering of both the rock armour and the underlayer to not reduce in number when closer to the seabed, but rather be

[87] ADB (2023) Technical Assistance Consultant's Report, "Building Coastal Resilience through Nature-based and Integrated Solutions. Available here.

NUMBER	CATEGORY	RECOMMENDATION
		excavated into the seabed to maintain the two double-layers. - Once buried to the appropriate depth, extension of the toe parallel to the seabed surface in a length equal to three times the armour stone median diameter is recommended. - The excavation as noted above can form the function a similar anchoring function that the key-trench performs, whilst providing further scour protection as the whole toe is under the seabed. - Consider the use of a 'Dutch toe' which utilizes the geotextile by wrapping it around the underlayer at the end of the toe.
4	Hard structure: Crest	The inclusion of a rock-armoured crest which extends a minimum of three times the rock armour median diameter inland. The rock-armoured could also act to anchor the geotextile material as it could terminate underneath this inland crest below the surface.
5	Hard structure: lengths, heights, sizes and units	Removal of all lengths, heights, and sizing of rock armour and all components from the typical section drawing. In-place of this, it would be preferable to denote these distances, heights, and sizes as undefined design parameters. This would allow for the same conceptual design typical section to be scaled and applied to different sites and conditions. For example: - Armour layer rock size can be defined as one parameter (such as A_{Dn50}). Smaller rock sizing can therefore be defined in terms of a ratio of its size to the rock armour sizing. - Structure length and height can be defined as a function of the slope - Lengths of structural details such as the toe and crest design can be defined in terms of the median rock armour sizing.
6	Nature-based: Vetiver plants	Re design of the crest (recommendation No. 4) should also incorporate the vetiver plant to function as a crown wall behind the rock-armoured crest. The rock armour crest could be designed to only reduce overtopping to a level that will not damage the vetiver plants (but may not yet reach acceptable overtopping limits for behind the structure), then allowing for the vetiver plant hedges to further reduce the overtopping behind the hedges to be within acceptable limits. This could allow for a reduction in the scale of the rock-armoured crest below what would be typically designed.
7	Nature-based: Mangroves	Maintain the proposed 4 to 8 meter vegetation width, however wave attenuation potential should be considered null, combined with the proposed use of mangrove seedlings which do not provide any wave attenuation ability. However, the ecosystemic services provided by the mangrove rows, along with some wave attenuation potential once sufficiently established, warrant for their inclusion in the revised seawall design.

Table 8 General design recommendations and amendments based on the MoAW model

Finally, to determine the site-specific design considerations for each of the 14 NbS seawalls, the PMU with the support of selected international and national technical partners will conduct a series of studies and assessments. The analysis derived from these outputs will directly inform the technical specifications for NbS seawalls tailored to each community's climate, environmental and social context to ensure optimal alignment with community needs for maximum buy-in and sustainability and adequacy with the scale and magnitude of projected climate change impacts. Further, in each project site, environmental screening will be carried along the footprint of each seawall site and at the materials extraction site to identify any natural habitat, critical habitat or mature trees which may be impacted by the works. The ESMP provides instructions for the environmental screening and guidance on how to avoid or minimise any identified impacts. The results of the screening will enable the ESMP in Annex 1 to be tailored to the individual project sites.

Further information on the expected risks and required management measures can be found in

Annex 1.

The desktop assessments to be carried out toward the finalisation of the NbS seawalls will include:

a. Quality and density of rock material assessment (during design finalisation and construction)
b. Environmental screening of the materials extraction site and seawall footprint to identify impacted habitats and vegetation
c. Stability and overtopping analysis (using desktop methods)
    - Definition of design life and acceptable level of damage according to potential impacts (between 30 to 100-year design life)
d. Estimation of water depths – bathymetry (using publicly available nautical charts and local community estimates/measurements if available)
e. Water levels: tides, wind set up, wave set up (if required), storm surge, SLR, according to appropriate emissions scenario
f. Significant or extreme wave heights using wave theory calculations.

Activity 2.1.2. Construct NbS seawalls at target sites.

Building on Activity 2.1.1, procured service providers will carry out works as designed at each site to construct the NbS seawalls. As agreed in the scoping study and in agreement with conditions expressed by communities and in alignment with MoAW's Coastal Protection Works Policy and Procedures, community members will also partake in the construction works, notably for the plantation of mangroves and vetiver plants, to enhance engagement and ownership in the development of the seawalls whilst also increasing their capacity and technical understanding of the functionality of the seawalls.

The training of community workers and the construction of the NbS seawalls will be done in compliance with the ESMP to ensure that appropriate health and safety measures are followed and to ensure that all workers are provided with the correct PPE and trained in their use. The training will also include training on the requirements of the ESMP as they relate to construction. Measures to protect the community, prevent spills, respond to environmental incidents and prevent erosion or sediment run off will be included in the training.

Activity 2.1.3. Training of Trainers for seawalls operation and maintenance

To ensure the sustainability of the seawalls over the long-term, this activity will see the development of Operations Manuals (1 per target site) and provision of training (using GEDSI principles) to beneficiary communities in the regular upkeep and maintenance of the seawall structures. This will tie in with Activity 1.1.2 where SOPs relating to requests for assistance for existing seawalls will be established and trained to MoAW extension officers. The training modules to be developed will be incorporated into the Operations Manual of each project site, and linked to new SOPs to be disseminated across extension structures to benefit other vulnerable communities.

The training will be provided by MoAW extension officers (whom will have received training in seawalls construction, maintenance and repair as part of Activity 1.1.2) and delivered at each project village in the first year after the completion of the seawall. Training attendees will include village leaders with at least 50% female and 50% youth participation. The training modules will cover the following aspects at a minimum:

- **General upkeep of seawall structures**: replanting dead mangrove and vetiver plants, adding new clay soil if washed up, "do's and don'ts" on the structure i.e. where to moor boats
- **Identification of issues and remediation:** checkpoints for each seawall protection layer (mangrove health, boulder stability, clay soil, vetiver plants health); steps to be taken to request assistance from MoAW extension officers if there is a need for repair beyond the capacity of communities.

B. Environmental, Social and Economic benefits

Economic benefits

The project will implement NbSs to protect coastal areas in the immediate proximity of communities with high vulnerability to climate impacts. The NbSs will reduce the negative impacts of king tides

and storm surges that overcome natural coastal barriers and damage community infrastructure. This will directly protect small- and medium-sized enterprises in the target communities. Ultimately, this will reduce spending by business owners on loss and damages, freeing up capital for business growth and expansion, directly boosting the local economy. This is particularly the case for agricultural businesses or small backyard producers who, under predicted climate scenarios, will suffer from reduced productivity due to saltwater intrusion from sea-level rise and frequent inundation from storm surges and king tides.

The coastal protection provided by the NbSs will also reduce the cost of loss and damages incurred by the GoF in response to TCs and other climate events. This allows government resources to be refocused on beneficial infrastructure development, such as improved market access routes or energy connections in remote communities. This would allow local communities to open new business ventures or expand current business further, in turn enhancing local economies and bringing additional incomes to beneficiaries.

Beyond direct cashflows and loss and damage reduction benefits, the environmental benefits of NbSs will include enhanced and more productive ecosystems. Enhanced soil nutrition from decreased siltation and sediment loss will make soil profiles more nutritious and agricultural systems more productive in the long-term. Mangrove ecosystems will provide nurseries for important economic species and will enhance the health of local fisheries. Consequently, local fisheries and agricultural businesses will become more profitable and resilient in the long term.

Environmental benefits
The restoration of degraded vegetation along coastal waterways and reforestation of mangroves will minimise soil erosion and reduce sedimentation loss in sensitive marine systems. Mangroves and vetiver grass have also been shown to absorb pollutants from agricultural run-off. This functionality will protect coral and other marine flora and fauna from degrading impacts of storm run-off events, increasing reef health and productivity. Further to this, restored mangroves will provide nurseries for marine species. Consequently, biodiversity of marine resources is expected to increase directly because of the project interventions.

The inclusion of mangrove systems has a further role in dissipating storm surge energy and mitigating rising water levels. Seawater inundation further inland will therefore decrease, thereby reducing saltwater intrusion rates. Ultimately, this reduces salt content in water tables and soil profiles enabling biodiversity to thrive beyond halophytic species profiles.

Reduced sedimentation caused by increased root structures along waterways will also result in the retention of key soil minerals and enhance organic carbon and nitrogen content. Ultimately this will increase the nutrient value of soils, making land more productive with both environmental and economic co-benefits.

Social benefits
The project will directly focus on ensuring gender equity in decision-making and planning processes for NbS development. All capacity building and engagement activities will be carried out in a non-discriminatory manner and ensure equal opportunity to all genders. This will be reflected in the operation and maintenance plans for the seawalls to ensure that there is equal opportunity and ownership for women in the infrastructure in the long term. Advocacy and knowledge management through the project will also have a gender equitable lens to ensure that messaging targets all genders.

Wherever possible, the bottom-up approach for planning processes will also account for indigenous knowledge inclusion to ensure that each community's unique cultural heritage is respected and maintained. Through greater engagement at community level, incorporation of key local and traditional knowledge will strengthen and contextualise NbS designs to enhance community buy-in and upkeep.

In addition to cultural and equality benefits, the focus on disaster risk reduction will ensure that important civil infrastructure is not frequently damaged by climate shocks and remains operational.

Water security and sanitation are therefore likely to improve, increasing health benefits for communities. This also ties into enhanced soil nutrition which allows for greater food security and diversity, increasing nutritional benefits in communities. Consequently, community wellbeing and health are expected to increase in the long-term.

Summary

Table 9 summarizes the total project benefits, including coastline rehabilitated, new plants grown and established, and seawalls created.

Village	Seawall Length (m)	Mangrove plants	Vetiver plants	Coastline rehabilitation (m2)
Qaranivai Village	100	2,000	2,500	2,000
Soqobiau Village	250	5,000	6,250	5,000
Visoqo Village	150	3,000	3,750	3,000
Namama Village	60	1,200	1,500	1,200
Saqani Village	350	7,000	8,750	7,000
Sese Village	400	8,000	10,000	8,000
Tawake Village	280	5,600	7,000	5,600
Loa Village	320	6,400	8,000	6,400
Nayavuira Village	310	6,200	7,800	6,200
Taqage Village	400	8,000	10,000	8,000
Nabila Village	300	6,000	7,500	6,000
Nayavutoka Village	520	10,400	13,000	10,400
Saioko Village	360	7,200	9,000	7,200
Nabuna Village	520	10,400	13,000	10,400
Total	**4,320**	**86,400**	**108,050**	**86,400**

Table 9: Estimates of quantifiable impact of the project.

Village	Nature and number of buildings and assets protected by seawall
Qaranivai Village	13 residential houses, a village hall, a primary school and a church
Soqobiau Village	11 residential houses and a church
Visoqo Village	21 residential houses, a church, a community hall, a nursing station and 4 government quarters
Namama Village	13 residential houses, a village hall and a church
Saqani Village	39 residential houses, a village hall, a guest house, church, kindergarten, 2 government quarters and a jetty
Sese Village	22 residential houses, a village hall, church, kindergarten and playground
Tawake Village	40 residential houses, a village hall, church, health center, and playing field
Loa Village	47 residential houses, a large Methodist church and a church hall
Nayavuira Village	24 residential houses and a church
Taqage Village	68 residential houses, a church, health dispensary, primary and kindergarten school
Nabila Village	91 residential houses and 2 churches
Nayavutoka Village	41 residential houses, 4 churches, Kindergarten and a community hall
Saioko Village	28 residential houses, 4 churches and a community hall
Nabuna Village	38 residential houses

Table 10 Nature and number of assets to be protected

Table 11 below offers a summary of environmental, social and economic benefits and co-benefits generated from the project interventions, compared to a business-as-usual scenario.

Project activity	Baseline	Expected changes	Environmental, social and economic benefits
Activity 1.1.1: Awareness raising and community engagement consultation across all sites.	• Limited community awareness of climate trends and their impacts, and associated NbS solutions that can be leveraged • Limited outreach and education at community level • Insufficient community engagement and integration and verticality of adaptation planning processes	• Enhanced awareness of the climate context and impacts on livelihoods and ecosystems at the community level • Enhanced awareness of adaptation solutions such as NbS from community leaders and extension officers • Increased integration of local perspectives and community engagement in adaptation planning processes at the national and sub-national levels • Enhanced dialogue between communities and extension officers	• Increased community capacity to understand projected climate change impacts, and to adequately plan for locally specific resilience measures • Increased capacity of extension officers to support communities in the design, planning and implementation of resilience measures such as seawalls • Enhanced access to science-based, reliable data and information on climate impacts and NbS solutions for communities and extension officers
Activity 1.1.2: Institutional strengthening of extension structures	• Insufficient trickle-down of knowledge, information and data from national decision-making and adaptation planning bodies to extension offices • Lagging technical capacity of extension structures for adaptation solutions in general and NbS in particular • Outdated or inexistent Standard Operating Procedures • Unclear organisational structure, communication channels and responsibilities within MoAW	• Technical and institutional assessment across MoAW extension structures to determine baseline and needs • Improved SOPs incorporating lessons learned from the technical assessment pertaining to M&E, community engagement, prioritization methodology to assess vulnerability and need for assistance and NbS solutions from communities etc. • Training provided to extension officers across 7 provinces on improved procedures and SOPs	• Enhanced institutional capacity of sub-national extension structures to assist vulnerable communities • Increased local-level resilience through enhanced processes and capacity to identify and plan for NbS • Increased national and sub-national capacity to design NbS seawalls • Enhanced cost-effectiveness of adaptation planning processes from extension structures
Activity 1.1.3: Strengthen data collection and storage principles to enhance data use for improved learning.	• Limited collection of coastal flood risk data outside of major population centres • Limited capacity to develop and analyse hazard and risks maps and data • Insufficient standardization of climate data, tools and aggregation systems across MoAW field offices • No downscaled data collection on SLR, coastal floods, bathymetry in locations other than Suva and Nadi (focus on major	• Creation of standards for metadata collection • Standardisation and systematisation of data collection approaches across MoAW extension structures • Tying with Activity 1.1.2, enhanced capacity of extension officers to aggregate and analyse data for decision-making • Provision of data collection and monitoring equipment (for weather, climate, SLR and erosion)	• Increased resilience of national and sub-national institutions for adaptation decision-making • Increased autonomy and capacity of sub-national extension offices • Enhanced data availability on climate impacts, weather, erosion and SLR at the local level

Project activity	Baseline	Expected changes	Environmental, social and economic benefits
	population centres at the detriment of rural and remote communities)		
Activity 2.1.1. Conduct baseline technical surveys and refine context specific NbS seawall specifications and management plans.	• Constrained availability of domestic resources to finance technical studies and design plans for NbS • Limited capacity of national stakeholders to develop context-specific solutions and incorporate local perspectives on seawalls design	• Financing of technical studies such as wave action analysis, king tide height analysis and engineering studies to inform final design plans for NbS seawalls • Integration of community needs (ocean access, land use etc.) into seawalls design • Development of site-specific, community-appropriate adaptation solutions (seawalls)	• Enhanced community engagement and ownership of adaptation and resilience outcomes • Suitability of seawall design to the local context, in adequation with community needs and customs and projected climate change impacts • Increased resilience and capacity of sub-national institutions to design technically complex adaptation solutions
Activity 2.1.2. Construction of NbS seawalls	• Constrained national resources to finance priority interventions to safeguard the most vulnerable communities • Limited capacity of national and sub-national stakeholders to implement NbS concurrently in all priority sites • Incapacity of communities to build seawalls due to the unavailability and cost of machinery, equipment required for seawalls construction	• Construction of locally adapted seawalls that were designed with and endorsed by communities • Protection of livelihoods and assets from projected climate change impacts on the short, medium and longer term (depending on seawalls design life) • Creation of resilient jobs for local communities (plant nurseries)	• Community engagement and ownership of adaptation solutions through the use of local labour • Technology transfer between MoAW extension officers, community leaders and villages • Immediately enhanced protection of communities, villages and assets to potential climate impacts such as storm surges • Coastal ecosystems restored, enhanced habitat for local flora and fauna (mangrove and mudflat ecosystems) • Cost effective compared to the relocation of whole communities inland • Preservation of cultural heritage and customs associated with the land • Job creation for producing mangrove and vetiver plants (nurseries)
Activity 2.1.3. Training of Trainers for seawalls construction, operation and maintenance	• Insufficient trickle-down of knowledge and information on NbS to provincial extension offices • Limited knowledge of extension officers on NbS structures maintenance, monitoring and remediation with communities if needed	• Provision of joint training workshops with MoAW extension officers and community leaders • Enhanced M&E and maintenance processes between communities and MoAW extension offices	• Technology and knowledge transfer between MoAW extension officers, community leaders and villagers in target sites and neighbouring villages and provinces • Enhanced durability and sustainability of seawall structures • Enhanced community ownership of

Table 11 Summary of benefits generated by the proposed interventions compared to the baseline

C. Cost-effectiveness

The NbS approach has been proven to be more cost-effective than conventional approaches such as concrete seawalls. Conventional concrete seawall cost USD 6,780 per metre in Fiji, assuming moderate wave energy where local aggregates can be used[88]. In comparison, the average construction costs of the NbS seawalls planned across the 14 sites are estimated at USD 772 per metre. Specifically, the project incorporates established best practices based on MoAW's Technical Design Standards for NbS and will be enhanced with further contextualisation studies. The project also follows the Coastal Protection Policy to plant, cultivate, and nourish mangrove rows and vetiver grass at all 14 sites. These approaches will ensure the long-term sustainability of the seawalls by maximizing the health of the ecological barriers resulting in long-term living and self-sustaining barriers. The project interventions are targeting approximately 4,320 m of NbS seawall across the target sites, with a cost per beneficiary standing at around 1,353 USD compared to 11,877 USD if conventional building methods were used. The NbS approach will therefore save approximately USD 25.9 million in comparison to conventional approaches to seawall construction. Table 12 below details the costs per individual seawall in each targeted location, as well as the resulting cost per beneficiary.

Village	Region	Seawall length	Cost for 100m	Seawall total cost (USD)	Population	Cost per beneficiary
Qaranivai	Vanua Levu	100	$74,304	$74,304	96	$774
Sogobiau	Vanua Levu	250	$74,304	$185,760	28	$6,634
Visogo	Vanua Levu	150	$74,304	$111,456	100	$1,115
Namama	Vanua Levu	60	$74,304	$44,582	48	$929
Saqani	Vanua Levu	350	$74,304	$260,063	222	$1,171
Sese	Vanua Levu	400	$74,304	$297,215	176	$1,689
Tawake	Vanua Levu	280	$74,304	$208,051	96	$2,167
Loa	Vanua Levu	320	$74,304	$237,772	350	$679
Taqage	Viti Levu	400	$74,304	$297,215	383	$776
Nabila	Viti Levu	300	$74,304	$222,911	299	$746
Nayavuira	Viti Levu	310	$74,304	$230,342	92	$2,504
Nayavutoka	Viti Levu	520	$74,304	$386,380	130	$2,972
Saioko	Viti Levu	360	$74,304	$267,494	190	$1,408
Nabuna	Maritime	520	$98,532	$512,366	256	$2,001

Table 12 Cost-effectiveness indicators per proposed location and per beneficiary

Further to this, the use of NbS through creation of mangrove forests in front of walls and the use of vetiver grasses to bind backfill materials generates long-term savings. Overtime, mangroves will grow to a substantial level that dissipates wave energy, reinforcing boulder barriers by protecting them from excessive impacts of wave energy. Furthermore, vetiver grasses will solidify backfill aggregates and prevent loss of materials to sheet or wind erosion. In the long term, this will save significant resources required for maintenance and upkeep of the seawalls in comparison to conventional concrete walls. The use of NbS is therefore a very practical and cost-effective coastal defence solution and costs approximately 30% of conventional methods benchmarked in the country. These costs savings and efficiencies are realised through the sourcing of local materials and using a community-centred approach to planning and construction as opposed to the sourcing of special aggregates, cement, steel supporting rods and specialist construction services associated with conventional concrete seawalls.

[88] The PRIF (2017) Guidance for coastal protection works in Pacific Island countries. Available here.

Additionally, the use of local labour represents a significant cost saving for the execution of the project. The use of community labour for the construction of NbS seawalls actually originated as a demand from communities, whereby the project would be endorsed if communities provide consent for the provision of natural and locally sourced materials (boulders and clay soil for backfilling) and take part in construction activities. In economic terms, this results in important cost savings compared to the hiring of a team of construction contractors, while reinforcing ownership of the seawall from direct project beneficiaries. Further, the vetiver and mangrove plants used for the green components of the seawalls will either be sourced locally or procured from the Legalega nursery which was established and supported by MoAW. Leveraging existing facilities reinforces the cost effectiveness of the proposed project while utilizing existing resources and strengthening national ownership.

D. Consistency with national priorities and strategies

The proposed project to enhance climate resilience and biodiversity in coastal communities through the provision of NbS seawalls in Fiji aligns with AF objectives as well as with multilateral regional, national and policies and frameworks. Table 13 below presents the policy frameworks and agreements to which Fiji is signatory that are compatible with the activities under the proposed project.

International	
UNFCC Paris Agreement	UN Agenda for Sustainable Development
Sendai Framework for Disaster Risk Reduction	SAMOA Pathway
Convention on Biological Diversity	The United Nations Convention to Combat Desertification
The Strategic Action Programme for the Pacific International Waters	The Ramsar Convention on Wetlands
The Regional Action Plan on Sustainable Water Resource Management	The Cartagena Convention and Protocols
Regional	
Framework for Resilient Development in the Pacific	Boe Declaration Action Plan
National	
5-year and 20-year National Development Plan (2017)	Updated Nationally Determined Contribution (2020) and Roadmap 2017-2030
National Climate Finance Strategy	National Disaster Risk Reduction Policy 2018-2030
Draft Climate Change Relocation Policy (2016)	National Climate Change Policy 2018-2030
National Adaptation Plan (2018)	National Disaster Management Act 1998
National Climate Change Act 2022	National Ocean Policy 2020
Laws	
Climate Change Bill 2021	Draft National Disaster Risk Management Bill

Table 13 Relevant policies and framework

The proposed project Table 14 outlines the relevant policies and strategies with which this project aligns.

Document Title	**Publishing Institution & Year**	**Contribution of the project to achieving the policy targets**
National Climate Change Act	GoF (2021)	The Act creates a legal basis to support Fiji's sustainable development objectives, long-term climate ambition, net-zero emissions target, and commitment to protecting Fiji's environment. Part II of the Act provides the legal basis for promoting climate change adaptation and resilient development, including implementing the National Adaptation Plan, sustainably managing Fiji's oceans and marine ecosystem, and helping vulnerable communities avoid relocating. The document establishes the National Climate Change Coordination

Document Title	Publishing Institution & Year	Contribution of the project to achieving the policy targets
		Committee, the National Adaptation Plan Steering Committee, the Fijian Adaptation Registry, the Fijian Taskforce on the Relocation and Displacement of Communities Vulnerable to the Impacts of Climate Change, the National Ocean Policy Steering Committee, and may establish a private sector advisory committee. Part 11 of the Act specifically refers to Climate Change Adaptation and the organisational structures and obligations to deliver the National Adaptation Plan. Further Part 13 relates to Ocean sustainability targets in reference to the National Ocean Policy, and empowers the Fiji Meteorological Office with the preparation of forecasts and studies for disaster risk reduction. Overall, the Act lays out the institutional arrangements and responsibilities of different state entities (national and sub-national) to deliver on national climate change plans and objectives. The proposed project activities will feed into the National Climate Change Act by strengthening the capacity of MoAW extension offices in seven target provinces. An assessment of institutional capacities will be carried out and Extension staff will receive training to enhance their ability to adequately plan for adaptation and implement nature-based solutions. Supporting national and sub-national institutions will directly contribute to the enhanced delivery of the National Adaptation Plan and therefore the National Climate Change Act.
5-year & 20-year National Development Plan (NDP)	Fijian Ministry of Economy (MoE) (2017)	Fiji's Strategic Development Plan recognizes that Fiji's generally benign climate is interposed by climatic extremes in the form of hurricanes, cyclones, floods, and drought. These extremes have serious economic, social, and environmental consequences that require prudent macro-economic management, proper land use planning, and water and watershed management. Natural disasters are listed among the key risks to the Fijian economy. The plan notes that environmental vulnerability is not caused just by natural factors, but also by the ineffectiveness with which the country handles serious issues like land degradation, climate change, increasing flood risk, unsustainable exploitation of marine resources, waste management, air and water pollution, and environmental impacts of urbanization. The NDP sets out five-year development targets and policy priorities (2017 to 2021) and the top goals over 20 years (2017 to 2036). For both timelines, the NDP lays out the government's strategy, policy objectives, and economic development targets across all components of Fijian society. The NDP emphasizes that climate change is a fundamental threat to Fiji's economic development and calls for specific support for community-based adaptation, sustainable management of water resources and ecosystems, and locally driven disaster protection measures such as mangrove forests and seawalls. The proposed project is specifically designed to mitigate the economic, social and environmental consequences of climate change impacts such as cyclones and floods identified in the NDP. Through the construction of nature-based seawalls, 14 vulnerable populations will be protected from economic losses and damages to their livelihoods for several decades, while maintaining cultural and social continuity by avoiding the relocation of these communities. Further, seawalls will be built at the request of the vulnerable communities and their participation will be encouraged for the establishment of mangroves and vetiver rows which are key elements of the seawall designs. This altogether delivers on the NDP's objectives to support locally led climate change adaptation and disaster protection.

Document Title	Publishing Institution & Year	Contribution of the project to achieving the policy targets
Climate Vulnerability Assessment (CVA)	Fijian MoE in collaboration with the World Bank (2018)	The CVA is a detailed assessment of how climate impacts will undermine Fiji's economic development. It identifies the most vulnerable sectors, the development implications if climate change is unaddressed, and the interventions that would reduce Fiji's climate exposure. It includes cost estimates, cumulative for 10 years, of each intervention. It calls for community-level investments for improved ecosystem resilience and expanded coastal protection efforts. Specifically, the proposed project will contribute to two of the key aspects highlighted in the CVA report: • Evidence-based decision making, by empowering MoAW extension offices to plan for and implement nature-based coastal protection measures and infrastructures, including risk assessment and enhanced learning and knowledge management; • Investments in flood risk management and coastal protection measures, through the construction of nature-based seawalls in identified vulnerable sites, to protect communities and livelihoods.
National Adaptation Plan (NAP)	Fijian MoE and the International Institute for Sustainable Development (2018)	The NAP identifies 160 interventions across 10 sectors that would help Fiji adapt to climate change. It was developed through an intensive consultation process to ensure its findings were consistent with and reflected in other planning processes. The NAP identifies ecosystem-based adaptation as a vial to Fiji's adaptation strategy and specifically calls for using nature-based solutions to strengthen coastal boundaries and reduce the climate-related risks for Fiji's rural communities. In particular, the Project addresses the following: • 15.D.1 - Integrate ecosystem-based adaptation measures into considerations regarding the construction of seawalls and riverbanks, including mangrove planting. • 15.D.4 - Implementation of riverbank protection activities which integrate ecosystem-based approaches with hard infrastructure, in particular the use of riparian buffers.
National Ocean Policy (NOP)	Fijian MoE (2020)	Fiji's National Ocean Policy points the way to achieving "A healthy ocean that sustains the livelihoods and aspirations of current and future generations for Fiji." Government is steadily strengthening legislation and policy and committing resources to ensure a healthy and productive ocean. At its core, this Policy lays out Fiji's commitment to the 100% sustainable management of our ocean and its designation of 30% marine protected areas by 2030. The NOP intends to support, synergise, promote, and establish best practice standards for ocean conservation and management within the Fijian Government and for all relevant stakeholder groups. The main contribution of the proposed project to this policy is the establishment of the seawalls which will contribute to biodiversity protection and conservation by providing ecosystem services. This will contribute to a healthy and productive ocean by restoring habitat and protecting coastal ecosystems from erosion while building the capacity and awareness of local communities in the management and restoration of coastal areas.
National Climate Change Policy 2018-2030	Fijian MoE (2018)	Fiji developed its second National Climate Change Policy (NCCP) for 2018–2030 in 2018. The NCCP anchors Fiji's national response to climate change and its international commitments to the national policy and planning. The NCCP provides "the objectives that will define the evolution of Fiji's climate change adaptation and mitigation targets and support the delivery of the priorities set out within the NDP and SDGs" and sets the mandate for the national adaptation processes and energy strategies. Moreover, it provides the framework for the elaboration of the national climate change legislation and the institutional arrangements of Fiji's national law to respond to Climate Change under the Climate

Document Title	Publishing Institution & Year	Contribution of the project to achieving the policy targets
		Change Act of 2021. Through the accessing of Adaptation Fund resources and the delivery of NbS solutions for climate change adaptation and disaster risk reduction, the proposed project will directly contribute to the achievement of two of the overarching policy commitments: • Minimising the impacts of climate change on Fiji's people, environment and economy through capacity development, the transfer of appropriate and relevant technologies, strategic pre-emptive risk management, and evidence-based adaptation actions. • Increasing national access to sustainable finance through an enabling environment for private sector investment.
National Disaster Risk Reduction Policy 2018-2030	Fijian Ministry of Disaster Management and Meteorological Services (2018)	The Policy recognises DRR is a cross-cutting issue that requires a multisectoral approach, and reflects the priorities for action as laid out in the Sendai Framework, which puts the State as the primarily responsible entity for disaster risk reduction. The proposed project will directly contribute to the achievement of objectives in the NDRRP by enhancing coordination and strengthening knowledge exchange between national and sub-national MoAW offices. Through the provision of training and the revision of Standard Operating Procedures for improved workflows and processes, MoAW extension officers will be better suited to plan and implement coastal management and restoration measures. Additionally, this improved capacity will enable officers to adequately provide technical assistance to vulnerable communities based on science-based risk and vulnerability assessments. The proposed project will support the integration of improved tools and processes within MoAW extension structures to facilitate the delivery of NbS solutions for climate change adaptation and disaster risk reduction. Overall, awareness raising activities will gather sub-national decision-makers and extension officers together with communities to raise their awareness of the cross-cutting nature of CCA interventions and disaster risk reduction processes.
National Climate Finance Strategy	Fijian MoE (March 2022)	It is the blueprint for which policies, interventions, targets, and programmes across 12 sectors of the Fijian economy need climate finance. The Strategy incorporates the priorities from the NDC Investment Plans, NAP, LEDS, Climate Vulnerability Assessment, Climate Finance Snapshot, and the strategic plans of relevant line Ministries to identify and prioritize both adaptation and mitigation interventions. It includes concept notes for 25 mitigation and adaptation programmes that are urgent for Fiji. This includes 11 programmes that could be brought to the GCF and 14 programmes that are priorities for the Climate Change Division. Reporting on implementation of the National Climate Finance Strategy is enshrined in the Climate Change Act. The proposed project activities contributes to individual policies as described above, collected under the National Climate Finance Strategy.
Nationally Determined Contribution	Fijian Government (Update 2020)	Fiji's Nationally determined contributions (NDCs) outline's the country's self-defined national climate pledges under the Paris Agreement, detailing what Fiji will do to help meet the global goal to pursue 1.5C and adapt to climate impacts. In the Updated NDC, Fiji reaffirmed its 2030 emission reduction target and re-committing to achieving net-zero greenhouse gas emissions by 2050. It further included commitments to enact its Climate Change Bill by 2021 and to operationalize its NAP. Within the NDC, Fiji outlined 12 mitigation targets. Target 7 specifically refers to the prioritisation of "nature-based solutions to mitigate the impact of flooding and cyclones" and Target 10 refers to the conservation of "natural environment and biodiversity wealth enabling sustainable long-term provision of ecosystem services, including carbon

Document Title	Publishing Institution & Year	Contribution of the project to achieving the policy targets
		sequestration potential". Fiji has managed to outlay a suite of comprehensive mitigation and adaptation measures across multiple sectors which require large scale resource mobilization. The proposed project activities will directly support this, and the achievement of the targets highlighted above through the provision of nature-based solution to the impact of events such as cyclones and floods. This will be achieved through the construction of nature-based seawalls, protecting 14 vulnerable populations, and by contributing to biodiversity protection and conservation through the provision ecosystem services.

Table 14 Contribution of the project to national policy targets

E. Project alignment with national technical standards

The project will be implemented in remote coastal villages of Fiji to promote robust, cost-effective coastal defence using NbS seawalls to minimise coastal vulnerability. Potential adverse effects of these operations are anticipated to be low in intensity, modest, site-specific, and amenable to easily available and commonly utilised mitigating strategies. In accordance with the norms and standards of the Pacific Community (SPC) Social and Environmental Responsibility Policy and the AF's Environmental and Social Policy, this NbS seawall project has been categorised as Environmental and Social Safeguards Category B (moderate risk).

The NbS seawall designs complies with all applicable national legal frameworks and standards as listed in the MoAW Nature-Based Solution (NbS) Coastal Protections Policy and Procedures, listed in Table 15 below. In addition, the MoAW's internal Gender, Equity, Disability, and Social Inclusion Policy & Action Plan (GEDSI-AP) is scrupulously adhered to by all internal and external projects.

Project Output	Relevant rules, regulations, standards and procedure	Compliance/Alignment
Output 1.1: Strengthened capacity of government staff to capture lessons and disseminate knowledge related to nature-based seawall benefits. Output 2.1 Nature-based seawalls established for long-term climate resilience.	• Environment Management Act 2005 • State Lands Act 1945 (and 2022 amendment) • I-Taukei Land Trust Act • Provincial and Local Government Acts (provisions for District and local level approvals) • Environment Management (EIA Process) Regulations 2007 • Public Health (National Building Code) Regulations 2004 • Mining Act 1965 • Health and Safety at Work Act 1996 • Climate Change Act 2021 • Land Use Act 2010 and	The ESIAs and resulting ESMPs formulated for each seawall location will abide by the guidelines of the Environment Management Regulations (EIA process) of 2007 as well as the Environment Management Act of 2005. Specifically, the ESIAs will follow the terms of reference stipulated under section 28(1) and include mitigation measures and associated plans as relevant (waste management and pollution control, for example) for each identified risk. The project will abide by the State Lands Act, the Land Use Act and the i-Taukei Land Trust Act on the designation of the land (including seashores) belonging to the State and that belonging to i-Taukei people (mataqali land under traditional customary land tenure rights). Provincial and local government regulations for planning permissions will also be closely followed and monitored, under the framework of the National Building Code which is currently being updated. The PMU will ensure that the new amendment's provisions are endorsed and monitored. The project-level ESMF (annexed) includes provisions and guidelines to abide by the Public Health regulations and the Health and Safety at Work Act of 1996. Specifically, Part 2 sub-sections 8-15 relating to the duties of employers to hired workers and community members taking part in

Project Output	Relevant rules, regulations, standards and procedure	Compliance/Alignment
	Regulations 2011 • National Building Code 1990 (currently being updated)	construction activities (noting that community members will only take part in planting activities). The extraction of boulders and stones will follow the guidelines laid out under the Minerals Act, including Part 2 on prospecting and mining (sub-sections 17-39). Overall, all activities under Outcome 2 contribute to the advancement of provisions under the Climate Change Act of 2021, Part 11 for CCA and Resilient Development, whereby all adaptation projects must be filed under the Adaptation Registry and project reports transmitted to monitor their contribution to the objectives of the National Adaptation Plan.

Table 15 Compliance and alignment of project activities to national technical standards

To ensure compliance with the Environmental and Social Policy of the Adaptation Fund, the MoAW, as the executing entity, provides assurance that the project includes:

- An environmental and social management system that ensures environmental and social risks are identified and assessed at the earliest possible stage of project design,
- Measures to avoid or where avoidance is impossible to minimise or mitigate those risks during implementation, and
- Monitoring and reporting on the status of those measures during and at the end of implementation. There will be adequate opportunities for the informed participation of all stakeholders in the formulation and implementation of the project.

The project's ESMP (Annex 1) has been developed to guide the implementation of the project in a way promotes compliance with the national laws and the AF ES Policy. To ensure this compliance with the ESMP the following measures will be applied:

a) **Safeguards Supervision and Reporting**: the ESMP has a weekly monitoring plan embedded in it. This monitoring will be carried out on a weekly basis at any active project sites on the outer islands. At each project site there will be dedicated representative who will be trained in correct implementation of the ESMP and how to use the monitoring plan and checklist. The results of the weekly monitoring will be reported to the PMU who will, in turn include a summary of the results in their monthly reporting. The ESMP includes ESS reporting requirement, including instances of non-compliances, rectification measures and also reports on any grievances received and how those have been resolved.

b) **ESS Audits:** During project implementation, there will be periodic audits carried out at active project sites to ensure that the ESMP is being correctly implemented and that the project is continuing to adopt an inclusive approach to community engagement. The audits will be undertaken by the IE who may choose to bring in international safeguard specialists.

c) **Monitoring and Evaluation**: Specific indicators on key social and environmental variables are integrated into the project's results framework, thus ensuring compliance with the ESMP (and therefore the AF ES Policy). These indicators will be monitored regularly and communicated to all project personnel and contractors and suppliers.

Finally, the project will also comply with the MoAW's Standard Operating Procedures, Technical Design Requirements, and Policies regarding Nature-Based Solutions. These policies mandate the materials used (discussed above), the standards and approaches for planting mangroves and vetiver grass interventions, the consultation processes, the climate vulnerability criteria, and the community safeguards. Appropriate references to each of these policies have been incorporated

throughout the concept note.

F. Complementarity with other funding sources

Although Fiji's Official Development Assistance (ODA) flows have reached new highs since the 1960s – at 15% of Gross National Income (GNI) in 2021[89], the contribution of the global community can be explained by the devastating consequences of the COVID-19 pandemic and subsequent economic recession on the Fijian economy. Much like many other Small Island Developing States (SIDS), Fiji was hit the hardest by the economic contraction following the outbreak of the pandemic in 2020 compared to other developing countries. Real Gross Domestic Product (GDP) fell by an estimated 15.7% in 2020, and travel restrictions led to an 80% reduction in the number of visitor arrivals relative to 2019[90], which resulted in a drop of the GDP share of the tourism sector from 38% in 2019 to just 10.9% in 2020[91]. This was accompanied by a rise in public debt to nearly 90% of GDP by the end of FY2020[92]. Large fiscal impacts from the COVID-19 crisis have exacerbated Fiji's ongoing financing challenges; even before the COVID-19 outbreak, Fiji faced critical financing challenges, owing to the small and volatile nature of private investments. As in many other SIDS, private investments in Fiji are constrained by the isolated nature of operations and high perceived investment risks. Meanwhile, public investments are limited due to volatile domestic revenues and limited fiscal space.

Further over the same period, Fiji was hit by three tropical cyclones that added to the COVID-19 induced downturn and resulted in further challenges, namely "Harold" in April 2020, "Yasa" in December 2020 and "Ana" in January 2021. Both Tropical Cyclone (TC) Harold and TC Yasa were of category 5, and TC Yasa was also one of the strongest cyclones ever recorded in the Pacific. In monetary terms, the impact of TC Harold is estimated at FJD 29 million[93] (about USD 13 million) and of TC Yasa at FJD 25 million[94] (USD 12 million). The GoF has had to reorient significant budgets originally planned for disaster risk reduction and climate change adaptation toward economic recovery and health, which slowed down country-driven efforts to implement coastal protection measures among the most vulnerable communities.

Seawalls and specifically nature-based seawalls are not a new initiative in Fiji. Over the past few years the GoF has partnered with a number of bilateral and multilateral development partners to deliver nature-based solutions such as hybrid seawalls to deliver on its national adaptation strategies and protect the most vulnerable communities from the impacts of sea level rise, tropical cyclones and coastal erosion. Therefore, this project complements several ongoing initiatives and specifically incorporates a number of key lessons and processes from similar NbS projects, namely the Kiwa Initiative and the Asian Development Bank (ADB) "Building Coastal Resilience through Nature-Based and Integrated Solutions". Therefore, the proposed project does not address an identified gap in the climate finance space, but rather aims to contribute to ongoing post-COVID recovery and adaptation efforts led by MoAW to meet the dire needs of coastal communities in the country. The list below details the technical assistance received by MoAW which contributed to an enabling environment for the implementation of NbS:

- **UNDP:** Provision of technical and financial Assistance on logistics for the team that carried out the survey works, scoping exercise, community consultation and awareness of 10 proposed NbS seawall sites funded under the Fijian Sustainable Bond Framework 2022.
- **KIWA Initiative:** Provision of grant funding for 6 Proposed NbS Seawall sites. A portion of the grant funding was purposed to fund three project staffs (Project Manager/Monitoring & Evaluation Officer/ and Project Assistant).
- **ADB:** Provision of grant funding for 6 Proposed NbS Sewall sites. A portion of the grant funding was purposed to fund an Inception Mission comprised of 5 staffs which includes a

[89] World Bank. Data Bank. Net ODA received (% of GNI) – Fiji. Available here.
[90] OECD (2022) Towards a Blue Recovery in Fiji: COVID-19 Appraisal Report. "The ocean economy of Fiji during the COVID-19 crisis". Available here.
[91] Asian Development Bank (2022) Enhancing COVID-19 Preparedness for Tourism Recovery.
[92] MF (2021), "Republic of Fiji", Country Report, No. 21/257, International Monetary Fund, Washington, DC.
[93] OCHA (2020), "Tropical Cyclone Harold", webpage. Available here.
[94] IFC (2021), Fiji TC YASA Business Survey, webpage. Available here.

Social Safeguard Officer, Financial Management Officer, Project Analyst, a Technical Specialist Consultant, and a Project Coordinator.

- **Internal (Fiji Government):** Prior to the Construction Stage of the 11 completed NbS Seawall, the MoAW carried out preliminary assessment works which includes consultation and awareness to the affected community, soliciting of consent from the landowners where the NbS Material (Rock Boulders & Backfill) was sourced from, and trainings on the setting up of Community Based Vetiver Grass Nursery and Mangrove Nursery)

The location of the completed seawalls to date can be found in Table 16 below:

	Completed NbS Seawall Project Sites	Coordinates	District/Province
1	Naividamu Village	16°31'24.48"S 178°54'25.49"E	Macuata
2	Raviravi Village	16°28'30.02"S 178°56'3.84"E	Macuata
3	Nabubu Village	16°12'0.17"S 179°42'47.28"E	Macuata
4	Drekeniwai Village	16°40'18.33"S 179°40'37.35"E	Cakaudrove
5	Nabukadra Village	17°32'33.54"S 178°23'30.56"E	Ra
6	Verevere Village	17°32'50.87"S 178°22'36.54"E	Ra
7	Vaidoko Village	17°24'39.67"S 178°14'41.20"E	Ra
8	Namoli Village	17°36'2.40"S 177°27'22.06"E	Ba
9	Malomalo Village	18° 7'29.90"S 177°21'31.63"E	Nadroga
10	Viro Village, Ovalau Island	17°40'2.74"S 178°44'31.31"E	Lomaiviti
11	Daliconi Village, Vanuabalavu Island	17°13'16.32"S 178°57'50.77"W	Lau

Table 16 Location of completed NbS seawalls to date

A key lesson learned from past and ongoing initiatives is the integration of updated and improved seawall design plans and technical specifications for seawall construction. Outcomes of stakeholder consultations carried out as part of this project design, and a study on past and ongoing initiatives, shed light on the insufficient tailoring of the MoAW seawall design to context-specific impacts. Originally produced as a "one size fits all" design which aimed to provide average protection from climate change impacts over an acceptable lifetime (20-year for Category 2 impacts), under the proposed project the MoAW design will be enhanced to include site-specific technical specifications and recommendations formulated as part of the ADB technical assistance project. More information on these technical recommendations can be found in the project description while a full description of the project alignment with the ADB project can be found in *Table 17* below.

Further considering other projects, such as the CommonSensing project, techniques garnered to deploy GIS information, data layers (application of the data cube), and other tools to enhance knowledge management using GIS applications, have been incorporated into activities under 1.1.3. of this project. *Table 17* below summarizes additional synergies between this project and other relevant efforts to show that this project will build off emerging data and lessons from parallel baseline projects.

The Project Steering Committee (detailed in Section III: Implementing Arrangements) will be constituted by representatives from key national ministries (including the Ministry of Agriculture and Waterways) as well as Civil Society Organisation representative. Responsible for the oversight and strategic direction of the project, the PSC will coordinate opportunities for engagement with other lead agencies and ensure this project builds off the work of ongoing and past parallel projects. With the MoAW as the Chair of the PSC there is significant opportunity for collaboration with the KIWA Initiative and ADB projects (outlined in table 13 below), both of which have project elements implemented by the MoAW.

In addition to this the Project Management Unit (PMU, detailed in Section III: Implementing Arrangements) will participate in relevant external workshops upon request and invite project coordinators and monitoring, evaluation, and learning (MEL) experts/officials to discuss project progress, lessons learned on effective implementation, and areas where complementarity between projects could be reinforced to maximize impact. At the Project level, SPC as the Implementing Entity will be responsible for project-level monitoring and evaluation, coordinating work between SPC, the DA for the Republic of Fiji, and the PMU. The data and knowledge generated will allow for learning from ongoing and past NbS approaches to be synthesized and incorporated into knowledge products disseminated in the various community engagements within the proposed project.

Table 17: List of projects ongoing or in design of relevance to the Project

Relevant project/ programme and implementing entity / funder	Project Scope / brief description	Complementarity and synergies	Project Timeline and Budget
Kiwa Initiative **Implemented by AFD globally and IUCN in the Pacific** **Three sub-projects:** 1. Restoring mangroves for livelihoods in Fiji 2. Building coastal resilience and dune ecosystem in Fiji **3.** Enhancing coastal protection / Nature-based seawalls in Fiji	The Kiwa Initiative is a multi-donor program that aims to build resilience to climate change through Nature-based Solutions (NbS). It is based on simplified access to climate change adaptation and NbS financing for local and national authorities, civil society and regional organizations in the Pacific Countries and Territories, including three French Overseas Territories. 1. **Restoring mangroves for livelihoods in Fiji:** The project aims to implement: (i) effective biodiversity management efforts for the three proposed LMMAs, (ii)a sustainable mangrove restoration programme at three communities and (iii) an effective awareness programme including visibility materials such as posters, leaflets and t shirts, over 1,600 people trained through community awareness events and increased income from mangrove-related livelihoods. **2. Building coastal resilience and dune ecosystem in Fiji:** This project will develop forest restoration sites around the National Park, managed by communities and Park staff, and demonstrating tangible nature based solutions such as agroforestry, invasive management, and avoided degradation. 3. **Enhancing coastal protection / Nature-based seawalls in Fiji:** construction of 6 NbS seawalls implemented by MoAW; provision of institutional strengthening and establishment of mangrove nurseries	The proposed AF project is aligned with the objectives of the overall Kiwa Initiative, and with three projects implemented in Fiji in particular. The “Restoring mangroves for livelihoods” project utilizes an inclusive approach to community engagement and includes an awareness raising campaign aiming to increase community engagement in ecosystem and coastal management. The second project, “Building coastal resilience and dune ecosystem in Fiji” aims to demonstrate nature-based solutions such as agroforestry and avoided degradation through an empowered community network. Additionally, a plant nursery will be established as part of this project and may be leveraged to source mangrove and vetiver plants for seawall construction. Finally, the project “Enhancing coastal protection / Nature-based seawalls” is in full alignment with the proposed AF project, whereby 6 NbS seawalls will be built in selected target sites. However, the Kiwa Initiative project utilizes the MoAW seawall design model as is, without further studies to determine site-specific design features. **Key outputs:** Community engagement plans, NbS design methodology, direct linkage but different geographical area. SOPs, technical specifications, MEL frameworks, lessons/ recommendations from initial KIWA evaluations, inclusive of Gender and wider scientific studies / academia on NbS Sea Walls There is not geographic overlap with the Kiwa project sites or technical overlap in capacity building exercises indicated.	2022-2025 Project 1: EUR 200,000 Project 2: EUR 84,560 Project 3: EUR 326,077

Relevant project/ programme and implementing entity / funder	Project Scope / brief description	Complementarity and synergies	Project Timeline and Budget
Asian Development Bank – Building Coastal Resilience through Nature-Based and Integrated Solutions (regional project with Fiji component)	Construction of 10 NbS seawalls in selected sites. Project run by the Ministry of Agriculture and Waterways, where ADB commissioned a review of the proposed NbS design. The Project aims to reduce the vulnerability of six selected sites from coastal inundation and erosion. The reduction in vulnerability is proposed to be obtained through the construction of nature-based seawalls. Six targeted sites were selected and prioritised for the project, based on their vulnerability and exposure to impacts from high tidal flows and upon request of the local communities.	The inception of the ADB-MoAW project is similar to that of the proposed AF project whereby communities requested assistance from MoAW for the construction of NbS seawalls in both Viti Levu and Vanua Levu. The key outputs to be leveraged from the ADB-MoAW Technical Assistance project include the critical assessment of the MoAW seawall design, which incorporates further engineering and technical assessments to improve the appropriateness and durability of the structures. The design recommendations have been fully integrated in the proposed project structure (Activities 2.1.1 and 2.1.2). Further, both projects are complementary in the methodology used for the selection of targeted sites. There is no technical or geographical overlap with this project.	2021-2024 FJD 730,000
Enhancing Climate Adaptation through scaling up Fiji's coastal inundation forecasting early warning system **World Meteorological Organization (WMO)**	The WMO Project aims to strengthen coastal inundation Early Warning Systems (EWS) to enhance preparation and response of communities-at-risk to natural hazards.	Through the WMO proposal, Fiji Meteorological Service (FMS) will be able to forecast the arrival of a Tropical Cyclone within the Fiji area of responsibility and if the forecasted track of the cyclone indicated that it would pass within close proximity of the coastal communities covered by the proposed AF project, FMS would provide real-time alerts to SPC, the Divisional Commissioners and the Ministry of Agriculture and Waterways to inform them of the impending danger and the need to evacuate to high ground or evacuation centres well before the severe weather affects them. Thus, in case there is coastal hazard advancing during the implementation stage of the proposed project, there will be timely warnings and response time for EE to take actions. There is no technical or physical overlap of project activities.	Expected start in 2024 $5.56m (Concept Note approved by Adaptation Fund)

Relevant project/ programme and implementing entity / funder	Project Scope / brief description	Complementarity and synergies	Project Timeline and Budget
Global Risk Assessment Framework (GRAF)	The Global Risk Assessment Framework (GRAF) aims to help UNDRR's partners enhance their understanding of the changing nature of risk in order to scale-up and accelerate solutions for resilience. Co-financed by the governments of the United States of America and the Federal Republic of Germany, GRAF is designed to amplify efforts by UNDRR's partners to accelerate action for risk reduction across development, humanitarian and fragile state contexts. As a global collaborative framework for developing, sharing and innovating in the use of risk information across hazards, disciplines, and geographic scales (i.e, global to local), the GRAF leverages existing institutions to build new partnerships that can better address the systemic nature of risk and its cascading effects. The Fijian Government has, in response to ongoing experience and recognition of projected risks, played a central role in advancing open discussion and actions to progress policy related to climate-induced displacement and relocation. As a continued effort to prepare for the effects of climate change in the Fijian communities - after the 2018 launching of the Planned Relocation Guidelines (PRG) - the Climate Change and International Cooperation Division (CCICD) of the Ministry of Economy in collaboration with the GIZ Human Mobility in the Context of Climate Change Programme has started the drafting and consultation process on the SOPs to operationalise the PRGs	Talanoa dialogue at site level, vulnerability assessments questionnaire, hazard mapping, GOS work No technical overlap with project activities and noting that the project has closed. Rather the proposed AF project will build on efforts and recommendations of the GRAF.	2022 To conduct GRAF Assessment FJD 100 000 Likely allocation FJD 1 million per community
CommonSensing (NORAD) **UNOSTAT**	Supports and builds climate resilience and enhances decision making through the use of satellite remote sensing technology.	Climate vulnerability assessments, for decision making, GIS and EO data for climate projections and risks – using specific coordinates. There is no direct overlap with project activities, but data generated will filter in to enhanced data management systems for enhanced decision making inputted from this project.	2019-2025 $22 million (regional) NORAD 4 million

Relevant project/ programme and implementing entity / funder	Project Scope / brief description	Complementarity and synergies	Project Timeline and Budget
Increasing the resilience of informal urban settlements in Fiji that are highly vulnerable to climate change and disaster risks **UN HABITAT**	The overall objective of the project is to increase the resilience of informal urban settlements in Fiji that are highly vulnerable to climate change and disaster risks through: - Institutional strengthening for enhanced local climate response - Local (community/informal settlement) resilience strengthening - Enhancing resilience of community level physical, natural and socio-economic assets and ecosystems - Awareness raising, knowledge management and Communication	Reduced vulnerability at the city-level to climate related hazards and threats. Approaches to strengthened awareness and ownership of adaptation and climate risk reduction processes and capacity at the community level. implementation fully transparent- all stakeholders are informed of products and results and have access to these for replication. No geographic overlap of the project. Further as the project has ended there will be no overlap of enabling environment activities, rather the project will build off of these and terminal evaluations to guide capacity building success.	2017- 2022: USD $4.2m (Implementation in- progress)
Mainstreaming Disaster Risk Reduction **JICA**	This project is in the pilot phase and led by JICA and Fiji's national disaster management office (NDMO), with technical advice from FMS. It is being piloted in the Western Division of Viti Levu. It aims at undertaking a hazard / risk assessment for communities and schools in the Western Division of Fiji which are vulnerable to the increasing impacts of riverine and coastal floods and inundation. Further, a Disaster Risk Reduction Plan will be developed based on the outcomes of the risk and hazard assessment, with the objective of promoting targeted DRR investment.	Enhanced coastal and riverine flood warning systems and institutional capacity of MoAW and NDMO to collaborate to plan, design and implement NbS solutions to these climate hazards. There is no geographical overlap with the proposed project.	2021-2025 USD 500,000k (implementation in progress)

G. Learning, Knowledge Management Component

Project Monitoring, Evaluation and Learning
A framework will be established to monitor the progress of project results and activities, and changes to contextual factors that have a direct bearing on implementation. This framework will serve as an essential source of information for evaluation and learning. It will track the progress of activities and results against project indicators and targets at each location and across each targeted extension level. The main tool of the monitoring framework will be the results framework (page 85), with project indicators aligned with the Theory of Change (ToC).

The monitoring framework will collect and aggregate data in a comparable and compatible manner from across extension structures. This will enable capturing of lessons from implementation, and analysis of effective knowledge transfer practices across the various extension structures. This will inform key lessons and recommendations for enhancement of the current systems in use and will support the implementation of activities under Output 1.1. Further information on knowledge management is provided in Section II D and links to those activities under Output 1.1.

Information and knowledge management (IKM) will be essential during all project phases. This includes the planning, implementation, monitoring and evaluation, and closure of the project. All project phases will produce data, information, and knowledge that need to be effectively managed. This is important to reduce duplication and avoid repeating mistakes or "reinventing wheels" through implementation. It is particularly important for oral cultures in the Pacific region.

IKM in the project will consist of:

- Establishing and managing structured and controlled processes and workflows for data, information, and knowledge through. Activity 1.1.2.
- Facilitating the capture, creation, description, storage, sharing, and re-use of short-term and temporary data, information, and knowledge into essential, re-used, and lasting knowledge products. Activity 1.1.3.
- Learning from experiences including past and ongoing implementation activities. Activity 1.1.3.
- Connecting experts and facilitating communities of practice to unlock and unpack knowledge and experiences Activity 1.1.1.
- Identification and capture of good practice and support for innovation Activity 1.1.3.
- Supporting knowledge transfer horizontally and vertically, creating appropriate communication channels across extension structures and between communities. Activities 1.1.1 and 1.1.2.

Central to knowledge management and learning on this Project will be the enhancement of the tools for knowledge creation, storage and communication central to Activity 1.1.3. Key to successfully achieving this are the following tools at the national level that will be reviewed and enhanced through the Project to be better utilised across extension structures.

- Fiji Ministry of Economy Climate Change Portal (FCCP)
- National Designated Authority (NDA) Portal
- MoAW GIS and data repository application

Data aggregated through these tools will enable synthesis of knowledge products and provide key lessons learned for informed action in the future. Further, online tools will increase transparency and access to data for all institutions to generate analysis and synthesis relevant considerations for future projects or to enhance efficiency and effectiveness of ongoing projects.

Knowledge products will feed into community engagement through Activity 1.1.1 and will be disseminated at community levels to raise awareness of climate issues and the potential of NbS approaches. Through engagement across seven provinces of Fiji, messaging will be widespread. Consequently, horizontal and 'over the fence' learning between communities will aid tacit knowledge transfer of climate issues and solutions beyond just project interventions.

H. Consultation process

The elaboration of the proposed project originated as a request for assistance from the 14 vulnerable communities received by MoAW. The MoAW received requests for seawall development from community leaders either through direct community engagement or via email. Locations were then ranked on a scale of one to five, ranging from those requiring immediate attention to those requiring attention postponed within a three-year timeframe.

MoAW officers carried out initial scoping studies in June 2022 to collect baseline data and consult with communities to assess coastal restoration needs and initiate the process to collect landownership and consent forms. During these consultations, MoAW officers and consultants facilitated a presentation of the proposed seawall design, and laid out the supplies and equipment provided by the project and those to be provided by communities. Further, consultations were organized as focus groups and engaged with village members and traditional leaders directly, with a minimum of 60% written consensus recorded and minuted from village members required for approval. Lastly, formal approval from the Turaga-ni Yavusa (tribal leader), Turaga-ni-Mataqali (clan head), and Turaga-ni-Koro (village head), who all agreed in writing (consent forms) to provide unambiguous consent for the provision of natural material (vetiver, mangrove plants and boulders) and for the construction of NbS seawalls. For all selected sites, consensus was given by communities to support the construction of NbS seawalls through the provision of raw materials, labour for planting vetiver and mangroves, access for machinery deployment, and housing for project personnel in remote sites. The MoAW team emphasised on the inclusion of the perspectives, concerns and opinions of the community's women, children, and disabled members.

Following this, the proposed project is an inclusive community-led project where the village provides consent to use natural boulders sourced from their *mataqali land* (landowning clan) including support from women, children, and the elderly. Consistent with the MoAW's Nature-Based Solution Coastal Protection Policy and Procedures, all communities have taken part in the following consultation process:

1) Communities submit an official written request for an NBS seawall to the MoAW Coastal Protection Program indicating support of the leadership and broader community.
2) MoAW's technical team then travels to the community to discuss the project requirements with the community and assess the area's geographic capacity to support an NBS-seawall
3) All community leaders (Turaga ni Koro or chairman) agree to meet the project requirements regarding labour provided, site design, and provision of materials.
4) Before project implementation, the MoAW technical team conducts another round of consultations. All community members participate in these meetings, where the MoAW technical team outlines the project approach, the community's role, the expected outcomes, and all relevant safeguards to protect the community.

A second round of scoping visits and community consultations were carried out in May 2023 to present the proposed project to communities in further details, as well as to collect and address any concern raised in the relevant project documentation and implementation process (ESMP, Gender Action Plan, project description and implementation arrangements). Community consultations were facilitated with approximately 544 participants, 47% of which were women and 3% children or youth below 18 years old. On this occasion, a detailed scoping exercise was carried out in order to collect all necessary socio-economic and demographic and gender data, as well as to support the development of local biodiversity assessments and initial engineering reports. Further, landowner consent forms (attached as a link to this proposal) were signed by community leaders and collected by the project team. Meeting minutes, attendance sheets and consent forms can be found as Annex 3 of this document.

Beyond community consultation, the MoAW design team organised broader public consultations in which climate adaptation specialists working in the field presented the approach and benefits to wider audiences. Stakeholder participants including academics from the University of the South Pacific, private contractors, engineers, line ministries and NGOs involved in NbS approaches invited to a two-day meeting at Tanoa Plaza in Suva to assess and discuss the approach. Additionally, remote consultations with relevant bilateral and multilateral partners were carried out to learn about past projects and how the lessons learned could be built into the project design, as well as ensuring

no technical or geographical overlap with these past initiatives.

Through frequent interactions with landowners and other stakeholders during implementation, the project will address the impacts of identified climate change impacts and promote the application of pertinent customary land practices at the community level. The project will strengthen communication and knowledge management services and directly implement climate-resilient NbS seawalls to promote community resilience and livelihoods. Additionally, direct engagement of indigenous communities is carried out through community engagements in situ. Indigenous groups have been given high priority in consultations and all opinions incorporated into planning processes to integrate traditional knowledge and safeguard cultural heritage.

In terms of environmental and social safeguards, during each of the community consultations a series of discussions was held with participants regarding some of the concerns or perceived risks that the project may have at community level. Areas discussed included (1) access to natural resources: where communities participants understood the requirement to provide boulders and other materials at no cost to the project and where there were no objections to this given the very real need for the projects at their villages; (2) access to the water for community members and boats after installation of the seawalls was also discussed along with proposed solutions which have been implemented in previous communities. Where no alternative pathway to the water exists, steps with a handrail will be provided across the seawall for community members. Mangrove planting will be done in blocks, rather than in a continuous line which will allow community boats to be securely moored infront of the seawall and allow them to easily access open water; (3) drainage of surged waves or rainwater through the seawall back towards the marine environment was also raised as a concern. As with other NbS seawall sites, where there are existing drainage issues within a village, these are a referred to an existing associated project for rectification while within the seawall design, culverts are integrated into the footings to enable rapid flushing of flood waters in flood prone sites. These will be identified and address through the site-specific detailed design studies under Activity 2.

I. Justification for funding requested, and cost of adaptation reasoning

Baseline

According to the Asian Development Bank, the country's GDP decreased by 0.4% in 2019, mostly due to weaker public expenditure coinciding with a global downturn, before falling by an estimated 15.7% in 2020 due to the impact of the COVID-19 pandemic on tourism and related industries[95]. Even if a recovery were to begin within the next 1–2 years, it would take several years for Fiji's revenue to return to pre-pandemic levels and even longer to build up the necessary surplus funding to implement the necessary coastal protection works. As explained in Section F., even pre-COVID Fiji's public debt-to-GDP ratio was higher than that of other SIDS and had been steadily increasing from 43% of GDP in 2014 to 48% of GDP in 2019 owing to sustained fiscal deficits from natural disaster events necessitating extensive reconstruction. As a result of the combined impact of the COVID-19 pandemic and recent climate shocks, the ratio of public debt to GDP increased to 62.3% of GDP in 2020 and is predicted to reach 91.6% of GDP in 2022. The World Bank has recently called for urgent action to reduce Fiji's debt levels[96], so loan or debt instruments are not a viable option to finance urgent climate resilience measures. This debt distress means that the GoF is not able to finance development works of this scale or to support capacity building without the addition of external concessional resources.

Despite limited national budget allocation, one of the top priorities of the GoF is the Ministry of Agriculture and Waterways Coastal Protection Works. Since launching, MoAW has received requests for assistance from 121 communities for the construction of nature-based seawalls – a number that grows monthly – but lacks funding to build most of them. The project allocation was reduced by FJ$2.76 million in the COVID-19 Response Budget and by FJ$517, 450 in the 2020–2021 National Budget. The estimated cost of adaptation for coastal protection is estimated in the range of 86-329 million USD per year (accounting for 1-3% of projected GDP by 2040)[97], a figure that cannot be found using national resources alone. Due to the urgency of the climate crisis and the

[95] https://english.news.cn/asiapacific/20220217/4b993b811b5241dc96b2ebd806dfe301/c.html
[96] https://www.worldbank.org/en/news/press-release/2023/04/17/urgent-action-needed-to-reduce-fiji-debt-levels-world-bank
[97] Australian Aid (2022) Fiji Pacific Risk Profile. Available here.

vulnerability of coastal communities to these impacts, AF resources are urgently needed to enhance the resilience of communities and enable them to adapt to predicted conditions.

Alternative

To avoid the scenario described above, AF resources are requested to provide financing to enhance the enabling environment for NbS approaches across the country and to provide direct resources to construct NbS seawalls in target communities. This will directly build 4,320 m of NbS seawalls that would not be possible in the absence of AF funding. The construction of these seawalls will safeguard and enhance the livelihoods of the 2,466 direct beneficiaries identified in the most vulnerable communities across the country. The project will also provide funding to enhance institutional capacities in the form of technical enhancement of processes and specifications (Standard Operating Procedures) related to NbS coastal protection as well as enhance data collection and management systems to improve informed decision-making processes. Through the targeting of seven provinces, the capacity of national extension structures will be enhanced, and valuable lessons captured to increase the effectiveness of NbS approaches.

AF resources for the proposed project will also enable the update of the MoAW seawall design, with improved technical specifications and standards. The updated design will display enhanced longevity and adequacy to localized projected climate change impacts, which in turn will strengthen the delivery of coastal protection measures by the GoF and other development partners. Ultimately, the project will capacitate national systems and position them to take NbS approaches to scale and directly support an additional 30,000 beneficiaries in coastal communities also vulnerable to the impacts of climate change in the future, whether through national funding sources or through large multilateral financing from donors such as the Green Climate Fund or the World Bank.

Therefore, the GoF seeks 100% concessionality from the AF to implement urgent adaptation measures to avoid the baseline scenario and transition to the alternative scenario to induce a paradigm shift towards climate-resilient coastal protection using NbS seawalls. In the absence of AF resources**,** coastal communities will not receive requisite aid to build NbS seawalls and will be subject to the full impacts of climate change. This will cause severe loss and damages at community level and destroy local businesses and livelihoods. This could result in resettlement of communities and loss of cultural heritage across the country as coastal communities become climate refugees, forced to seek livelihoods elsewhere.

Table 18 below details the project additionality per Outcome compared to the baseline scenario (at the institutional and at the local level), in alignment with the AF Results Framework.

Baseline (without project)	AF Outcomes	Expected results by project outcome	Adaptation reasoning and Project Additionality
Limited awareness of local communities to the predicted impacts of climate change on their livelihoods and environment; limited access to relevant and up-to-date information on projected climate impacts from rural communities; limited community engagement and integration of local indigenous knowledge in adaptation planning processes; lagging implementation of urgent NbS solutions at the national level due to insufficient technical capacity of MoAW agents to implement NbS solutions; outdated SOPs and M&E processes which delay the implementation of NbS to scale, and minimizes their efficiency;	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses **Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	Outcome 1: Strengthened National and community-level awareness and knowledge of resilient coastal management and NbS for coastal protection	The proposed project will provide accessible, tailored training and awareness raising workshops for communities (including traditional leaders and women and vulnerable groups) in predicted climate change scenarios and their subsequent impacts on livelihoods. This will ensure communities have access to science-based, reliable information on climate change combined with the update and enhancement of SOPs within MoAW. In addition, the project will support the establishment of Communities of Practice networks among local communities to facilitate the exchange of information, experiences and knowledge between beneficiaries and MoAW extension agents. This will ensure continued dialogue and understanding between

Baseline (without project)	AF Outcomes	Expected results by project outcome	Adaptation reasoning and Project Additionality
			communities and MoAW as well as contribute to the sustainability of the seawalls over the longer term. MoAW agents will receive training on the improved SOPs in order to streamline and maximise the delivery and efficiency of seawall implementation and monitoring processes on a national scale. Further, MoAW agents will receive training in gender-sensitive adaptation and particularly on the planning of NbS projects, while SOPs will include the systematic collection of gender-disaggregated data and information. This will contribute to the integration of women's perspectives and needs into adaptation planning processes at the national level, and increase its relevance at the local level.
Inadequacy of MoAW seawall design to protect vulnerable communities from projected climate change impacts; insufficient domestic funding to finance the necessary engineering studies and data needs to update and strengthen the seawall design; inability of communities (due to low-income livelihoods) to finance urgent adaptation and NbS solutions; lagging implementation of urgent NbS solutions for vulnerable communities already negatively impacted by climate change	**Outcome 1:** Reduced exposure to climate-related hazards and threats	Outcome 2: Reduced vulnerability of coastal communities, livelihoods and infrastructure through NbS	The project will fund the engineering and baseline studies required to tailor the design specifications to each individual seawall (14 locations), which will guarantee the long-term protection against projected impacts for communities and livelihoods. Overall, the delivery of activities proposed under Outcome 2 will prevent the relocation of communities as a result of the impacts of sea-level rise, TCs and erosion. Further, MoAW extension agents, thanks to the training and improved SOPs received under Outcome 1, will be able to upscale the enhance seawall design nationally.

Table 18 Project additionality in alignment with AF Results Framework

J. Sustainability

The project design comprises the following elements that ensure sustainability of outcomes:

Community ownership. By implementing the project in partnership with communities, villages take ownership for the design and construction of the infrastructure of which they will ultimately be beneficiaries. This ensures greater social sustainability as people will feel responsible for adaptation infrastructures. Awareness raising and community engagement through trainings and consultations under Output 1.1 will enhance community engagement in planning processes. Moreover, support to target communities in programming their maintenance of NbS seawalls under Output 2.1 contributes to the sustainability of infrastructures.

Strengthened institutions and capacity. In implementing the activities under Output 1.1, both communities and sub-national governments will gain greater awareness of climate change impacts and adaptation solutions, and vocational skills to build, operate and maintain NbS seawalls. As the executing entity, MoAW will work directly with MoE, other line ministries and the local government in each province, promoting alignment with sub-national planning at the commune and district levels. The project monitoring framework will capture lessons learned and analyse effective knowledge transfer practice, providing recommendations for enhancement of current systems in use. Thus, by strengthening the institutional capacity of MoAW and other stakeholders in extension structures, the project allows for future scale up and replication of NbS coastal protection at the national level.

Social inclusivity and participatory decision-making. Under Output 1.1, decision-making is improved through strengthened data collection and communication systems across the government extension structures. Gender equality, indigenous representation, and engagement with older persons, people living with disability and young people are ensured in participatory decision-making processes to ensure wider community buy-in throughout the project. Under Output 2.1, engagement of community members is ensured through participation in ESIA, ESMP & operations and maintenance planning processes. By supporting both design and implementation of NbS, technical understanding of the functionality of NbS and upkeep of the NbS infrastructure in the long run are ensured.

Environmental sustainability. Fiji's prior experience with nature-based seawalls demonstrates that seawalls enhance the climate resilience of coastal ecosystems and communities, providing protection for more than 15 years after which the mangrove and vetiver systems should be fully function and provide natural coastal protection. Reduced impacts from sea level rise, TCs and coastal erosion will support the delivery of ecosystem services and natural resources in project target areas. Mangrove plantations will also strengthen biodiversity conservation and related ecosystems.

Economic and financial sustainability. The Department of Waterways under the MoAW have an Annual work Programme called the "Coastal Protection Program" which is credited with funds during the Country's National Budget Announcement each Fiscal Year. One of the objectives of the usage of this fund is for maintenance and upkeep of all Seawalls or Coastal Protection works implemented by the Department, whether Donor Funded or Government Funded. Additionally, greater adaptation and protection from climate impacts such as saltwater inundation and damage to crops will avoid economic and financial losses. Mangrove ecosystems will defend land and bring additional income in terms of improved fish and crab catch, and potentially Blue Carbon and other benefit-sharing mechanisms in future. The NbS seawalls will improve flood resilience, bringing economic benefits as people will no longer lose an estimated 30 days of income per year due to floods. Vulnerable communities will not need to be relocated, and sustainable livelihoods will be secured. In the medium term, as MoE seeks accreditation as a direct access entity to the Green Climate Fund (GCF), the government will seek to scale up this project and create a national NbS Fund with support from GCF. The Fiji Development Bank (FDB) has been approved as a Direct Access Entity to the GCF in 2017.,

Country ownership. At a site level, the project employs a community-based approach, and on completion the project is handed over to the community who will carry out day to day maintenance to ensure effective operation of the NBS seawalls until the ecosystem function is fully established. The MoAW will also keep a regular monitoring schedule to see the seawall is functioning and serving its purpose. The MoAW is mandated to create a long-term maintenance plan for the seawalls including a financing structure to cover large scale maintenance in the event of natural disasters (Tropical Cyclones).

K. Environmental and social impacts and risks

The project has been screened against each of the AF Environmental and Social Safeguard principles and ranked accordingly as:

- **Minor risk** – aligned with IFC Category C rating[98]: activities with minimal or no adverse environmental or social risks and/or impacts
- **Medium risk** – aligned with IFC Category B rating: activities with potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures
- **Major risk** – aligned with IFC Category A rating: activities with potential significant adverse environmental or social risks and/or impacts that are diverse, irreversible, or unprecedented

As per the AF "Guidance document for Implementing Entities on compliance with the

[98] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/es-categorization

Adaptation Fund Environmental and Social Policy" any principle assessed as minor risk, require no further actions beyond on-going risk monitoring. Those principles rated as medium risk or major risk will require further assessment through an Environmental and Social Impact Assessment (ESIA) and development of an Environmental and Social Management Plan (ESMP).

As per the initial screening of the Project against the principles, no major risks were identified with four principles identified as medium risk. Consequently, the Project is ranked as **medium risks/ESS Category B. The following table provides a summary of the full SER screening results and impact assessment as they related to the individual AF ES Principles.** See Annex 1 of the ESMP for full screening results details.

Table 19: Environmental and social screening against AF ESS principles

Checklist of environmental and social principles	Further assessment and/or management required for compliance	Potential impacts / risks and mitigation measures
		risk.
Compliance with the Law	No further actions required beyond on-going risk monitoring	All activities of the project and MoAW processes are designed to be aligned with the texts, laws, and decrees currently applicable in Fiji. The project approach and planned activities complies with the legal framework for agriculture, water, and environmental protection and is incorporated into the design processes. The ESMP requires to ensure compliance the MoAW approval process for individual sea wall designs will include a quality assurance check to ensure that any design is fully compliant with all environmental and social laws.
Access and Equity	No further actions required beyond on-going risk monitoring	Minor risk. Project benefits will be felt equally across the community by the nature of the protection a seawall affords. Very small risk of vulnerable or marginalised group no longer being consulted during project design. Mitigation measures Project's extensive consultation approach (including implementation of MoAWs GEDSI Action Plan and the projects Gender Action Plan) and community and landowner consent process mitigate this risk. The project intervention logic is to provide beneficiaries in the target area with fair and equitable access to resources and decision-making throughout the planning and implementation phases. Criteria are provided in planning processes to ensure the effective participation of less empowered groups, including women, minorities, and highly vulnerable groups. The people-centred approach required by SPC and adopted by MoAW for all its activities ensures that peoples' and communities' rights are always protected.
Marginalized and Vulnerable Groups	No further actions required beyond on-going risk monitoring	Minor risk. There is a minor risk that some outlying and marginalised groups are not consulted through project designs and therefore feel that they have not had the opportunity to . Mitigation measures The project respects the fundamental rights of people in the areas of intervention and will not infringe on their freedom. The project does not include activities that are unacceptable

Checklist of environmental and social principles	Further assessment and/or management required for compliance	Potential impacts / risks and mitigation measures
		to the habits and customs of the beneficiaries Further, the project will maintain strictly non-discriminatory approaches for all activities and is not expected to result in any risks to people with disabilities, or children and vulnerable adults. The project has provided access and equity for women, youth and vulnerable groups and will continue to do so through all engagements during implementation and will ensure that all groups are consulted in planning of project interventions.
Human Rights	No further actions required beyond on-going risk monitoring	No risk Fiji does not appear on the UNHCR Human Rights Council Special Procedures country list. The project has been screened as not impacting human rights. The project respects the fundamental rights of people in the areas of intervention and therefore does not infringe on their freedom. All parties have been fully consulted during the project design phase to avoid infringement of access to important resources that are a human right. No resource access right issues have been identified through the detailed consultation process. Therefore, project activities are not expected to have any negative human rights impacts, but rather enhance rights to water and health.
Gender Equality and Women's Empowerment	No further actions required beyond on-going risk monitoring	Minor risk. There is a minor risk that some cases community decisions are made in the absence of women voices. Mitigation measures The project engaged women and youth through consultation and has set an ambitious target to ensure that 80% of women in communities are consulted for decision-making. The project has been specifically designed to ensure that gender-sensitivity is mainstreamed throughout project implementation and that gender-sensitive indicators and activities will ensure that the priorities of women and other vulnerable groups are included. A comprehensive Gender Action Plan has been developed and the MoAW GEDSI Action Plan will be implemented.
Core Labour Rights	No further actions required beyond on-going risk monitoring	Medium risk There is a risk that some labour rights are ignored by contractors in construction. This risk is considered to be minor There are potential health and safety risks to project workers during the extraction of boulders and construction of the seawall due to the use of heavy machinery and handling of large boulders. Mitigation measures The project will ensure that minors do not work on the sites and that national health and safety legislation is applied. The project will follow the International Labour Organisation standards and guidelines and will comply with national

Checklist of environmental and social principles	Further assessment and/or management required for compliance	Potential impacts / risks and mitigation measures
		regulations and laws. This will be imposed by the MoAW through any contracting of service providers. The project will require contractors to have an OHS Management Plan in place. The ESMP sets the requirements for this plan.
Indigenous Peoples	No further actions required beyond on-going risk monitoring	Minor risk. There is a potential for some indigenous people to be excluded in consultations however, this principle is not triggered in Fiji's context as all ethnic groups in Fiji are represented at national and community levels and there is no distinct group that are not part being represented within the project sites. Relevant matters such as community consultation and obtaining of local community or individual as may be relevant are standard requirements for any policy or development planning process in Fiji. Mitigation measures The people-centred approach adopted by MoAW for all of its activities ensures that peoples' and communities' rights are always protected and that communities are consulted and included in planning processes. As decisions are made through the Turaga-ni-Yavusa, Turaga-ni-koro and Turaga-ni-mataqali (indigenous leaders), it is unlikely that any negative impact will affect these indigenous peoples. The project will comply with (i) all AF requirements, and (ii) national laws and continually monitor the project against this principle.
Involuntary Resettlement	No further assessment required	Not Applicable. No expropriation, relocation of community or disruption of village livelihood activities will be undertaken in this project.
Protection of Natural Habitats	Site specific studies, site specific additions to ESMP, final detailed design and continual monitoring	Medium risk. The project may have negative impacts on the biophysical environment, including natural or critical habitats through the extraction of materials for the NbSs if the activities are not properly screened, managed or monitored. Mitigation measures The project includes capacity building for the community members, including women and other vulnerable groups, to equip them with knowledge on the importance of mangroves, vetiver, and nature-based solution. Further knowledge dissemination to reduce the risk of deforestation will be embedded in the community engagements. Importantly the project will carry out site specific additional studies and environmental screening to inform the final detailed design and to identify any additional site-specific impacts. An ESIA and ESMP has been developed for the project (Annex I), and the site-specific studies and assessments will enable the detailed design and raw material extraction sites to be tailored for each site. Quality assurance carried out by ESS specialists to ensure that no lasting and non-localised damage could occur through project activities. Project activities will be undertaken outside of protected areas. No invasive alien species are likely to be introduced by project activities as materials will be sources locally and not imported from external sources.

Checklist of environmental and social principles	Further assessment and/or management required for compliance	Potential impacts / risks and mitigation measures
		Beyond this, the project includes reforestation action in various ecosystems to boost biodiversity. Regular monitoring will be conducted throughout the implementation cycle.
Conservation of Biological Diversity	Site specific studies, site specific additions to ESMP, final detailed design and continual monitoring	Risk Linked to risks associated with Protection of Natural Habitats above. The project may have negative impacts on the biophysical environment, including areas of important biodiveristy through the extraction of materials for the NbSs if the activities are not properly screened, managed or monitored. The villages and their surrounding areas have not been identified as areas of significant biodiversity either through national studies or via the International Biodiversity Assessment Tool or through Fiji's network of protected areas. Mitigation measures The project will carry out site specific additional studies and environmental screening to inform the final detailed design and to identify any additional site-specific impacts. An ESIA and ESMP has been developed for the project (Annex I), and the site-specific studies and assessments will enable the detailed design and raw material extraction sites to be tailored for each site. Quality assurance carried out by ESS specialists to ensure that no lasting and non-localised damage could occur through project activities. Project activities will be undertaken outside of protected areas. No invasive alien species are likely to be introduced by project activities as materials will be sources locally and not imported from external sources. Beyond this, the project includes reforestation action in various ecosystems to boost biodiversity. Regular monitoring will be conducted throughout the implementation cycle.
Climate Change	No further actions required beyond on-going risk monitoring	No risk. Small GHG emissions may arise from Project activities, e.g., use of vehicles running on fossil fuels. However, these are likely to be negligible. The project design will ensure that there is no large-scale deforestation or forest degradation, and that all GHG emissions are minimised. The project approach is specifically focused on adaptation and mitigation actions and is inherently designed to enhance resilience to climate change.
Pollution	No further actions	Minor risk.

Checklist of environmental and social principles	Further assessment and/or management required for compliance	Potential impacts / risks and mitigation measures
Prevention and Resource Efficiency	required beyond on-going risk monitoring	The project is only expected to lead to potential minor and negligible release of pollutants, largely from emissions or accidental spills from equipment such as vehicles and heavy machinery. Mitigation measures Measures will be proposed in designs and construction plans to avoid the risks and impacts of water and soil pollution. Spill kits will be provided at all project sites and operators trained in their use. All pollution will be strictly monitored and managed to ensure that it remains within relevant national regulations and in compliance with environmental and social safeguard standards.
Public Health	No further actions required beyond on-going risk monitoring	Minor risk There is a risk that the COVID19 pandemic could continue, or spikes occur during implementation. Mitigation measures Measures will follow national guidance on working conditions and COVID 19 protection measures to avoid introduction or spread of the virus.
Physical and Cultural Heritage	No further actions required beyond on-going risk monitoring	Minor risk. There is a very minimal possibility of chance finds occurring at material extraction sites. Mitigation measures All sites selected are consulted with local indigenous and community groups. Sites for extraction of materials have been identified outside of known or suspected cultural heritage area. In the case there is a chance find of a cultural site, the GoF national regulations for chance finds will be followed.
Lands and Soil Conservation	No further actions beyond on-going risk monitoring	Medium risk. There is potential for a temporary increase in soil run off at project sites due to increased exposure to soils and materials to sheet erosion. Mitigation measures The ESMP contains measures for minimising and managing the risks. Quality assurance carried out by ESS specialists to avoid the risks and impacts of soil erosion at project sites. Further the project will actively rehabilitate exposed soils through planting of vetiver grass to knit soils together and prevent erosion losses.

The summary risks identified in Table 19 have been further analysed in the Environmental and Social Management Planthat is included in Annex 1. Mitigation measures have been identified and are included in Annex 1. During project implementation, site specific studies and additional environmental screening, as required in the ESMP, will be carried out at each site to further inform detailed design and to help tailor the ESMP to the individual sites.

Environmental and Social Risk Assessment

As identified in the environmental and social screening reported in the ESMP (Annex I), the Project has the potential to create a variety of inherent medium or low risk impacts through the implementation of the proposed project activities.

It is assessed that the only activities which would trigger a risk rating under the screening form are linked to Activity 2.1.2 which involves the construction of the NbS seawalls in 14 communities. An analysis of these risks and potential impacts are presented in the table below against the applicable AF standard and the associated project activity.

AF Principle	Project Activity	Potential Impact	Inherent Risk	Protective Measures	Residual Risk
Principle 4: Human Rights	Vegetation clearance at all project sites	There may be food bearing or crop trees within the 14 aggregate extraction sites or at the village of Saioko where there are potentially mangrove mud crabs which may have their habitat removed to accommodate the NbS in that village. The required environmental screening at site level will determine whether there are any potential impacts to means of livelihood or subsistence harvesting. The screening will determine the extend and magnitude of any such impact.	Medium	The screening process described in Section 5.3 of the ESMP will be implemented	Low
Principle 6: Core Labour Rights	Operation of heavy vehicles and equipment	Project workers will operate heavy vehicles and equipment to extract boulders and soils. There will also be the use of heavy machinery to transport the boulders and to construct the seawall. This presents H&S risks to project workers at the project sites. Risks will be short term however any serious injury has the potential to be significant for the worker for the longer term.	Medium	No blasting activities will be permitted. The Contractor will be required to have a Health and Safety Plan in place. The Contractor will be required to adhere to the national H&S requirements. All staff will be provided with the appropriate H&S training and PPE.	Low
Principle 9: Protection of Natural Habitats	Vegetation Clearance at aggregate extraction site and along seawall alignment	Aggregate extraction sites are proposed for vegetated areas in all 14 project sites. Preliminary screening carried out in initial site reports do not indicate that areas of vegetation are critical habitats, or that there are key areas of biodiversity that could be effected. Vegetation removal will be a long-term localized impact of varying magnitude depending on the type of vegetation removed.	Medium	Environmental screening and surveys will be required at all aggregate extraction and seawall alignments. No critical habitats will be removed from aggregate extraction sites. For each project site, the ESMP will be updated to reflect any additional management measures identified in the screening. Vegetation clearance will be strictly controlled	Low

AF Principle	Project Activity	Potential Impact	Inherent Risk	Protective Measures	Residual Risk
				and only vegetation necessary for extraction works or seawall construction will be permitted. Any significant mature tree specimens will be left in place where technically feasible. Free Prior and Informed Consent (FPIC) will be obtained from all stakeholders prior to the removal of any vegetation. Aggregate extraction sites will be revegetated with native species similar to those removed on completion of works. No aggregate extraction will take place prior to the applicable licenses or permits being in place.	
Principle 12: Pollution Prevention and Resource Efficiency	Use of heavy vehicles and machinery	Fuel, oil and hydraulic fluids will be required for the use of heavy plant and equipment. This brings the possible risk of spills into the marine and terrestrial environment. Given the limited volume of these substances on project sites, any spill would create a localized short term negative impact	Low	Spill prevention and response measures are included in this ESMP. Spill kits will be available on site and workers will be trained in their use. Any refueling at the site will be carried out at dedicated areas using a drip tray.	Very Low
	Solid waste generation	These is the potential for pollution to be created by the improper management of solid waste generated by the works.	Low	The Contractor will be required to implement the waste management measures in the ESMP.	Very Low
Principle 13: Public Health	Construction activities using heavy machinery in and around community areas	The construction of the seawalls, the extraction of the aggregates and transportation of aggregates to the seawall alignment will be carried out within the community areas. This brings the community members into close contact with health and safety risks.	Medium	The Contractor will clearly demarcate their working areas. Fencing will be used to exclude members of the public from any active working sites at the seawall	Low

AF Principle	Project Activity	Potential Impact	Inherent Risk	Protective Measures	Residual Risk
		This presents H&S risks to project workers at the project sites. Risks will be short term however any serious injury has the potential to be significant for the worker for the longer term. Construction works, including the haulage of aggregates will generate noise and dust nuisance for the community. This impact will be short term and located.		alignment or the aggregate extraction sites. Traffic management measures will be put in place. Signage and outreach will be used to ensure the public are aware of the safety risks and other impacts during construction.	
	Detailed design of NbS Seawall	If the boulder size is insufficient for the hydrodynamic conditions of the site, there is a risk that the boulders could become dislodged during significant wave events and become a risk to public safety. Given the anecdotal conditions at the seawall sites and the fact that these designs have been successfully rolled out in a number of communities without any instances of dislodgement, the likelihood of this is low, however the impact would be significant if it did occur.	Medium	Activity 2.1.1 will provide the technical studies necessary to ensure the design specifications are adequate for the hydrodynamic conditions of each site.	Very Low
Principle 15: Land and Soil Conservation	Vegetation clearance at vegetation extraction sites	Extraction of aggregates from the identified sites will expose large areas of soil due to the vegetation clearance. This presents the possibility of soil erosion in the localized area which could undermine existing landforms and/or run into neighbouring properties. This would be a short-term localized impact that can be easily managed through the measures in the ESMP.	Medium	Good international industry practice measures for prevention of soil erosion to be implemented by the Contractor as listed in the ESMP.	Low
	Vegetation clearance along NbS seawall alignment	The clearance of vegetation and operation of heavy machinery along the alignment of the NbS seawalls will increase the chances of run off during rain events leading to sedimentation in the marine environment. This will be a short term and localized impact that can be easily managed through the measures in the ESMP.	Medium	Good international industry practice measures to prevent sedimentation to be implemented by the Contractor as listed in the ESMP.	Low

The ESMP provides measures for avoiding and mitigating identified risks and impacts. It also provides the required monitoring to ensure that the ESMP is being correctly implemented and identify whether the mitigation measures are effective. Where there are project activities which require ongoing screening to identify any additional impacts, the ESMP clearly provides the process for this. The ESMP further reinforces the avoidance, minimization or mitigation of impacts by clearly articulating the roles and responsibilities of all relevant parties along with any required capacity

building.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Implementation arrangements

Institutional Roles

- **Implementing Entity:** SPC will ensure implementation is in alignment with SPC's policies, procurement standards and financial management standards in accordance with its accreditation to the AF. SPC will also be responsible for reporting and monitoring, evaluation and learning (MEL) activities are completed in accordance with the project Agreement. This will be conducted through SPC's Climate Finance Unit (CFU) housed within the Climate Change and Environmental Sustainability Programme.
- **Executing Entity:** The Government of Fiji (GoF) through the Ministry of Agriculture and Waterways (MoAW) will be the Executing Entity for the project and will carry out the operational management of the project and day to day implementation of the project activities. The MOAW is well placed to manage operations on the ground, utilising its essential national knowledge to support and facilitate the implementation of activities, pursuing its ongoing efforts to implement nature-based seawalls across the country. The proposed project is in full alignment with the provisions under the National Adaptation Plan, Climate Change Bill and the National Ocean Policy.

Institutional advantage of SPC as Implementing Entity

SPC's comparative advantage and justification as IE lies in its:

- Extensive ties with Pacific Islands governments, administrations, agencies, and partners in all Pacific Island Countries;
- Broad mandate on urgent development issues in the Pacific, including coastal restoration, ecosystem-based adaptation, flood protection, nature-based solutions and gender and human rights development;
- Large funding base with multi-lateral and bilateral donors, allowing for extensive lessons learned from donor funded projects, especially in the target sectors;
- Extensive international partnerships which range from UN agencies to other IGOs, NGOs and civil society groups at grassroots level that facilitates knowledge exchange and cross fertilisation across similar programmes in the sector;
- SPC has 76 years of experience specifically in the region and covers 22 Pacific countries (including all 14 eligible countries to the AF) in the region;
- SPC staffing includes a high proportion of native Pacific Islanders from across the region, that brings extensive contextual knowledge and a large amount of regional ownership;
- As a membership organisation SPC is country focused and places the needs of the members as a paramount priority, ensuring strong country ownership in its designs.

Project Management Structure

Project Management Unit (PMU) - The PMU will be based in Suva and hosted within the Ministry of Agriculture and Waterways (MOAW) and will include:

- *Project Coordinator:* They will Lead the overall management and implementation of the project, including the development of project annual plans, budgets, and schedules. Coordinate and oversee the work of the provincial project officers and specialists, as well as any external consultants or contractors, ensuring that project activities are carried out in accordance with the project's terms of reference, budget, and schedule. Develop and maintain strong relationships with key stakeholders, including government agencies, civil society organizations, and local communities.
- *Administrative Assistant*: Provide administrative support to the PMU, including the scheduling of meetings, the maintenance of project records and documents, and the coordination of travel arrangements. They will also support in process-oriented procurement actions to support the Finance and Procurement Officer on administrative burdens.
- *Procurement and Finance Officer:* Oversee the financial management of the project,

including the development of budget plans, tracking of project expenses, and preparation of financial reports. Coordinate procurement activities for the project, including the development of procurement plans and the selection of suppliers. Ensure that all financial transactions and procurement activities are in compliance with donor and government regulations. Support the NPM in the preparation of project reports and other financial documentation as required.

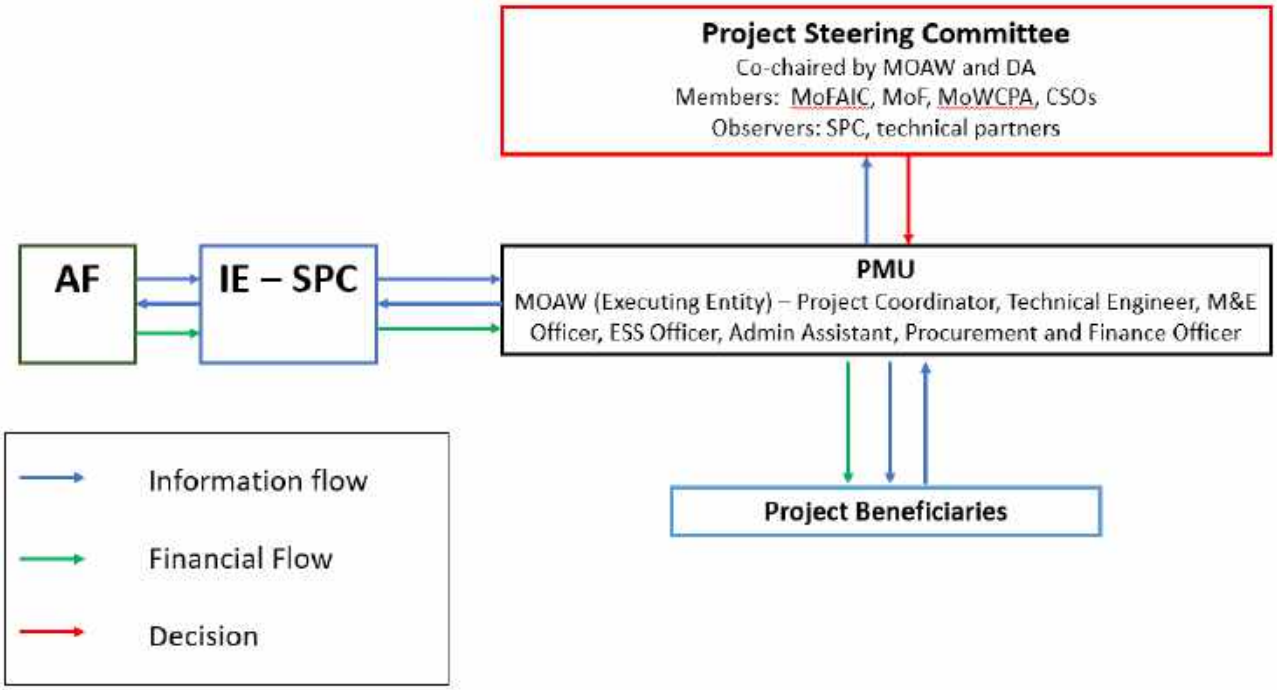
- *Monitoring and Evaluation Officer:* Monitor and report on project progress, including the achievement of project objectives. Undertake participatory monitoring, evaluation and learning of all project activities to identify and document best practices and lessons learned as well as adaptive management of the project results, milestones, and deliverables. Support the development of studies for the mid-term and final evaluation of the project.
- *Environmental and Gender Safeguards Officer:* Lead the integration of ESS norms and standards, gender and youth considerations into all aspects of the project, including the development of environment and social safeguard assessments at target sites and the development, implementation and monitoring and evaluation of environment and social management activities as per the ESMP. Monitor and report on the project's progress in addressing gender and youth issues, based on the GAAP
- *Technical Engineer*: Lead on the development of individual site designs to ensure that they are compliant with design parameters as well as local technical standards. Provide technical assistance and formulate narratives for technical reports as required by the Project Coordinator whilst also advising them of best practice and recommendations for effective implementation. They will also support on the monitoring of progress through the implementation period.

Project Governance Structure

Project Steering Committee (PSC) - A PSC will be formally established as a part of the inception workshop for the project and will be co-chaired by the Ministry of Agriculture and Waterways (MOAW) and the AF DA, and constituted of representatives of Ministry of Foreign Affairs and International Cooperation, Ministry of Finance, Ministry of Women, Children and Poverty Alleviation and Civil Society Organisation representation. In addition, SPC as the IE and selected technical partners (identified at inception) will be included in the PSC as observers. The PMU will act as the Secretariat for the PSC. The PSC will provide implementation guidance, strategic support and financial and procedural oversight to the project. Specifically, it will:

- provide strategic guidance and implementation oversight of the Project through review of progress and evaluation reports and provision of recommendations to the PMU for improved implementation.
- provide guidance and direction on cross-cutting issues which require consensus from the various stakeholders involved in the Project.
- ensure that institutional strengthening through the activities is consistent with the Project's overall objective as well as national policies and strategies;
- facilitate full cooperation of various stakeholders under their jurisdictions to provide access and support to the Project team in carrying out their tasks;
- represent the interests of civil society and communities derived through bilateral dialogues;
- approve the project's administrative, financial, accounting and operations manual;
- approve the project's Annual Work Program and Budgets (AWPB);

A draft illustration diagram of institutional arrangements is presented below.


Project Steering Committee
Co-chaired by MOAW and DA
Members: MoFAIC, MoF, MoWCPA, CSOs
Observers: SPC, technical partners
AF
IE – SPC
PMU
MOAW (Executing Entity) – Project Coordinator, Technical Engineer, M&E Officer, ESS Officer, Admin Assistant, Procurement and Finance Officer
Project Beneficiaries
Information flow
Financial Flow
Decision

B. Project risk management

Risk description	Initial Risk		Proposed mitigation measure	Final Risk
	Probability	Impact		
COVID-19 outbreak disrupts the implementation of project activities and hampers the capacity of MoAW and the PMU to travel to the project sites, and the availability of construction materials	Medium	High	All project activities will be able to be implemented in the event of disturbances in supply chains with the exception of construction of the NbS seawalls. For the former, at the earliest stage once implementation of the project starts, the PMU will plan and secure the necessary supplies and tools for the construction. Meetings and workshops will be held virtually.	Low
Insufficient human resources and capacity at MoAW to implement the project activities	Low	Medium	Competitive salaries will be offered for country-based project staff. Training and other incentives should also help make the positions attractive.	Low
Low or no community engagement in the construction of NbS seawalls, or in the maintenance of NbS structures during and after project implementation period.	Low	High	In addition to multiple rounds of consultations carried out during the project preparation phase, meaningful engagement from community members and leaders will be ensured in the following ways: - Continued consultations, awareness raising and training in projected climate change impacts and nature-based solutions - Required consent forms for material extraction and the provision of unskilled labour from communities for construction to proceed - Integration of local indigenous knowledge in seawalls design plans - Training of community leaders and members in regular upkeep and maintenance of nature-based solutions	Low
Fiji operates in Fijian Dollars (FJD) whilst AF disbursements are in the US Dollars. Foreign exchange fluctuations could result in changes in the timely availability of funds for the implementation of project interventions	Low	Medium	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.	Low
Insufficient transparency and accounting in project financial management	Low	Medium	The project financial management is highly monitored and supervised and has a threefold approach to mitigate any potential financial risks. - The PMU includes a Procurement and Finance Officer (PFO) based in Suva who	Low

Risk description	Initial Risk		Proposed mitigation measure	Final Risk
	Probability	Impact		
			will carry out financial monitoring and procurements in alignment with SPC procedures and policy (deem compliant with SPC standards). - The Project Coordinator will also work with the PFO to ensure that frequent (semi-annual) monitoring is carried out and relevant reports provided to the steering committee for review and validation. These financial reports will also be cross examined by the CFU in its capacity as IE for interim financial reporting to the AF and carry out supervision missions on an annual basis to provide ad hoc assistance and follow up as needed.	
Delays in budget process and disbursements impede timely implementation of project activities	Low	Medium	Annual Work Plans and Budget preparation processes will be carried out by the PMU staff and submitted to the Steering Committee for approval. The AWPB will include details of activities, overall costs, expected outputs and monitoring indicators, and their implementation modalities including procurement procedures. This will ensure that planning is well established and that workplans are not delayed ensuring that resources are used in timely manners so as not to delay implementation. Disbursement of funds under the project will also be regulated by financial agreements that have clear and defined financial disbursement clauses to facilitate process and reduce any conflict over procedures that could delay disbursement.	Low
Interagency co-ordination	Low	Medium	Strong institutional and implementation arrangements for the project's management framework will ensure effective coordination and collaboration between project partners. The PMU will facilitate constant dialogue between project partners and stakeholders and ensure that the main stakeholders communicate regularly and coordinate actions. The project will also build institutional capacities for coordination between national and regional government, executing entities and supporting organisations (outcome 1) covering institutional processes, knowledge processes, and communication channels.	Low
AML/CFT and Prohibited Practices	Low	High	SPC has adopted Financial Policies for anti-money laundering and	Low

Risk description	Initial Risk		Proposed mitigation measure	Final Risk
	Probability	Impact		
			counter-terrorism financing to prescribe the principles and minimum safeguards to protect SPC from being misused for money laundering or terrorism financing. Although the risks of money laundering and terrorism financing are considered "low" for Fiji, SPC will take steps to ensure that its funds are not used to finance any illegal acts related to money laundering or terrorism financing. The Director-General will implement a continuous risk-based approach to identify, assess and understand SPC's money laundering and terrorism financing risks, and will take appropriate steps to mitigate those identified risks. SPC will undertake due diligence in engagement with any entity involved in the activities of SPC as part of Know Your Customer due diligence to ensure identity and safeguard the practices of the entity. Detailed due diligence will enable SPC to assess the risk of money laundering or terrorist financing. There are currently no international sanctions against Fiji. As for the prohibited practices, SPC has procedures to ensure their avoidance including a whistle-blower policy. Manuals and emails for reporting of prohibited practices can be found at https://www.spc.int/accountability.	
Staff turnover within the project governance function			Key members within the governance function of the project (PSC) will have alternates in place in the event of unpredicted or short-notice vacancies. These alternates will be kept abreast of all relevant information, enabling them to take up duties, if, and when required. This, along with strong record keeping and knowledge management plans, will ensure continuity and continued functioning of the PSC and the project.	

C. Environmental and Social risk management and mitigation measures

The entire project was screened for environmental and social risks against the 15 principles outlined in the AF's Environmental and Social Policy, as set out in Section K above. The project proposal is classified as a "Category B" or "medium risk" project, mainly due to the activities involving materials extraction, construction of a seawall, removal of vegetation and the associated increased risk of erosion and sedimentation. The full E&S Screening and assessment is included in Annex 1.

The Environmental and Social Management Plan (ESMP) is also described in Annex 1 and is articulated at two levels:

1. Risk mitigation measures (and monitoring and reporting thereof) for the risks identified through the risk

screening and assessment of the proposal (also described in Table 14 of Section K);

- Procedures for additional studies, screening, assessment and mitigation at each site during the implementation of the project. Two areas of further site-specific study will be required during project implementation. These are:
- Environmental screening of materials extraction sites to ensure that any loss of biodiversity or natural habitats is avoided or minimised, and
- Metocean investigations of each project site to inform final designs and ensure a long-term solution suited to the specific wave conditions of the sites.

The proposed project will fully comply with national laws particularly the GoF Environmental Regulations and the Adaptation Fund's Environmental and Social Policy.

The beneficiaries and affected populations have access to a Complaints and Feedback Mechanism which is described in the ESMP in Annex 1. Complaints and feedback can be filed through different channels, in order to make it as inclusive as possible.

D. Monitoring and Evaluation arrangements, budgeted M&E Plan

Monitoring and evaluation arrangements

In its role as Implementing Entity, the Pacific Community (SPC) will oversee and supervise the implementation of this project in accordance with the agreement signed between SPC and the AF. SPC will be responsible for project-level monitoring and evaluation in compliance with SPC and AF policies through coordination between its Climate Finance Unit (CFU), Strategy, Performance and Learning (SPL) Team, the Designated Authority for the Republic of Fiji and Project Management Unit (PMU), implementing the necessary tools and methods to facilitate monitoring and evaluation of the project. The programme indicators described in the results framework will be jointly monitored by the DA, the PMU and SPC during program implementation via six-monthly supervision missions (or as needed) that will include results, reflection and planning meetings with project proponents and beneficiaries. This will happen within the framework of regular monitoring and evaluation (M&E) procedures established during the project's inception phase.

The project implementation unit will include a designated MEL specialist to support the monitoring, evaluation and learning (MEL) of the overall project and of the project sites where nature-based seawalls will be built under Output 2.1, by undertaking quarterly site visits to project sites. For the individual seawalls, ongoing M&E will be the responsibility of PMU with oversight and quality assurance from SPC in coordination with the MoAW extension offices. E&S issues will be incorporated into the monitoring, evaluation and reporting of projects and activities. Annual performance reports and end of project closure reports will include updated information on E&S risks, and this information will be reported to SPC and the AF.

In order to sustain the benefits to vulnerable groups in the targeted communities, the project will monitor indicators that incorporate gender equity and women empowerment measures for follow-up during project implementation and will ensure that project reports provide and emphasize gender disaggregated data. This M&E system will be aligned with the various policies and results frameworks of AF, the Fiji DA, SPC and the project itself. The MEL officer will work with the PMU to develop MEL tools, approaches and reporting arrangements for sub-projects. This will include annual performance reports.

The CFU will be responsible for coordinating the independent mid-term and terminal evaluations, guiding SPL technical inputs to align with AF requirements. The evaluations will be conducted using a question-driven approach, and may include assessments against the criteria of relevance, effectiveness and sustainability, among others. The Mid Term Evaluation will be instrumental in contributing – through operational and strategic recommendations – to improve implementation, setting out any necessary corrective and adaptive management measures for the remaining period of the project, and identifying relevant lessons learned for stakeholders in Fiji as well as the broader Pacific region. The Terminal evaluation will assess the relevance of the intervention, its overall performance, as well as sustainability and scalability of results, differential impacts and lessons

learned. Both evaluations will contribute to the evidence base for adaptation to climate change in Fiji and across the Pacific region and will be published on the SPC website and other relevant platforms.

The evaluation will draw on mixed-methods, using qualitative methods (e.g. participatory rural appraisal) in combination with counterfactual analysis, depending on the existence of reliable control group data from the project's baseline and end-line surveys. In addition to primary data collected by the evaluators and secondary national data, both interim and final evaluations will draw on the monitoring reports and activities prepared by project staff. Careful attention will be paid to the disaggregation of data, results and outcomes by gender. The interim evaluation will be undertaken when delivery reaches 50% of the initial total budget and/or mid-point of scheduled project duration. The independent Terminal Evaluation will be launched within six months prior to the actual completion date of the project. The budget M&E Plan is presented in Table 20 below.

M&E Activity	Responsible Party(ies)	Deliverable	Budget		Timeframe
			USD	Source	
Inception workshop Gather all key project stakeholders, establish committees and define first annual work plan an budget	SPC, PMU	Inception report	10,000	Fee	Project start
Quarterly monitoring activities Gathering of project level results-based information at output and outcome level	M&E Officer	Progress report	37,500	PEC	Quarterly
Environmental, social and gender safeguards monitoring. Data gathering and tracking against the AF ES Policy and gender policy ensuring compliance against mitigation measures of the ESMP, including corrective actions taken if applicable.	ESS and Gender Officer	ESMP and gender report	37,500	PEC	Annually
Supervision missions IE travel to country to carry out supervision mission, providing assessment of project progress and needs.	SPC	Mission report	75,000	Fee	Annually
Audit Annual independent audit to assess project financial statements and ensure compliance with AF and SPC financial policies as well as the grant agreement.	Independent firm	Audit report	40,000	PEC	Annually
Project Performance Reports (PPR) Compilation of all data and information required for the development and submission of PPRs om alignment with AFs Evaluation Framework.	PMU and SPC	Project Progress Report	25,000	Fee	Annually
Mid-term Evaluation Independent evaluation conducted to assess project progress and provide recommendations for enhancement	SPC	Mid-term Report	30,000	Fee	Mid-point
Terminal/final Evaluation Independent evaluation conducted to assess project effectiveness and evaluate strengths and weaknesses, providing recommendations to SPC and the GoN for future implementation	SPC	Terminal Evaluation Report	35,000	PEC	End of project
TOTAL			**290,500**		

Table 20 Budgeted M&E Plan

Grievance mechanism

A grievance is a concern or complaint raised by community members and stakeholders related to the perceived or actual impacts of the project activities. The objectives of setting up an appropriate

grievance mechanism process are to:

1. Provide stakeholders with a clear process for providing comment and raising grievances.
2. Allow stakeholders the opportunity to raise comments/concerns anonymously.
3. Structure and manage the handling of comments, responses, and grievances in a timely manner.
4. Ensure that comments, responses, and grievances are handled in a fair and transparent manner and in line with local and national policies.

SPC Grievance Redress Mechanism

SPC has a Grievance and Redress Mechanism in place to ensure that complaints are being promptly reviewed and addressed by the responsible units (see https://www.spc.int/accountability). This process aims to address complaints from affected stakeholders, including communities, about the social and/or environmental performance of the project, and to take measures to redress the situation, where necessary. For the process to be efficient, project stakeholders have to be properly informed that SPC has such a mechanism established, and how they can access to it to settle their grievance.

The SPC GRM is operated through a web-hosted page on SPC site for the expression of concerns or complaints, which can be posted by email with the information in using the complaints' template (Please see Annex IV of SPC's GRM on SPC website). Concerns expressed shall be received by the legal team who will reach out internally, primarily to the division in charge of the project or to relevant division. Grievances will be sorted out through a conflict resolution process. In case this process is not functional, other process will be used, such as a compliance system, the overall objective being to address and redress project stakeholders' grievances in the most simple and efficient manner.

Project-level Grievance Redress Mechanism

SPC is committed to receiving any concerns or grievances from an affected community about the environmental and social plans or performance of activity under the proposed project. In that direction, communities and stakeholders will be sensitised about the existing grievance process and form, this will include offline information that will be posted in hard copy at each project site. AF Designated Authority will be responsible for supporting the communities with the information they need to properly submit a grievance letter. The DA and Executing Entities are taking part in the grievance and redress mechanism through documenting grievances and coordinating with SPC the process to settle the grievances. For the proposed project, there are several processes to submit project related grievances to account for access needs of target beneficiaries or stakeholders:

1. An email can be sent to SPC through the online process as per the guidance provided on https://www.spc.int/accountability.
2. Contact the AF Designated Authority via email or for those without access to email they can submit a letter to the AF Designated Authority directly. This allows for anonymity as required and enables those without internet access to file a grievance discretely and safely. Instructions for this grievance mechanism will be posted alongside site level ESMPs at each site and also on the notice board of the DA and MOAW offices.
3. Bring up the complaint during the project update meetings or community awareness meetings. The complaint then must be directed to the AF Designated Authority who will then forward to the SPC legal team. This provides a second avenue for those without access to internet to file a complaint.
4. Mail can be addressed to the MoAW or the DA, which will then be forwarded to SPC as appropriate.

The AF Designated Authority will receive and register the grievance and will contact SPC legal team through a proactive outreach. He/she will provide an initial response within two business days to the person who submitted the grievance to acknowledge the grievance and explain that the grievance will be logged onto the SPC GRM. As a first timeframe, a response will be provided to the complainant within a two-month period, with indication of appropriate process to address the grievance. This duration should be sufficient to screen the complaint, outline how the grievance will be processed, screen for eligibility as well as assign organisational responsibility for proposing a response. This response will propose a methodology to reach an agreement and address the

complainant's concerns. This process will possibly involve engaging with other project stakeholders to resolve the issue. SPC GRM is responsible to inform the complainant that he/she has the right to pursue other options to resolve the complaint if unsatisfied after the SPC GRM process, noting that the GRM may respond to questions from the complainant, but does not constitute an advisor or attorney for the complainant. All grievances will be recorded, and these records will be kept at a secure place for up to three years after the end of the project.

E. Results Framework

Result level	Indicators	Baseline	**Targets** (end of project)	Means of verification	Assumptions
Objective: The climate resilience and adaptive capacity of Fijian communities is enhanced thanks to the construction of nature-based seawalls, protecting lives, assets and livelihoods under predicted climate change scenarios	Number of beneficiaries with increased adaptive capacity, resilience and protection from climate change impacts	0	Direct beneficiaries: 2,466 people (0.27% of total population) 1,258 men 1,208 women Indirect beneficiaries: (30,000 3.2% of total population)	Project-level M&E APRs Mid-term review Terminal Evaluation	Direct beneficiaries' numbers have been calculated considering AF core indicators and defined as receiving direct support from project interventions. These direct beneficiaries include: MoAW staff, members and leaders of vulnerable communities in the 14 project sites, population of the 14 villages protected by the construction of NbSs Indirect beneficiaries have been calculated assuming improved technical and operational capacity of MoAW will enable outreach and provision of assistance to coastal communities Fiji amounting to an additional 30,000 people Men to women ratio in Fiji is 1:1 (50%)
Outcome 1. Strengthened awareness and knowledge of resilient coastal management and NbS for coastal protection	Number of local stakeholders (MoAW agents and communities) with increased awareness and technical capacity to plan, implement and monitor nature-based adaptation solutions (gender disaggregated)	0	MoAW staff members 57 staff 14 community leaders (at least 50% female)	Training reports Attendance lists	MoAW staff are available to participate in the training sessions Women participation in technical training is as high as 50% There are no COVID-19 outbreaks preventing in-person training
Output 1.1. Strengthened capacity to capture lessons and disseminate knowledge related to nature-based seawalls benefits	Percentage of targeted population reporting increased awareness of projected climate change impacts, and improved capacity to identify, plan and implement adaptation and NbS solutions	0	100% (57 MoAW staff and 2,466 people)	Meeting minutes Attendance lists APRs Mid-Term and Terminal evaluations	MoAW national and subnational agents and government partners are willing to endorse the improved SOPs and gap assessment report recommendations Sufficient budgetary allocation from GoF to ensure the sustainable implementation of the recommendations in the long term
	Number of assessments and recommendations	0	1 gap assessment report developed and associated	Improved SOPs	

Result level	Indicators	Baseline	Targets (end of project)	Means of verification	Assumptions
	developed to support the delivery of adaptation solutions at the local level		recommendations for MoAW processes Improved set of SOPs Improved data collection, management, storage and dissemination standards	Meeting minutes Improved standards for data collection, management and storage	
Outcome 2. Reduced vulnerability of coastal communities, livelihoods and infrastructure through NbS	Number of risk-exposed population with reduced exposure to identified climate change impacts through the construction of NbSs	0	2,466 people 1,258 men 1,208 women	Site visits reports APRs Mid-term and terminal evaluations Training reports Attendance lists and meeting minutes	Willingness of vulnerable community members and leaders to provide continued consent for material mobilization and the provision of unskilled labour No major climate event (Category 3 or above) impacts the project sites until construction MoAW staff have adequately endorsed the improved SOPs and processes and are willing and able to share knowledge with communities
Output 2.1. Nature-based seawalls established for long-term climate resilience	Number of resilient, nature-based infrastructure built	0	14 nature-based seawalls (4,320 meters of seawalls combined)	Site visits reports Work completion reports APRs Mid-term and terminal evaluations Technical design reports	Continued implication and consent from communities to provide unskilled labour and construction materials (boulder and clay, vetiver silts)
	Number of people with technical capacity to carry out regular upkeep and maintenance on NbSs	0	420 people (30 people in each target community)	Site visits reports Training reports Attendance lists	MoAW staff have adequately endorsed the improved SOPs and processes and are willing and able to share knowledge with communities

F. Alignment with AF Results Framework

Project Objective(s)[99]	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
The climate resilience and adaptive capacity of Fijian communities is enhanced thanks to the construction of nature-based seawalls, protecting lives, assets and livelihoods under predicted climate change scenarios	Number of Fijians with increased adaptive capacity and resilience to identified climate change impacts of TCs, sea level rise and floods (gender disaggregated)	**Outcome 3**: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level **Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses Output 4: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	**3.1.** Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses **3.2.** Percentage of targeted population applying appropriate adaptation responses **2.1**. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased 4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	5,000,011
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	Grant Amount (USD)
Outcome 1. Strengthened awareness and knowledge of resilient coastal management and NbS for coastal protection	Number of national and sub-national MoAW agents with increased technical and operational capacity to implement climate resilient, nature-based solutions at the local level (gender disaggregated)	**Output 3.2:** Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning **Output 2.1:** Strengthened capacity of national and sub-national centers and networks to respond rapidly to extreme weather events	**3.2.1** No. of technical committees/associations formed to ensure transfer of knowledge **3.2.2** No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders **2.1.1.** No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	630;600
Outcome 2. Reduced vulnerability of coastal communities, livelihoods and infrastructure through NbS	Number of risk-exposed beneficiaries protected by nature-based seawalls (gender disaggregated)	**Output 1.2:** Targeted population groups covered by	**1.2.1.** Percentage of target population covered by adequate risk-reduction systems	4,369,411

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

		adequate risk reduction systems 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)	

G. Detailed budget

Activities	Cost Category	Notes and Assumptions	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
Outcome 1: Strengthened awareness and knowledge of resilient coastal management and NbS for coastal protection								**$630,600**
Activity 1.1.1: Awareness raising and community engagement consultation across all sites	**Consultants**	- Preparation of training modules and presentation (15 days for international consultant and 20 for national consultant) in Year 1 - Delivery of training, facilitation of workshops for national consultant (16 days in Year 1, 18 days in Year 2, 1 day in Year 4 and 1 day in Year 5) - Conduct of stakeholder consultations at target sites (30 days for national consultant) in Year 1 - Preparation of Communities of Practice programme and synthesized reports of findings (30 days for national consultant) in Year 2 and Year 5	$24,000	$4,500			$4,500	$33,000
	Workshops	- 14 one-day workshops (1 per target site) for training in Year 1 (30 people each) - 14 one-day focus groups (1 per target site) for consultations in Year 2 (30 people each) - 2 one-day annual Communities of Practice workshops (one in Year 2 and one in Year 4) (20 people each) - 2 one-day annual Inter-province workshsops (one in Year 2 and one in Year 5) (60 people each)	$21,000	$29,000		$2,000	$6,000	$58,000
	Personnel costs	See personnel cost table below	$10,833	$10,833	$10,833	$10,833	$10,833	$54,167
	Travel	Travel for international consultant (international travel in Year 1) and national consultant and 2 MoW extension officers (national travel Year 2, 4 and 5) DSA for international consultant (15 days in Year 1) + national consultant (16 days in Year 1, 18 days in Year 2, 1 day in Year 4 and 1	$16,200	$6,600		$4,000	$4,000	$30,800

Activities	Cost Category	Notes and Assumptions	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
		day in Year 5 for delivery and facilitation of trainings and workshops) + 2 MoW extension officers (for attendance and facilitation in CoP meetings and interprovince meetings)						
Activity 1.1.2: Institutional strengthening of extension structures	**Consultants**	- Development of SOPs gap analysis and assessment (40 days for international consultant, 20 days for national consultant) in Year 1 - Development of improved SOPs and guidelines (40 days for international consultant, 20 days for national consultant) in Year 2 - Development of training modules and presentation on improved SOPs (30 days for national consultant) in Year 3	$30,000	$30,000	$9,000			$69,000
	Workshops	One-day training workshop gathering staff from the 5 MoW extension structures (from Year 1 to 3) (HQ + regional offices = 20 staff total) e.g. 50% of staff count in regional offices + 5 staff from HQ + consultant	$1,050	$1,050	$1,050			$3,150
	Travel	Travel for international consultant (in Year 1), national consultant (in Year 1, 2 and 3) and MoW extension officers (20 people in Year 2) DSA for international consultant (40 days in Year 1) + national consultant (20 days in Year 1, 20 days in Year 2, 30 days in Year 3) + MoW extension officers (1 day per year in Year 1, 2 and 3 for 20 people)	$40,000	$29,000	$31,000			$100,000
	Personnel costs	See personnel cost table below	$10,833	$10,833	$10,833	$10,833	$10,833	$54,167

Activities	Cost Category	Notes and Assumptions	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
Activity 1.1.3: Strengthen data collection and storage principles to enhance data use for improved learning	**Consultants**	- Gap assessment of data collection and management tools (40 days for international consultant, 20 days for national consultant) in Year 1 - Updated data collection and management tools and indicators, storage and sharing standards (40 days for international consultant, 20 days for national consultant) in Year 1 - Preparation of training modules and presentation on updated data collection, management and storage approaches (60 days for national consultant including 3 days of training delivery, one day per year in Year 3, 4 and 5)		$60,000	$6,000	$6,000	$6,000	$78,000
	Workshops	One-day annual training workshop for MoW extension officers at HQ in Suva (HQ + regional offices = 20 staff total) e.g. 50% of staff count in regional offices + 5 staff from HQ + national consultant			$1,050	$1,050	$1,050	$3,150
	Travel	National travel + DSA for MoW regional extension officers (15 people from regional offices, 5 already in Suva) to HQ in Suva and DSA for national consultant for delivery of training modules in Year 3, 4 and 5 for a day			$31,000	$31,000	$31,000	$93,000
	Personnel costs	See personnel cost table below	$10,833	$10,833	$10,833	$10,833	$10,833	$54,167
Outcome 2: Reduced vulnerability of coastal communities, livelihoods and infrastructure through NbS								**$4,369,411**
Activity 2.1.1. Conduct baseline technical surveys and refine context specific NbS seawall specifications and management plans.	**Consultants**	- Development of technical, baseline surveys and assessments for NbS seawalls (5 days per target site) for international consultant (4 sites per year from Year 2 to year 5) - Development of seawalls technical specifications and final engineering design plans (5 days per target site for international consultant) - 4 sites per year from year 2 to 5 - Environmental and Social risk screening and		$171,000	$171,000	$171,000	$171,000	$684,000

Activities	Cost Category	Notes and Assumptions	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
		development of project-level baselines (5 days per target site for national consultant) - 4 sites per year from Year 2 to Year 5						
	Personnel costs	See personnel cost table below	$15,833	$15,833	$15,833	$15,833	$15,833	$79,167
	Travel	Travel for international consultant (international travel in Year 2, 3, 4 and 5) and national consultant (national travel in Year 2, 3, 4 and 5) DSA for international consultant (40 days per year from Year 2 to Year 5) + national consultant (20 days per year from Year 2 to Year 5)		$16,000	$16,000	$16,000	$16,000	$64,000
Activity 2.1.2. Construction of NbS seawalls at target sites.	**Materials**	14 sites in total Seawalls in Viti Levu: 5 sites Seawalls in Vanua Levu: 8 sites Islands: 1 (Koro) Assuming 3-4 seawalls built per year. Detailed costs from MoW		$833,978	$833,978	$833,978	$833,978	$3,335,911
	Personnel costs	See personnel cost table below	$15,833	$15,833	$15,833	$15,833	$15,833	$79,167
Activity 2.1.3. Training of trainers for seawalls construction, operation and maintenance	**Consultants**	- Development of Operations and Maintenance Manuals for each target site (30 days for national consultant) across Year 2 to Year 5 - Development and delivery of training modules on O&M for communities (30 days for national consultant) across Year 2 to Year 5		$4,200	$4,200	$4,200	$4,200	$16,800
	Workshops	One-day workshop on regular upkeep and maintenance of seawall structures for communities (assuming 30 people per workshop per target site, 4 sites per year)		$6,000	$6,000	$6,000	$6,000	$24,000

Activities	Cost Category	Notes and Assumptions	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
	Travel	Travel for national consultant (national travel from Year 2 to Year 5 for delivery of O&M trainings) DSA for national consultant (4 days per year from Year 2 to Year 5)		$1,800	$1,800	$1,800	$1,800	$7,200
	Personnel costs	See personnel cost table below	$15,833	$15,833	$15,833	$15,833	$15,833	$79,167
			$212,250	**$1,273,128**	**$1,192,078**	**$1,157,028**	**$1,165,528**	**$5,000,011**
Project Execution costs								
Project Coordinator	Personnel costs	See personnel cost table below	$10,000	$10,000	$10,000	$10,000	$10,000	$50,000
Monitoring and Evaluation Officer	Personnel costs	See personnel cost table below	$7,500	$7,500	$7,500	$7,500	$7,500	$37,500
ESS and Gender Officer	Personnel costs	See personnel cost table below	$7,500	$7,500	$7,500	$7,500	$7,500	$37,500
Technical Engineer	Personnel costs	See personnel cost table below	$7,500	$7,500	$7,500	$7,500	$7,500	$37,500
Administrative Assistant	Personnel costs	See personnel cost table below	$7,500	$7,500	$7,500	$7,500	$7,500	$37,500
Procurement and Finance Officer	Personnel costs	See personnel cost table below	$7,500	$7,500	$7,500	$7,500	$7,500	$37,500
Audit	Consultants	Annual cost for independent Audit Firm to carry out audits as per AF requirements.	$8,000	$8,000	$8,000	$8,000	$8,000	$40,000
Terminal Evaluation	Consultants	Cost for recruitment of qualified evaluator(s) to conduct Terminal Evaluation in alignment with AF requirements.					$35,000	$35,000
Project Execution costs (>9.5%)			**$55,500**	**$55,500**	**$55,500**	**$55,500**	**$90,500**	**$312,500**
Total project cost								**$5,312,511**
Project Cycle Management fee								
Direct project supervision from IE			$45,000	$45,000	$45,000	$45,000	$45,000	$225,000
Inception workshop			$10,000					$10,000

Activities	Cost Category	Notes and Assumptions	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
Travel			$15,000	$15,000	$15,000	$15,000	$15,000	$75,000
IE financial and fiduciary compliance			$8,000	$8,000	$8,000	$8,000	$10,000	$42,000
Mid-Term Evaluation					$30,000			$30,000
Annual Progress Reports (APRs)			$5,000	$5,000	$5,000	$5,000	$5,000	$25,000
Technical reports			$3,000	$3,000	$3,000	$3,000	$3,000	$15,000
Administrative costs			$5,900	$5,900	$5,900	$5,900	$5,889	$29,489
Project Cycle Management fee charged by the Implementing Entity (>8.5%)			**$91,900**	**$81,900**	**$111,900**	**$81,900**	**$83,889**	**$451,489**
Total project cost with fee								**$5,764,000**

Constants

Constants	USD
International consultant/day	600
National consultant/day	300
Workshop cost per person (catering and venue hire included)	50
Travel (international consultant)	3,000
Travel (national)	1,000
DSA (all)	200

Personnel costs

Personnel costs (annual)	Annual cost	Total cost	Allocation
Project Coordinator	$20,000	$100,000	50% for Outcome 1 and 2
			50% on PEC
Monitoring and Evaluation Officer	$15,000	$75,000	50% for Outcome 1 and 2
			50% on PEC
ESS and Gender Officer	$15,000	$75,000	50% for Outcome 1 and 2
			50% on PEC
Technical Engineer	$15,000	$75,000	50% on output 2.1 in Outcome 2

			50% on PEC
Administrative Assistant	$15,000	$75,000	50% for Outcome 1 and 2
			50% on PEC
Procurement and Finance Officer	$15,000	$75,000	50% on Output 2.1 in Outcome 2
			50% on PEC

H. Disbursement schedule

Budget type	Year 1	Year 2	Year 3	Year 4	Year 5	Total (US$ millions)
Activities cost	$212,250	$1,273,128	$1,192,078	$1,157,028	$1,165,528	$5,000,012
Execution cost	$55,500	$55,500	$55,500	$55,500	$90,500	$312,500
Project Cycle Management fee charged by the Implementing Entity	$91,900	$81,900	$111,900	$81,900	$83,889	$451,489
TOTAL	$359,650	$1,410,528	$1,359,478	$1,294,428	$1,339,917	$5,764,000

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:

Mr. Kushaal Raj Director Climate Change Division Office of the Prime Minister	Date: August 10th, 2023. 

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 of Fiji 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 Dirk Snyman Climate Finance Coordinator The Pacific Community 	
Date: 20/08/2023	*Tel. and email: dirks@spc.int*
Project Contact Person: *Jack Rossiter* *Climate Finance Advisor* *The Pacific Community*	
Tel. And Email: jackr@spc.int	

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 IV – Letter of Endorsement

Letter of Endorsement by Government

10 August, 2023

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: afbsec@adaptation-fund.org
Fax: 202 522 3240/5

Subject: Endorsement for the Project 'Strengthening the Adaptive Capacity of Coastal Communities in Fiji to Climate Change through Nature-Based Seawalls'

In my capacity as designated authority for the Adaptation Fund in Fiji, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Pacific Community and executed by the Government of Fiji.

Sincerely,

Mr Kushaal Raj
Director - Climate Change Division

Annex I – Environmental and Social Management Plan

1 Introduction

1.1 Project Overview

1.2 Purpose of ESIA

This Environmental and Social Impact Assessment and Management Plan (ESMP) has been prepared to document the environmental and social risks and impacts presented by the Project as a whole and sets out the associated mitigation and management measures that will be implemented as part of project delivery at the individual site level.

Project screening based on field investigations, stakeholder meetings and a desktop study of similar projects in the region as well as a review of potential options confirms an assessment of Category B for the Project. It finds that potential impacts are less than significant, site specific, mostly reversible and that a range of potential measures for mitigation can be readily designed in the majority of cases. In accordance with the Adaptation Funds (AF) Environmental and Social Safeguard (ESS) policy, an environmental assessment was required to adequately screen and assess potential environmental and social impacts, and to prepare an ESMP.

Therefore, this ESMP has been produced to ensure the integration of environmental and social stewardship into the Project as required by relevant Fijian laws and regulations and the Environmental and Social Safeguards Principles of the Adaptation Fund.

At this stage of project preparation, there are still some unknowns such as the final site specific design elements for the targeted sites, the existing vegetation at the proposed quarry sites and the site specific metocean conditions to inform the final design specifications. Therefore this ESMP also provides guidance for further site specific assessments and management planning required to understand all foreseeable risks and impacts and provides the relevant suite of mitigation measures.

1.3 Integration of ESIA

It is the responsibility of SPC as the Implementing Entity (IE) and the Ministry of Agriculture and Waterways (MoAW) as Executing Entity (EE) to ensure that the ESMP is fully integrated into the Project. It is the IE's responsibility that proper processes and monitoring is in place to ensure the Project is delivered with no significant negative environmental or social impact.

SPC and MoAW will:

- Ensure that all relevant government employees and contractors are sensitized on aspects of the plan and received appropriate training to fulfil their individual environmental and social responsibilities;
- Ensure that the necessary resources and skills are retained to successfully carry out all requirements of this ESMP;
- Formally monitor and report on the environmental and social performances of all activities;
- Require that contract services manage their environmental and social performance in line with this ESMP.

MoAW will also coordinate the Project Management Unit (PMU) to:

- Continually monitor and report as needed issues related to social and environmental risk;
- Raise awareness amongst target communities on the Environmental and Social Policy of the AF and this ESMP.

The ESMP shall form part of any bid documentation or Terms of Reference (TOR), and it shall be the IE's responsibility to ensure that ALL procurement documents and contractual specifications are subject to review against this ESMP to ensure that all appropriate safeguard measures are captured at the bid stage and in all contracts.

It is further the responsibility of the IE's to ensure that this ESMP is considered in review of any TOR for Technical Assistance developed for the Project. The safeguard requirements for any

design or supervision of the Project will be fully integrated into TOR to ensure that all safeguard responsibilities allocated within the ESMP are realized at the tender stage.

In this way, the ESMP will be fully integrated within the Project so that the required measures will be fully appreciated by all responsible parties and successful implementation will be achieved.

2 Project Description

2.1 NbS Site Selection

The MoAW have identified 14 vulnerable coastal communities who will be the beneficiaries of the nature-based seawalls to enhance their resilience to increased climate impacts. All 14 sites are indigenous I-Taukei communities with historical connection to the land, subsistence economic activities, and demonstrated climate vulnerability. These 14 were selected based on their climate vulnerability, technical analysis of the suitability of the intervention, and willingness to support project design and implementation.

Figure 19 Map of proposed seawall locations

The MoAW has a policy that establishes a foundation for the provision of coastal protection activities and identifies procedures for programme delivery. In the initial stage, affected communities/villages submit a written request for coastal protection work to the MoAW through Divisional Office (DO), or Provincial Council Office (PCO). The 14 villages in this proposal each wrote to the DO's office requesting assistance from the MoAW for an NbS.

Under the Ministry's Coastal Protection Policy, the selection criteria explain the climate vulnerability matrix used for selection of communities. After receiving the written request, a detailed scoping was carried out by the MoAW technical team. MoAW investigated the applying communities based on the MoAW emergency rating indicators. The risk matrix considers 5 important factors: (i) distance from king tide to nearest infrastructure, (ii) percentage of coastal vegetation available, (iii) frequency of cyclones per year, (iv) frequency of storm surges per year and (v) number of infrastructures affected.

Furthermore, for the selection of the site the availability of resources for a successful seawall construction is considered. MoAW investigated the availability of raw materials based on the MoAW investigative rating indicators. The material availability scoring considers 5 important factors: (i) boulder availability – minimum 1.2m, (ii) availability of mangrove seedling, (iii) availability

of vetiver seedlings, (iv) availability of skilled and unskilled labour and (v) availability of backfill materials.

All 14 sites were scored as being exposed to extreme or high climate risk, but as having excellent or good material availability.

2.2 Site Descriptions

The following sections describe the profile of the 14 selected project communities.

2.2.1 Vanua Levu

2.2.1.1 Qaranivai Village

SITE DESCRIPTION: The Qaranivai village which is located on the Northern Coastline of Vanua Levu. It has a population 96 (48 male, 48 female). The villagers engage in fishing generating a daily income of approximately FJD$30. The village also engages in root crops and yaqona which is for export purposes generating approximately FJD$20,000 per year. The seawall is proposed to be in the location shown in Figure 20. The site profile is shown in Figure 21.

Figure 20: Proposed extent of NbS at Qaranivai Village.

Figure 21: Project site at Qaranivai Village.

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 2km of the project site, backfill materials within 0.5km of the site and

natural mangroves to source seedlings within 0.5km of the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: Wave action has eroded a huge portion of the shoreline, it has been noted that the village shoreline is continuing to be eroded and Shoreline gradient is mild. The coastal shoreline eroded areas are about 30m to the nearest house. According to the Turaga ni Koro their main concern is the village shoreline side which, before, the service bus used as a roundabout, and people use as their boat landing area when traveling to the Tikina of Udu
IMPACT ON RESILIENCE: The 100 metres NbS at Qaranivai village will protect 12 residential houses, 1 village hall and 1 church. Additionally, the project will provide security to 20 acres of village residential area, 1000 acres of land under agriculture with a possibility of the mataqali to expand into the total 2175 acres of mataqali land. The village produces cassava, dalo, vudi, breadfruit, cabbage, lettuce, bean, tomato, cucumber, and ginger for income. The village also relies heavily on fishing and yaqona production. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.1.2 Sogobiau Village

SITE DESCRIPTION: The Sogobiau village which is located on the Eastern Coastline of Vanua Levu with a population 28 (20 male, 8 female). There are 10 subsistence fishermen residing in the village. The villagers engage in fishing generating a daily income of approximately FJD$400 every three weeks. The seawall is proposed to be in the location shown in Figure 22. The site profile is shown in Figure 23.

Figure 22: Proposed extent of NbS at Sogobiau Village

Figure 23: Project site at Sogobiau Village

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 2km of the project site, backfill materials within 0.5km of the site and natural mangroves to source seedlings within 300m of the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The village have vulnerable threats of sea-level rise, inundation of tides, increased intensity of storm surges and coastal erosion. An approximate 10 meters of coast has eroded since the year 2000 and the village has lost precious limited land due to severe erosion along the coast due to the heavy impact of wave surges at the main village frontage for housing. During the site visit, it was observed that during spring high tide and cyclones, the saltwater intrudes into 4 houses. However limited land area restricts village expansion. The site requires 250m of NbS and 1km of drainage works within the village.

IMPACT ON RESILIENCE: The 250 metre NbS at Soqobiau village will protect 9 houses and 1 church. Additionally, the project will provide security to 10 acres of village residential area, 30 acres of land under agriculture with a possibility of the mataqali to expand into the total 200 acres of mataqali land. The village produces cassava, kawai, yam, vuci for income. The village also relies heavily on fishing and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.1.3 Visoqo Village

SITE DESCRIPTION: The Visoqo village which is located on the Eastern Coastline of Vanua Levu with a population 100 (53 male, 47 female). There are 20 subsistence workers in the village with their main source of income coming from fishing and Yaqona farming. There are 6 piggery farms located in the village. The villagers engage in fishing, generating a daily income of approximately FJD$200 per week. Additionally, the sales from the Yaqona farm amount to FJD$2,000 per month per farmer. The seawall is proposed to be in the location show in Figure 24. The site profile is shown in Figure 25.

Figure 24: Proposed extent of NbS for Visoqo Village.

Figure 25: Project site at Visoqo Village

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 2km of the project site, backfill materials within 2km of the site and natural mangroves to source seedlings within 300m of the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The village has vulnerable threats of sea-level rise, inundation of tides, increased intensity of storm surges and coastal erosion. An approximate 10 metres of coast has eroded since 2002 and the village has lost precious limited land due to severe erosion along the coast due to the heavy impact of wave surges at the main village frontage for housing. During the site visit, it was observed that during spring high tide and cyclones, the saltwater intrudes into 6 houses and the limited land area restricts village expansion. To solve this problem as in 1998, the villagers of Visoqo endeavoured to construct a low existing stone masonry seawall. The level is very low and the wall is submerged during high tide. The site requires 150m of NbS.

IMPACT ON RESILIENCE: The 150 metre NbS at Visoqo village will protect 22 residential houses, 1 church, 1 hall, 1 Nursing station, 1 playing field and 4 govt qrts. Additionally, the project will provide security to 12 acres of village residential area, 60 acres of land under agriculture with a possibility of the mataqali to expand into the total 400 acres of mataqali land. The village produces cassava, taro, yam vuci, sweet potato, cabbage, lettuce, beans, tomato, cucumber, and eggplants for

income. The village also relies heavily on fishing, yaqona and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.1.4 Namama Village

SITE DESCRIPTION: The Namama village is located on the Northern Coastline of Vanua Levu in the tikina of Seaqaqa and the province of Macuata. It is about 15 minutes' drive from Seaqaqa shopping centre and has a population 48 (25 male, 23 female). In the village, all are farmers or fishermen.

The villagers engage in fishing, generating a daily income of approximately FJD$30-$200. Additionally, vegetables and root crops are grown for home consumption only. The seawall is proposed to be in the location shown in Figure 26. The site profile is shown in Figure 27.

Figure 26: Proposed extent of the NbS for Namama Village.

Figure 27: Project site at Namama Village

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within a few meters of the project site, backfill materials within 1km of the site and natural mangroves to source seedlings just beside the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes a long time to dry out which also causes damages to the backyard gardening as a result. An approximate

10 metres of coast has eroded since 1989. This coastal erosion also causes big risks to the main road which is partially washed away. During the inspection, it was observed that during high tide, the saltwater intrudes under 2 houses and floods the village compound which is at lower ground. The existing seawall which was built in 1995 is heavily degraded and the land area is limited, restricting village expansion. The site requires 60m of NbS to minimise the impact of flooding/coastal erosion.

IMPACT ON RESILIENCE: The 60 metre NbS at Namama village will protect 10 residential houses, 1 village hall and 1 church. Additionally, the project will provide security to 5 acres of village residential area, 5 acres of land under agriculture with a possibility of the mataqali to expand into the total 199 acres of village land. The village produces cassava, dalo, kumala, yam, bele, eggplants and cabbage. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.1.5 Saqani Village

SITE DESCRIPTION: The Saqani village is located on the Northern Coastline of Vanua Levu in the tikina of Saqani and province of cakaudrove. It is about 2 hours' drive from Savusavu Town with a population of 222 (120 male, 102 female). Within in the village, all are farmers or fishermen except for 2 people who are employed as schoolteachers. The villagers engage in fishing and selling copra, generating a daily income of approximately FJD$40. Additionally, the village engages in the cultivation of root crops and yaqona for export purposes, generating approximately FJD$15,000 per year. The sale of copra is also part of their economic activities. Vegetables are primarily grown for home consumption. The seawall is proposed to be in the location show in Figure 28. The site profile is shown in Figure 29.

Figure 28: Proposed extent of NbS at Saqani Village.

Figure 29: Project site at Saqani Village

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 150m of the project site, backfill materials within 1km of the site and natural mangroves to source seedlings beside the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes a long time to dry out which also causes damages to the backyard gardening as a result. An approximate 20 meters of coast has eroded since 1987. This coastal erosion also causes big risks to the nearby houses where compounds are partially washed away. During the inspection, it was observed that during high tide, the saltwater intrudes under 4 houses and floods the village compound which is at lower ground. The existing seawall which was built in 1970 is heavily degraded and the land area is limited and restricts the village expansion. The site requires 350m of NbS to minimise the impact of flooding/coastal erosion.

IMPACT ON RESILIENCE: The 350 metres NbS at Saqani village will protect 34 houses, 1 village hall, 1 church, I kindergarten, 2 government quarters, 1 playground. Additionally, the project will provide security to 7 acres of village residential area, 300 acres of land under agriculture with a possibility of the mataqali to expand into the total 2450 acres of mataqali land. The village produces cassava, dalo, kumala, bean, bele, moca and eggplants for income. The village also relies heavily on fishing, cattle, bee keeping and yaqona production. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.1.6 Sese Village

SITE DESCRIPTION: The Sese village is located on the Northern Coastline of Vanua Levu. It is about 2 and half hours' drive from Savusavu Town and has a population 176 (94 male, 82 female). Within the village, all are farmers and fishermen with the exception of three who work as school teachers. The villagers engage in fishing and selling copra, generating a daily income of approximately FJD$35. Additionally, root crops and yaqona are cultivated for export, generating approximately FJD$20,000 per year per farmer. The vegetables grown in the village are primarily for home consumption. The seawall is proposed to be in the location show in Figure 30. The site profile is shown in Figure 31.

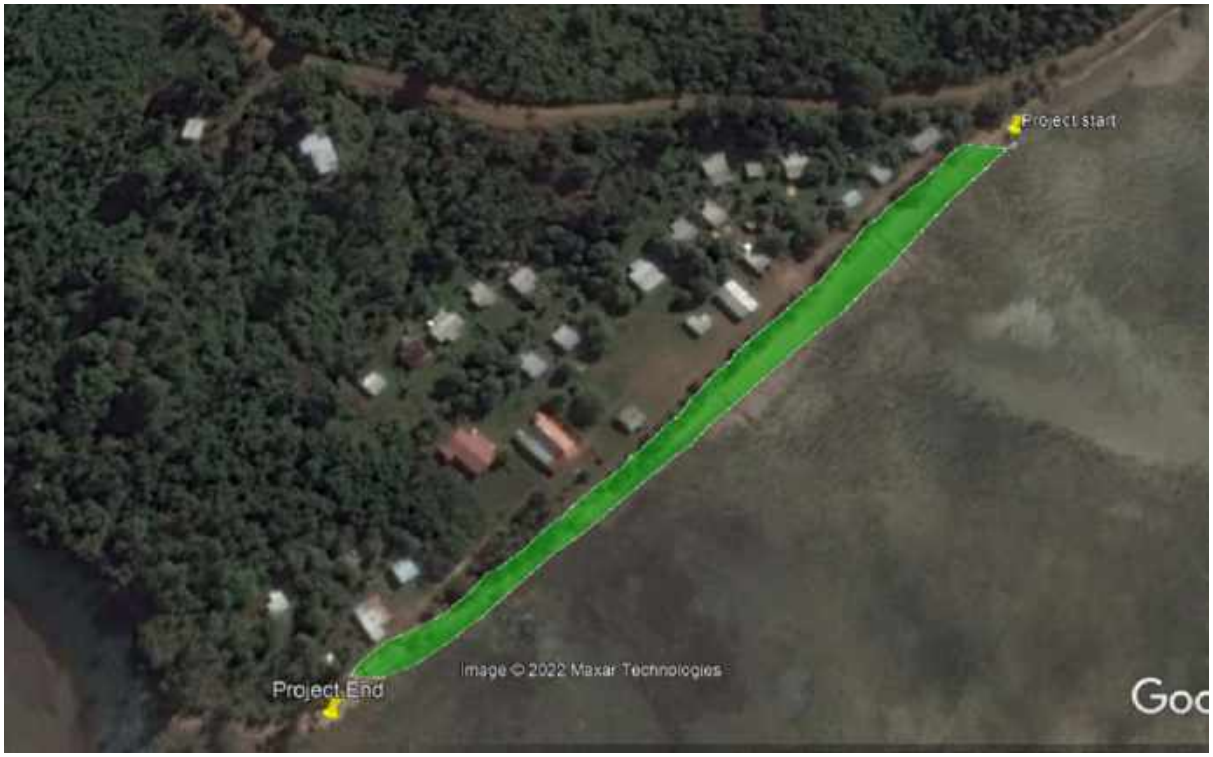


Figure 30: Proposed extent of NbS at Sese Village.


Figure 31: Project site at Sese Village

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 150m of the project site, backfill materials within 300m of the site and natural mangroves to source seedlings just beside the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes a long time to dry out which also causes damages to the backyard gardening as a result. An approximate 10 metres of coast has eroded since 1980. This coastal erosion also causes big risk to the nearby houses which are partially washed away. During the inspection, it was observed that during high tide, the saltwater intrudes and causes damages to 6 houses and floods the village compound which is at lower ground. Some houses are at the risk of collapsing into the sea due to excessive coastal erosion. The land area is limited and restricts village expansion. The site requires 400m of NbS to minimise the impact of flooding/coastal erosion.

IMPACT ON RESILIENCE: The 400 metre NbS at Sese village will protect 28 houses, 1 village hall, 1 church, 1 kindergarten, and 1 playground. Additionally, the project will provide security to 9 acres of village residential area, 300 acres of land under agriculture with a possibility of the mataqali to expand into the total 4910 acres of mataqali land. The village produces cassava, dalo, kumala, kumala, yam, vuci, bean, bele, moca, cabbage and eggplants for income. The village also relies

heavily on fishing and yaqona production. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.1.7 Tawake Village

SITE DESCRIPTION: The Tawake village which is located on the Northern Coastline of Vanua Levu with a population 96 (46 male, 50 female). There are 30 farmers residing in the village, and their main source of income is fishing. Additionally, there is a cattle farm owned by a villager, as well as eight piggery farms owned by the villagers in Tawake. The villagers engage in fishing, generating a daily income of approximately FJD$20. The village also engages in root crops and yaqona, which are for export purposes, generating approximately FJD$40,000 per year. The seawall is proposed to be in the location shown in Figure 32. The site profile is shown in Figure 33

Figure 32: Proposed extent of NbS at Tawake Village

Figure 33: Project site at Tawake Village

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 0.5km of the project site, backfill materials within 0.3km of the site and

natural mangroves to source seedlings within 0.5km of the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: According to the village headman (Turaga Ni koro) during high rainfall and spring high tides, water level goes up to 0.5m above ground level damaging community infrastructure and home gardens. Another major problem faced is coastal erosion, with Tawake village losing precious limited land due to severe erosion along the coast due to the heavy impact of wave surges at the main village frontage. During the site visit, there were 8 houses partly damaged, with the old existing seawall located at the village frontage already eroded. Further, existing drainage from the bottom of nearby slopes to the sea needs to be improved to prevent flow through community areas and causing erosion.

IMPACT ON RESILIENCE: The 280 meters NbS at Tawake village will protect 40 residential houses, 1 village hall, 1 church, 1 health centre and a playing field. Additionally, the project will provide security to 30 acres of village residential area, 40 acres of land under agriculture with a possibility of the mataqali to expand into the total 150 acres of mataqali land. The village produces cassava, vuci, breadfruit, cabbage, lettuce, beans, tomato, cucumber, and eggplants for income. The village also relies heavily on fishing, yaqona, cattle and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.1.8 Loa Village

SITE DESCRIPTION: The Loa village is located on the Northern Coastline of Vanua Levu about 2 hours' drive from Savusavu Town. It has a population 350 (206 male, 144 female). The majority are farmers and fishermen. The villagers also engage in fishing, generating a daily income of approximately FJD$40. The village also cultivates root crops and yaqona for export, generating an estimated annual income of around FJD$10,000. Vegetables and root crops are solely for home consumption. The seawall is proposed to be in the location shown in Figure 34. The site profile is shown in Figure 35.

Figure 34: Proposed extent of Loa Village NbS

Figure 35: Project site at Loa Village

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 1.5km of the project site, backfill materials within 1.5km of the site and natural mangroves to source seedlings beside the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The Loa village is suffering from enhanced coastal erosion. The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes a long time to dry out which also causes damages to the backyard garden. An approximate 15 metres of coast has eroded since 1990 and some houses are also endangered by this rapid coastal erosion.

IMPACT ON RESILIENCE: The constructed seawall will be 320 metres long in the eroded area. It will run parallel to the coast. It will protect 47 residential houses, 1 church, 5 acres of village residential land and, 30 acres of agricultural land from ongoing coastal erosion and saltwater intrusion. It will enhance income through reduced erosion, eliminating saltwater intrusion and improving soil quality for better crop yields.

2.2.2 Viti Levu

2.2.2.1 Tagaqe Village

SITE DESCRIPTION: Tagaqe village which is located on the Western Coastline of Viti Levu about 20 km from Sigatoka Town. It has a population 383 (174 male, 209 female). The majority of the village members speak the Nadrogan dialect. 90% of the village members can speak English while 10 can speak Fiji-Hindi. The majority of the village engage in farming while some are working in nearby hotels. Income is generated through piggeries and agricultural activities. The seawall is proposed to be in the location shown in Figure 36. The site profile is shown in Figure 37.

Figure 36: Proposed seawall continuing from where the current seawall stands

Figure 37: Proposed Tagaqe Village NbS site

AVAILABILITY OF RAW MATERIAL: Assessments at the village have determined that there are suitable boulders within 20km of the project site, backfill materials within 2km of the site and natural mangroves to source seedlings within 1km of the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. An approximate 15 metres of coast has eroded since 1985. The village has limited land availability for housing and agriculture. Flooding of the area is due to the big catchment area that surrounds the village. The location of the village below the hills, makes it prone to flooding. During the inspection, it was observed that during high tide, the saltwater intrudes into 5 houses and the village hall. The existing seawall which was built in 1985 is heavily degraded. The land area is limited, restricting village expansion.

IMPACT ON RESILIENCE: The 400m NbS at Tagaqe village will protect 68 residential houses, 1 Church, 1 Health Dispensary, Primary School, and a Kindergarten. Additionally, the project will provide security to 6 acre of village residential area, 50 acres of land under agriculture with a possibility of the mataqali to expand into the total 2000 acres of mataqali land. The village produces cassava, dalo, yams, vuci, bananas, cabbage, bele, moca, cucumber, pineapple, watermelons, and eggplants for income. The village also relies heavily on cattle, yaqona,

horticulture, yasi, mangoes, oranges, fishing, and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.2.2 Nabila Village

SITE DESCRIPTION: Nabila village which is located on the Western Coastline of Viti Levu about 55km from Sigatoka Town. It has a population of 299 (148 male, 151 female). The majority of the villagers engage in farming which provides subsistence supports to the family. Within the village there are also 3 people employed as school teachers, 1 as a policeman and some others are hotel workers. Additional income generation within the village comes from selling fish and agricultural cash crop. The seawall is proposed to be in the location shown in Figure 38. The site profile is shown in Figure 39.

Figure 38: Proposed extent of seawall at Nabila Village

Figure 39: Proposed Nabila Village NbS site

AVAILABILITY OF RAW MATERIALS: Assessments at the village have determined that there are suitable boulders within 20km of the project site, backfill materials within 2km of the site and natural mangroves to source seedlings within 1km of the site. Vetiver grass will be provided by the MoAW

CURRENT CLIMATE VULNERABILITIES: The village gets heavily inundated with saltwater during high

tides, storm surges and cyclones. An approximate 20 metres of coast has eroded since 1985. The village has limited land availability for housing and agriculture. The big catchment area that surrounds the village and the location of the village below the hills, makes it prone to flooding. During the inspection, it was observed that during high tide, the saltwater intrudes into houses which are close to the sea. The land area is limited and restricts the village expansion). The site requires 300m of NbS to minimise the impact of coastal erosion. A drain runs through the village discharging the runoff waters from the upper catchment out to the sea.

IMPACT OF RESILIENCE: The 300 metre NbS at Nabila village will protect 195 residential houses and 2 churches. Additionally, the project will provide security to 6 acres of village residential area, 30 acres of land under agriculture with a possibility of the mataqali to expand into the total 1500 acres of mataqali land. The village produces cassava, dalo, yams, bele, bananas, kumala, sugarcane, cabbage, pumpkins, beans, tomato, cucumber, and eggplants for income. The village also relies heavily on cattle, poultry, goat, orchids, and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion, and improved soil quality for better crop yields.

2.2.2.3 Nayavutoka Village

SITE DESCRIPTION: The Nayavutoka village is located on the Western Coastline of Viti Levu about 2.5 hours' drive from Rakiraki Town. It has a population of 130 (74 male, 56 female). Within the village, the majority of workers are farmers and fishermen with a few working in nearby towns. The villagers predominantly engage in fishing, generating a daily income of approximately FJD$30 per day. The villagers also engage in root crops cultivation for home consumption with the surplus being sold to other vendors. The seawall is proposed to be in the location shown in Figure 40. The site profile is shown in Figure 41.

Figure 40: Proposed extent of Nayavutoka seawall.

Figure 41: Project site at Nayavutoka Village

AVAILABILITY OF RAW MATERIALS: Assessments at the village have determined that there are suitable boulders within 2km of the project site, backfill materials within 2km of the site and natural mangroves to source seedlings next to the site. Vetiver grass will be provided by the MoAW.

CURRENT CLIMATE VULNERABILITIES: The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes a long time to dry out which also causes damages to the backyard gardening as a result. The existing concrete has been badly damaged by the cyclones and the structures have become weak. The saltwater enters the village during king tides and cyclones, damaging the houses built near the seawall. During the inspection, it was observed that during king tides, the saltwater intrudes into more than 20 houses and floods the village compound which is just beside the project area. The site requires 520m of NbS to minimise the impact of flooding. The Village urgently needs attention to solve the coastal erosion and flooding issue as a long-term solution.

IMPACT ON RESILIENCE: The 520 metres NbS at Nayavutoka village will protect 41 residential houses, 1 community hall and 4 churches. Additionally, the project will provide security to 7 acres of village residential area, 11 acres of land under agriculture with a possibility of the mataqali to expand into the total 3000 acres of mataqali land. The village produces cassava, dalo, yams, vuci, cabbage, and watermelon for income. The village also relies heavily on cattle, yaqona, fishing and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.2.4 Saioko Village

SITE DESCRIPTION: The Saioko village is located on the Western Coastline of Viti Levu about 2.5 hours' drive from Rakiraki Town. It has a population of 190 (86 male, 104 female). Within the village, the majority are farmers and fishermen with a few people working in nearby towns. The villagers also engage in fishing, generating a daily income of approx. FJD$20 per day. The village

also engages in root crop farming. The vegetables are predominantly for home consumption with the excess being sold to other vendors. The seawall is proposed to be in the location shown in **Error! Reference source not found.**. The site profile is shown in **Error! Reference source not found.**.

Figure 42 Proposed extent of seawall for Saioko Village.

Figure 43 Proposed Saioko Village NbS site

AVAILABILITY OF RAW MATERIALS: Assessments at the village have determined that there are suitable boulders within 1km of the project site, backfill materials within 1km of the site and natural mangroves to source seedlings directly adjacent to the site. Vetiver grass is also available within the village.

CURRENT CLIMATE VULNERABILITIES: The village gets heavily inundated with saltwater during high tides, storm surges and cyclones. This causes waterlogging of village compounds and takes a long time to dry out which also causes damages to the backyard gardening as a result. An approximate 3 metres of coast has eroded since 2005 and some houses are also at risk of getting damaged by this rapid coastal erosion. Four houses were destroyed in TC Winston. During the inspection, it was observed that during high tides, the saltwater intrudes under 8 houses and floods the village compound which is just beside the project area. The site requires 360m of NbS to minimise the impact of flooding/coastal erosion. The Village urgently needs attention to solve the coastal erosion and flooding issue as a long-term solution.

IMPACT ON RESILIENCE: The 360 metres NbS at Saioko village will protect 28 residential houses, 1 community hall and 4 churches. Additionally, the project will provide security to 7 acres of village residential area, 100 acres of land under agriculture with a possibility of the mataqali to expand into the total 3000 acres of mataqali land. The village produces cassava, dalo, yams, vuci, cabbage, bele, moca, cucumber, carrots, and eggplants for income. The village also relies heavily on cattle, yaqona, fishing and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.

2.2.2.5 Nayavuira Village

SITE DESCRIPTION: Nayavuria village is located on the north eastern coastline of Viti Levu. It is part of the Western Division under the district of Nakorotubu in the province of Ra. IT is about 2.5 hours drive from the town of Rakiraki. Nayavuria has a population of 92 people (46 male, 46 female). The majority of the villagers are farmers or fishermen with a few working in nearby towns. There are four small businesses (canteens) in the village. The main source of income for the village is sasa brooms production, selling seafood, running the canteens and remittances from family overseas.

Figure 44 Proposed Nayavuria Village NbS site

AVAILABILITY OF RAW MATERIALS: Assessments at the village have determined that there are suitable boulders within 1km of the project site on mataqali land, backfill materials within 2km of the site and natural mangroves to source seedlings within 1km of the site. Vetiver grass also grows in the village.

CURRENT CLIMATE VULNERABILITIES: Severe coastal erosion has occurred with approximately 4m

of the supratidal zone has been washed away reportedly within the past decade. This has prompted 6 house to relocate uphill. During king tides, approximately half of the village within its boundary is inundated with ankle deep seawater. It is also noticeable that the mean sea level in the village is almost equivalent to the village ground level. Currently one community hall and eighteen houses are within the high risk area of the village.

IMPACT OF RESILIENCE: The total length of the seawall at Nayavuira village will be 310 meters and protect 25 houses and a community hall from the impacts of coastal flooding and storm surges. The seawall will also provide protection to an evacuation and health centre which has been renovated following damages sustained during TCs Yasa and Ana. Additionally, the seawall will prevent saltwater intrusion in 3,000 acres of Mataqali land, where subsistence crops such as cassava, yam, breadfruit, sweet potatoes and bele are grown. Inhabitants also keep livestock for income and subsistence, such as pigs, about 60 cattle, 10 goats and a bee farm.

2.2.3 Maritime

2.2.3.1 Nabuna Village

SITE DESCRIPTION: Nabuna Village is a coastal community on the northern end of Koro Island with a population of 256 people (138 female, 118 male). Within the village, the majority are farmers and fishermen. Residents also sell crops and kava, fish and individual handicrafts and key staples as taro, uvi and cassave are being sold in Suva. The site profile is shown in **Error! Reference source not found.**.

Figure 45 Site for NbS seawall installation in Nabuna Village

AVAILABILITY OF RAW MATERIALS: Assessments at the village have determined that there are suitable boulders within the village boundary, backfill materials within the 100m of the site and natural mangroves to source seedlings directly adjacent to the site. Vetiver grass is also available within the village.

CURRENT CLIMATE VULNERABILITIES: Nabuna experiences coastal flooding and severe coastal erosion, which residents attribute to intense gravel extraction along their coast used for roadworks in Koro. Nabuna was identified by the Divisional Commissioner's Office as a vulnerable coastal community to be prioritized. It was thus assessed for adaptation interventions by the Climate Change and International Cooperation Division and NDMO for suitable measures to reduce vulnerabilities and preserve vulnerabilities in the community. There are 43 households with a population of 256 to benefit from a new seawall. There are 118 males and 138 females. The existing vertical seawall is over 20 years old and severely eroded. MoAW conducted a scoping study in 2019 for upgrading the seawall. The village proposes a new seawall of 520m to protect their coast. Nabuna has a large volume of gravel which can assist during the construction of NbSs.

IMPACT ON RESILIENCE: A NbS can be considered to replace the severely eroded almost disappearing vertical seawall to prevent further erosion. The total length of the seawall will be 520 metres along the coast. The project will be carried out by the technical team of the MoAW. The NbS project involves interactive processes before it is verified and approved for implementation. Main source of livelihoods is farming of taro, kava, and vegetables. There are also individual handicrafts sold in Suva.

2.3 Land Requirements

The extent of the land required for the NbSs has been defined for each of the project sites. All seawalls will be built on the foreshore area. While the foreshore area below the high-water mark in Fiji is State Land, there may be some areas where the footprint of the seawalls which extends above the foreshore and onto iTaukei Land which belongs to the iTaukei communal groups or 'land owning units'.

The extent to which the seawalls sit on the village iTaukei Land will be determined during the detailed design development under activity 2.1.1.

In addition to access to the project site the project will also require raw materials from each village suitable to construct the seawalls themselves. Suitable sites have been identified in each village, in consultation with the community.

As part of the detailed community scoping exercises which have taken place as part of project preparation, all communities have entered into an agreement with the MoAW to allow for placement and construction of the seawall, as well as for extraction of raw materials, provision of labour and provision of other aspects of the NbS. All written permission has been received in the form of an MOU and is based on the communities' initial request to be included in this project and on detailed follow up community consultations and field surveys.

The MOU lists the following specific terms.

The MoAW agree to provide:

- Contractor and machines
- NbS design and technical specifications
- Geotextile materials
- Vetiver grass seedlings
- Vetiver and mangrove nursery guide
- Planter bags
- Consultation, awareness and on-the-job training for seawall upkeep.

The Village agrees to provide:

- Rock boulders – sourced from the Mataqali's land
- Backfill material – sourced from the Mataqali's land
- Mangrove seedlings
- Labour
- Accommodation for the Contractor
- Piece of land to set up the village vetiver and mangrove nursery
- Access road (where relevant) for the machines, contractor and government officials

The MOU also determines that the MoAW and Village mutually agree on the NbS boundaries which will be demarcated through a joint inspection.

The MOU is signed by the MoAW and the Village Representatives, i.e. Turaga ni Koro, Turaga ni Yavusa and Turaga ni Mataqali.

3 Policy, Legal and Administrative Framework

3.1 National Legislation and Regulations

3.1.1 Environment Management Act

The Environment Management Act is a legislation enacted in Fiji to safeguard and manage the country's environment. It aims to promote sustainable development and ensure the protection, conservation, and restoration of Fiji's natural resources. The Act establishes a framework for the management of environmental impacts, including pollution prevention, waste management, and biodiversity conservation. It empowers the Department of Environment to regulate and monitor activities that may have adverse effects on the environment.

The Act requires individuals, businesses, and organizations to obtain environmental permits and licenses for activities such as mining, industrial operations, and waste disposal. It establishes standards and guidelines for environmental impact assessments, ensuring that proposed projects undergo thorough scrutiny to assess their potential effects on the environment. The Act also promotes public participation and consultation during decision-making processes, encouraging input from affected communities and stakeholders.

Additionally, the Act addresses environmental emergencies and provides for the preparation and implementation of emergency response plans. It establishes penalties and enforcement mechanisms to ensure compliance with environmental regulations, including fines and potential imprisonment for violations. The Act emphasizes the need for environmental education, awareness, and capacity building to foster a culture of environmental stewardship among the public.

3.1.1.1 Environmental License

To apply for an environmental license under the Environmental Management Act, the following process generally applies:

Identify the Activity: Determine the specific activity for which you require an environmental license. This can include activities such as mining, industrial operations, waste management, or any other activity that may have significant environmental impacts.

Prepare Supporting Documents: Gather all the necessary supporting documents required for the application. This may include environmental impact assessments (EIAs), project plans, technical reports, maps, and any other relevant information as specified by the Department of Environment.

Complete the Application Forms: Fill out the application forms accurately and provide all the required information. Make sure to include all the supporting documents with the application.

Submit the Application: Submit the completed application form and supporting documents to the Department of Environment. It is advisable to keep copies of all documents for your records.

Application Review: The Department of Environment will review your application, assessing the potential environmental impacts of the proposed activity. They may consult with other relevant government agencies or experts during the review process.

Environmental Assessment: If required, an environmental assessment may be conducted, which could involve an environmental impact assessment (EIA) or any other assessments deemed necessary for the specific activity. This assessment helps evaluate the potential impacts and proposed mitigation measures.

Public Consultation: Depending on the nature of the activity, public consultation may be required. This allows affected communities and stakeholders to provide their input and concerns regarding the proposed project.

Decision and Issuance: Based on the review, assessment, and public consultation, the Department of Environment will make a decision on the application. If approved, an environmental license will be issued, outlining the conditions, requirements, and any mitigation measures that must be adhered to during the activity.

3.1.2 Climate Change Act

The Climate Change Act is a significant legislation enacted to address the challenges posed by climate change in Fiji. The Act establishes a legal framework for climate change adaptation, mitigation, and resilience-building efforts. It aims to ensure that Fiji effectively responds to climate change impacts and fulfills its international commitments, particularly under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.

The Act sets out various provisions to support climate change actions, including the establishment of the Fiji Climate Change Authority. This authority is responsible for coordinating climate change

policies, implementing adaptation and mitigation measures, and monitoring progress towards climate goals.
The Act emphasizes the integration of climate change considerations into various sectors, such as land use planning, agriculture, infrastructure development, and disaster management. It promotes the development and implementation of climate change strategies and action plans at national, provincial, and community levels.
Furthermore, the Act addresses climate finance mechanisms, encouraging the mobilization of funds for climate change initiatives and facilitating access to international climate finance sources. It also emphasizes public awareness, education, and capacity building to enhance climate change literacy and encourage community participation in adaptation and mitigation efforts.

3.1.3 Endangered and Protected Species Act

The Endangered and Protected Species Act is a legislation aimed at conserving and safeguarding the country's endangered and protected species. The Act provides legal protection to various flora and fauna species that are at risk of extinction or are ecologically significant. It establishes a framework for the management, conservation, and sustainable use of these species.
The Act designates certain species as "protected" or "endangered," making it illegal to harm, capture, trade, or possess them without proper permits. It also prohibits the destruction or disturbance of their habitats. The Act further regulates activities such as hunting, fishing, and the collection of specimens from the wild, ensuring they are conducted sustainably and do not threaten the survival of protected species.
To support species conservation, the Act provides for the establishment of protected areas and the formulation of species recovery plans. It empowers relevant authorities to enforce the Act's provisions, including issuing permits, conducting inspections, and imposing penalties for violations. Furthermore, the Act promotes public awareness and education about endangered and protected species, emphasizing the importance of their conservation and the need for responsible stewardship. It encourages research and monitoring efforts to gather data on species populations, distribution, and threats, facilitating evidence-based conservation actions.

3.1.4 Fiji State Lands Act

The State Lands Act is a legislation that governs the management, administration, and use of state-owned lands in Fiji. It outlines the processes for land acquisition, allocation, leasing, and disposal. The Act establishes the Land Use Unit within the Ministry of Lands to oversee land planning, development, and land-related policies. It also establishes the Land Bank to facilitate the efficient use and management of state lands. The Act aims to ensure transparency, fairness, and sustainable utilization of state-owned lands while safeguarding the rights and interests of landowners and stakeholders.

3.1.5 I-Taukei Land Trust Act

The i-Taukei Land Trust Act is a significant legislation that governs the administration and management of i-Taukei (indigenous Fijian) lands in Fiji. The Act establishes the i-Taukei Land Trust Board (TLTB) as the custodian and administrator of i-Taukei land. It outlines the processes for land leases, land use planning, land development, and dispute resolution related to i-Taukei land. The Act safeguards the rights and interests of i-Taukei landowners, ensuring their land is protected, utilized sustainably, and provides for the economic, social, and cultural well-being of i-Taukei communities. The TLTB plays a crucial role in implementing the Act and ensuring the effective management and administration of i-Taukei lands.

3.2 SPC Social and Environmental Requirements

The objectives of the SPC Social and Environmental Responsibility Policy (SER) is to promote a people centered approach encompassing human rights, gender equality and social inclusion, cultural development and the relationship to the environment. This will be achieved through:

- People: providing and promoting a diverse and inclusive workplace with a safe and healthy work environment.
- Operations: adapting operations to be more environmentally sustainable and socially inclusive.
- Programmes: ensuring a sustainable, participatory, and just approach to development, technical and scientific work.

SPC requires that all projects be screened for their environmental and social impacts, that those impacts be identified, and that the proposed project be categorized according to its potential environmental and social impacts. Regardless in which category a project is screened, all environmental and social risks shall be adequately identified and assessed by the in an open and transparent manner with appropriate consultation.
The scope of the environmental and social assessment shall be commensurate with the scope and severity of potential risks. The assessment should assess all potential environmental and social risks and include a proposed risk management plan in the case that risk are identified.
All projects supported by the Adaptation Fund shall be designed and implemented to meet the AF ESP's 15 Principles, although it is recognized that depending on the nature and scale of a project not all Principles will be relevant to every project.

3.3 Adaptation Fund Safeguard Requirements

The Adaptation Fund Environmental and Social Safeguard Policy requires that all projects be screened for their environmental and social impacts, that those impacts be identified, and that the proposed project be categorised according to its potential environmental and social impacts. Regardless in which category a project is screened, all environmental and social risks shall be adequately identified and assessed by the IE in an open and transparent manner with appropriate consultation.
The scope of the environmental and social assessment shall be commensurate with the scope and severity of potential risks. The assessment should assess all potential environmental and social risks and include a proposed risk management plan, or in this case an Environmental and Social Management Plan.
All projects supported by the AF shall be designed and implemented to meet the ESS Policy principles, although it is recognised that depending on the nature and scale of a project not all principles will be relevant to every project.
These Principles are:

- **Principle 1: Compliance with the Law** which requires that the project shall be in compliance with all applicable domestic and international law.
- **Principle 2: Access and Equity** which requires that the projects shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. The project should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups.
- **Principle 3**: **Marginalized and Vulnerable Groups** requires that the project to avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed project, the implementing entity is required to assess and consider particular impacts on marginalized and vulnerable groups.
- **Principle 4**: **Human Rights** requires that the project shall respect and where applicable promote international human rights.
- **Principle 5: Gender Equality and Women's Empowerment** requires that the project shall be designed and implemented in such a way that both women and men 1) have equal opportunities to participate as per the Fund gender policy; 2) receive comparable social and economic benefits; and 3) do not suffer disproportionate adverse effects during the development process.
- **Principle 6: Core Labour Rights** requires the project to meet the core labour standards as identified by the International Labour Organization.
- **Principle 7: Indigenous Peoples** lays out that the Fund shall not support projects/programs that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous peoples. This principle is not relevant in Fiji's context as all ethnic groups in Fiji are represented at national and community levels and there is no distinct group that are not part being represented within the project sites. Relevant matters such as community consultation and obtaining of local community or individual as may be relevant are standard requirements for any policy or development planning process in Fiji.
- **Principle 8: Involuntary Resettlement** requires that the project shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited

involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.

- **PRINCIPLE 9: PROTECTION OF NATURAL HABITATS** requires that the project would not involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.
- **PRINCIPLE 10: CONSERVATION OF BIOLOGICAL DIVERSITY** requires the project to be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species.
- **PRINCIPLE 11: CLIMATE CHANGE** requires that the project shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.
- **PRINCIPLE 12: POLLUTION PREVENTION AND RESOURCE EFFICIENCY** requires that the project shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.
- **PRINCIPLE 13: PUBLIC HEALTH** requires project to be designed and implemented in a way that avoids potentially significant negative impacts on public health.
- **PRINCIPLE 14: PHYSICAL AND CULTURAL HERITAGE** requires the project to be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level.
- The project should not permanently interfere with existing access and use of such physical and cultural resources.
- **PRINCIPLE 15: LANDS AND SOIL CONSERVATION** requires the project to be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.

4 Environmental and Social Impact Assessment

4.1 Screening

During project planning, the proposed activities were screened against the 15 Environmental and Social Principles of the AF.
As part of their IE status SPC's internal Environmental and Social Management System (ESMS) has been assessed by the AF and is used to implement all projects for which SPC is the IE.
The social and environmental screening tool within the ESMS is a process that aims at reviewing a project to identify whether it is likely to cause adverse social and environmental risks and/or impacts.
It enables an initial assessment of risks and/or impacts based on criteria allowing us to categorize them according to their inherent significance (low – medium or high- risk project). It is a desk assessment undertaken at the stage of project design, before project proposal approval, to determine if further assessment of the identified risks/impacts is necessary and if prevention or mitigation measures can be integrated within the project activities.
The screening is based on information made available for the project design and is conducted using the Social and Environmental Assessment Questionnaire provided in the SPC ESMS. It is the assessment Report that determines the risk category for each project on the basis of the identification and ranking of risks/potential impacts, in taking account of available information as well as comments from consulted stakeholders including affected populations.
If the project is ranked as "low risk" from the screening process, no further assessment is needed and the project can be approved after technical appraisal. If the project is ranked as "medium" or "high risk", further assessment may be needed in order to determine if it can be implemented while not triggering the social and environmental safeguards of SPC SER Policy, and under what conditions or adjustments, including mitigation measures.

Results of the screening are discussed below and presented in Annex 1 of this report.

4.2 Identified Impacts

As identified in the SER screening, the Project has the potential to create a variety of inherent 'medium risk' impacts through the implementation of the proposed project activities. It is anticipated that the only activities which would be subject to environmental and/or social risks are those falling under Activity 2.1.2 which involves the construction of the NbSs in 14 communities.

A more detailed analysis of these medium impacts and risks of the project in relation to the social and environmental principles of the AF that apply to this project is presented in Table 21 below. The section presents the probability of risks occurring, anticipated magnitude of impacts and possible mitigation measures.

While Table 21 describes potential medium risk impacts, the ESMP in Section 5 includes all identified risks – low and medium risk.

Table 21: Identified potential environmental and social impacts requiring further investigation or management measures

AF Principle	Project Activity	Potential Impact	Inherent Risk	Protective Measures	Residual Risk
Principle 4: Human Rights	Vegetation clearance at all project sites	There may be food bearing or crop trees within the 14 aggregate extraction sites. These food bearing or crop trees may be an important source of subsistence or means of livelihoods for the resource owner. This cannot be determined at this stage of project preparation These sites require environmental screening (integrated into the activity 2.2.1 design) that will determine whether there are any potential impacts to means of livelihood or subsistence harvesting. The screening will determine the extend and magnitude of any such impact.	Medium	The screening process described in Section 5.3 of this ESMP will be implemented. There will be no involuntary removal of crops or food bearing tress. Resource owners will have the opportunity to harvest all foods prior to approved clearance.	Low
Principle 6: Core Labour Rights	Operation of heavy vehicles and equipment	Project workers will operate heavy vehicles and equipment to extract boulders and soils. There will also be the use of heavy machinery to transport the boulders and to construct the seawall. This presents H&S risks to project workers at the project sites. Risks will be short term however any serious injury has the potential to be significant for the worker for the longer term.	Medium	No blasting activities will be permitted. The Contractor will be required to have a Health and Safety Plan in place. The Contractor will be required to adhere to the national H&S requirements. All staff will be provided with the appropriate H&S training and PPE.	Low
Principle 9: Protection of Natural Habitats	Vegetation Clearance at aggregate extraction site and along seawall alignment	Aggregate extraction sites are proposed for vegetated areas in all 14 project sites. It is not yet known whether the areas of vegetation are natural or critical habitats, or whether there are any key areas of biodiversity. Vegetation removal will be a long-term localized impact of varying magnitude depending on the type of vegetation removed.	Medium	Environmental screening and surveys will be required at all aggregate extraction and seawall alignments. No critical habitats will be removed from aggregate extraction sites.	Low

AF Principle	Project Activity	Potential Impact	Inherent Risk	Protective Measures	Residual Risk
		For the placement of NbS seawalls, preliminary screening carried out in initial site reports do not indicate that areas of vegetation are critical habitats, or that there are key areas of biodiversity that could be affected. Vegetation removal will be a long-term localized impact of varying magnitude depending on the type of vegetation removed. In Saioko village where there are potentially mangrove mud crabs which may have their habitat removed to accommodate the NbS in that village. Photographic assessment of the proposed project site identifies that while there is potential habitat mud crabs, this is not critical or unique habitat as there are little to no mangroves to offer protection to the crab holes within the seawall footprint. Furthermore the potential habitat is subject to further degradation from active erosion. Healthy mangrove ecosystems and therefore mud crab habitat is abundant adjacent to the proposed seawall footprint therefore this risk is considered to be a low impact.		For each project site, the ESMP will be updated to reflect any additional management measures identified in the screening. Vegetation clearance will be strictly controlled and only vegetation necessary for extraction works or seawall construction will be permitted. Any significant mature tree specimens will be left in place where technically feasible. Free Prior and Informed Consent (FPIC) will be obtained from all stakeholders prior to the removal of any vegetation. Aggregate extraction sites will be revegetated with native species similar to those removed on completion of works. No aggregate extraction will take place prior to the applicable licenses or permits being in place.	
Principle 12: Pollution Prevention and Resource	Use of heavy vehicles and machinery	Fuel, oil and hydraulic fluids will be required for the use of heavy plant and equipment. This brings the possible risk of spills into the marine and terrestrial environment.	Low	Spill prevention and response measures are included in this ESMP.	Very Low

AF Principle	Project Activity	Potential Impact	Inherent Risk	Protective Measures	Residual Risk
Efficiency		Given the limited volume of these substances on project sites, any spill would create a localized short term negative impact		Spill kits will be available on site and workers will be trained in their use. Any refueling at the site will be carried out at dedicated areas using a drip tray.	
	Solid waste generation	These is the potential for pollution to be created by the improper management of solid waste generated by the works.	Low	The Contractor will be required to implement the waste management measures in the ESMP.	Very Low
Principle 13: Public Health	Construction activities using heavy machinery in and around community areas	The construction of the seawalls, the extraction of the aggregates and transportation of aggregates to the seawall alignment will be carried out within the community areas. This brings the community members into close contact with health and safety risks. This presents H&S risks to project workers at the project sites. Risks will be short term however any serious injury has the potential to be significant for the worker for the longer term. Construction works, including the haulage of aggregates will generate noise and dust nuisance for the community. This impact will be short term and located.	Medium	The Contractor will clearly demarcate their working areas. Fencing will be used to exclude members of the public from any active working sites at the seawall alignment or the aggregate extraction sites. Traffic management measures will be put in place. Signage and outreach will be used to ensure the public are aware of the safety risks and other impacts during construction.	Low
	Detailed design of NbS	If the boulder size is insufficient for the hydrodynamic conditions of the site, there is a risk that the boulders could become dislodged during significant wave events and become a	Medium	Activity 2.1.1 will provide the technical studies necessary to ensure the design specifications are adequate	Very Low

AF Principle	Project Activity	Potential Impact	Inherent Risk	Protective Measures	Residual Risk
		risk to public safety. Given the anecdotal conditions at the seawall sites and the fact that these designs have been successfully rolled out in a number of communities without any instances of dislodgement, the likelihood of this is low, however the impact would be significant if it did occur.		for the hydrodynamic conditions of each site.	
Principle 15: Land and Soil Conservation	Vegetation clearance at vegetation extraction sites	Extraction of aggregates from the identified sites will expose large areas of soil due to the vegetation clearance. This presents the possibility of soil erosion in the localized area which could undermine existing landforms and/or run into neighbouring properties. This would be a short-term localized impact that can be easily managed through the measures in the ESMP.	Medium	Good international industry practice measures for prevention of soil erosion to be implemented by the Contractor as listed in the ESMP.	Low
	Vegetation clearance along NbS alignment	The clearance of vegetation and operation of heavy machinery along the alignment of the NbSs will increase the chances of run off during rain events leading to sedimentation in the marine environment. This will be a short term and localized impact that can be easily managed through the measures in the ESMP.	Medium	Good international industry practice measures to prevent sedimentation to be implemented by the Contractor as listed in the ESMP.	Low

4.3 Overall Risk Categorization

As identified in Table 21 there 9 potential impacts with the inherent risk rating of ‘medium’ all of which are reduced to low or very low on application of the identified management measures. The bulk of any construction or infrastructure installation will occur within the context of the construction of NbSs, any risk associated with the design and construction will cause limited adverse E&S impacts and can be readily addressed through mitigation measures.

As such, the overall risk level for the project is rated as **medium risk Category B project.** To mitigate the risk an ESMP has been developed (see Section 5 below) and ongoing environmental screening is required for the individual sites during project implementation.

5 Environmental and Social Management Plan

5.1 Introduction

Section 5.2 below contains the required management plan for the Project. The management plan includes measures to satisfy both National legislation as well as the Adaption Fund (and SPCs) safeguard policies. They describe details of the mitigation measures required, the responsible entity and the applicable project phase.

Section 5.3 provides the requirements for screening elements of the project design during implementation, specifically it provides guidance on screening for significant biodiversity risks at the material extraction site or along the project footprint and provides the iterative process for avoiding, minimizing or mitigating these risks through design.

Section 5.4 provides some higher-level guidance to the EE and IE on how to ensure environmental and social safeguards are implemented into the technical advisory activities. This ensures that all contracts, ToRs, policies, plans, frameworks, etc. developed under this project are screened to ensure that the development process and the recommendations follow the principles of the Adaptation Fund.

5.2 Environmental and Social Management & Monitoring Plan

Activity	Potential Impacts	Mitigation Measures	Timing/ Duration	Who Implements	Monitoring Measure and Frequency	Who Monitors
Pre-Construction Phase						
Safeguard Integration and Governance	Conditions of ESMP not being integrated into design process.	• The ESMP shall be included in the ToRs, contracts or works agreements.	Prior to finalization of design	PMU	One-off: Prior to release of any contract documents	SPC
	No safeguard requirements being contractually applicable to the Contractor during project implementation	• The ESMP will be included in the contractors specification and contract. • Specific mitigation measures for the contractor / supplier shall be highlighted in the general conditions.	During development of contract	PMU	One-off: Prior to release of any contract documents	SPC
	National environmental legislation not adhered to during project implementation	• Obtain Environmental License and Quarry License from GoF based on the relevant regulations and using this ESMP to inform the application.	Prior to commencement of works	PMU	One off: prior to commencement of works	SPC
	Activities take place on land for which an MOUt isn't in place leading to involuntary loss of land or non-land assets (crops, food bearing trees)	• All existing MOUs for participating villages will be verified with the community leaders and landowners prior to commencement of works • MoAW and village have mutually agreed the boundaries of seawall and aggregate extraction site as per MOU (see Section 2.3) • Landowners have opportunity to harvest any crops or resources prior to extraction of aggregates. • Rehabilitation measures for aggregate extraction sites will be agreed with the landowners prior to any vegetation clearance.	Prior to commencement of works	PMU	One off: prior to commencement of works	SPC

Activity	Potential Impacts	Mitigation Measures	Timing/ Duration	Who Implements	Monitoring Measure and Frequency	Who Monitors
Site specific detailed design of NbSs	Risk of boulders becoming dislodged during significant wave events posing a risk to public safety	• The technical studies under Activity 2.2.1 will be fully implemented at each site to inform the detail specifications of the NbS design. • Final detailed design to be reviewed by technical expert.	Prior to finalisation of design specifications	PMU	One-off: Prior to approval of final designs	SPC
Demarcation of aggregate extraction sites	Aggregate extraction sites could lead to loss of natural habitat and/or key areas of biodiversity. There may be food bearing or crop trees within the 14 aggregate extraction sites or at the village of Saioko where there are potentially mangrove mud crabs which may have their habitat removed to accommodate the NbS in that village. AF Principles: Protection of Natural Habitats Conservation of Biological Diversity	• Environmental screening and surveys will be required at all aggregate extraction and seawall alignments (see Section 5.3 for process). • No critical habitats will be removed from aggregate extraction sites. • No garden farms or areas of livelihood generating agricultural activities will be removed from extraction sites. • Communities will have the opportunity to harvest any food bearing trees prior to their removal. • For each project site, the ESMP will be updated to reflect any additional management measures identified in the screening. • Vegetation clearance will be strictly controlled and only vegetation necessary for extraction works or seawall construction will be permitted. • Any significant mature tree specimens will be left in place where technically feasible. • FPIC will be obtained from all stakeholders prior to the removal of any vegetation.	Prior to construction	PMU	One off: Verify screening reports have been completed for each site. ESMP has been tailored to the specific site based on screening outcomes. Demarcation of aggregate extraction site avoids any identified critical habitat, key areas of biodiversity or areas of agricultural activity. FPIC documented in screening report. Licenses and permits in place.	SPC

Activity	Potential Impacts	Mitigation Measures	Timing/ Duration	Who Implements	Monitoring Measure and Frequency	Who Monitors
		• Aggregate extraction sites will be revegetated with native species similar to those removed on completion of works. • No aggregate extraction will take place prior to the applicable licenses or permits being in place.				
Construction Phase						
Operation of heavy equipment and machinery	Health and safety risks to project workforce from working with this equipment and from working in a construction site in general. AF Principle: Core Labour Rights	• No blasting activities will be permitted. • The Contractor will be required to have a Health and Safety Plan in place. • The Contractor will be required to adhere to the national H&S requirements. • All staff will be provided with the appropriate H&S training and PPE.	Throughout Construction	Contractor	One off: Contractor H&S Plan in place. Training records for workers sighted. Weekly: PPE is being used by all workers. Safe working practices observed.	PMU
	Risk of fuel or oil spills into marine environment from construction machinery.	• The following activities are prohibited within 30m from a watercourse, mean high water mark or known groundwater source: • Storage of fuels, lubricants, or other hazardous materials • Refueling of machinery • Overnight storage of machinery • Discharge of waste • Soakaways for sanitation facilities • Machinery must be serviced and maintained to a standard that prevents the leakage and spillage of oil, fuel, lubricants and other contaminants.	Throughout Construction	Contractor	One Off: All required measures are in place. Weekly: No evidence of spills No non-permitted activities taking place within 30m of waterways or coastlines. Spill kits in place and stocked. Designated areas being	PMU

Activity	Potential Impacts	Mitigation Measures	Timing/ Duration	Who Implements	Monitoring Measure and Frequency	Who Monitors
		• A separate washdown area is required for machinery or material with oil or fuel residue and treated through an oil water separator. • Spill kits will be available on-site during construction works and all staff members will be trained in their use. • No refueling activities or storage or hazardous substances are permitted at the coastal construction site.			used correctly.	
Exposure of soils during vegetation clearance for aggregate extraction and seawall alignment preparation	Extraction of aggregates from the identified sites will expose large areas of soil due to the vegetation clearance. AF Principle: Land and Soil Conservation	• No vegetation should be removed from the shoreline beyond the southern extent necessary for construction of the seawalls. • Stockpiles of materials will not be located where material can be washed into a drain, stream or on an overland flow path or within 15m of a stream bank, coastline or mangrove. - Control overland drainage to prevent channeling and sediment transport by diverting flows away from exposed areas. Sediment laden runoff from excavations or stockpiles must be directed to a settling area or collected for dust suppression provided the runoff is not contaminated with any chemicals (e.g. fuel). • Stockpiles of clays and other small materials will be fenced and geotextile fencing will be erected around all areas. The fence will be installed prior to stockpiling, as close to the contour of the site as possible, with the bottom edge of the fence buried to at least	Throughout Construction	Contractor	Weekly: No vegetation cleared in excess of project footprint. Stockpile sites adhere to ESMP requirements. Sediment control measures in good working order and functioning as intended. Prior to demobilization: Revegetation has occurred on completion.	PMU

Activity	Potential Impacts	Mitigation Measures	Timing/ Duration	Who Implements	Monitoring Measure and Frequency	Who Monitors
		150mm, and the fence posts installed on the downside of the fabric. The fences will be checked regularly and where sediment has built up, this will be removed. • As soon as possible after the works are completed, rehabilitation of and exposed areas, such as the vetiver grasses on the NbS and at the aggregate extraction sites will be undertaken.				
Solid Waste Generation	Potential for pollution to be created by the improper management of solid waste	• All non-hazardous, non-recyclable waste will be placed in containers and regularly emptied and disposed of to a permitted landfill site. • On completion of the works, all surplus materials and construction debris shall be removed and recycled or disposed of in an appropriate manner.	Throughout Construction	Contractor	Weekly: Waste collection at laydown area is secure, well signed and clean. Good housekeeping around project sites. Waste is being removed to an approved disposal site.	PMU
Control and disposal of hazardous materials	Pollution of marine and terrestrial environment	• Lubricants and used oils will be stored in approved containers and promptly removed from site and disposed of as directed by MoAW. • Care will be taken to prevent any releases or spills of fuel and lubricants during fueling and maintenance of construction equipment and will be prevented from entering the ground, drainage areas or water courses by using appropriate containers and bunds. No such activities will be undertaken within at least 15m of the coast.	Throughout Construction	Contractor	Weekly: Oils and lubricants stored correctly. Good housekeeping at sites. Waste is being disposed of as GoF requirements.	PMU

Activity	Potential Impacts	Mitigation Measures	Timing/ Duration	Who Implements	Monitoring Measure and Frequency	Who Monitors
		• Any oily debris and contaminated soils will be recovered and disposed of as directed by MoAW. • Adequate sanitary convenience that meets public health and environmental requirements will be provided for construction staff on site.				
Haulage of Construction Materials	Noise and dust nuisance from haulage works	• Consultations will be undertaken with affected residents prior to commencement of works to advise of potential impacts and management measures. • Construction vehicles will be clean with loads secured to prevent accidental spillage. Any accidental spillage of material transported on to roads beyond the immediate construction area will be promptly cleaned up. • Establishment of machinery storage and washdown areas will be kept to a minimum and will be removed and the area reinstated and vegetated after construction. Any washdown areas shall be a minimum of 15m from any natural water course and washdown run off will not be discharged into natural waterways	Throughout Construction	Contractor	Weekly: Any complaints from communities are addressed and resolved. Good housekeeping at washdown sites	PMU
	Increased risk to other vehicle and pedestrian traffic	• Equipment and trucks passing through all villages will slow to an appropriate speed to avoid noise and vibration disturbance as far as possible. • Spotters will be used at key junctions and through villages to ensure haulage trucks are keeping to the speed limit.	Throughout Construction	Contractor	Weekly: Spotters are in place during haulage. Roads are clear of spilled materials. Any complaints from communities are addressed and resolved.	PMU

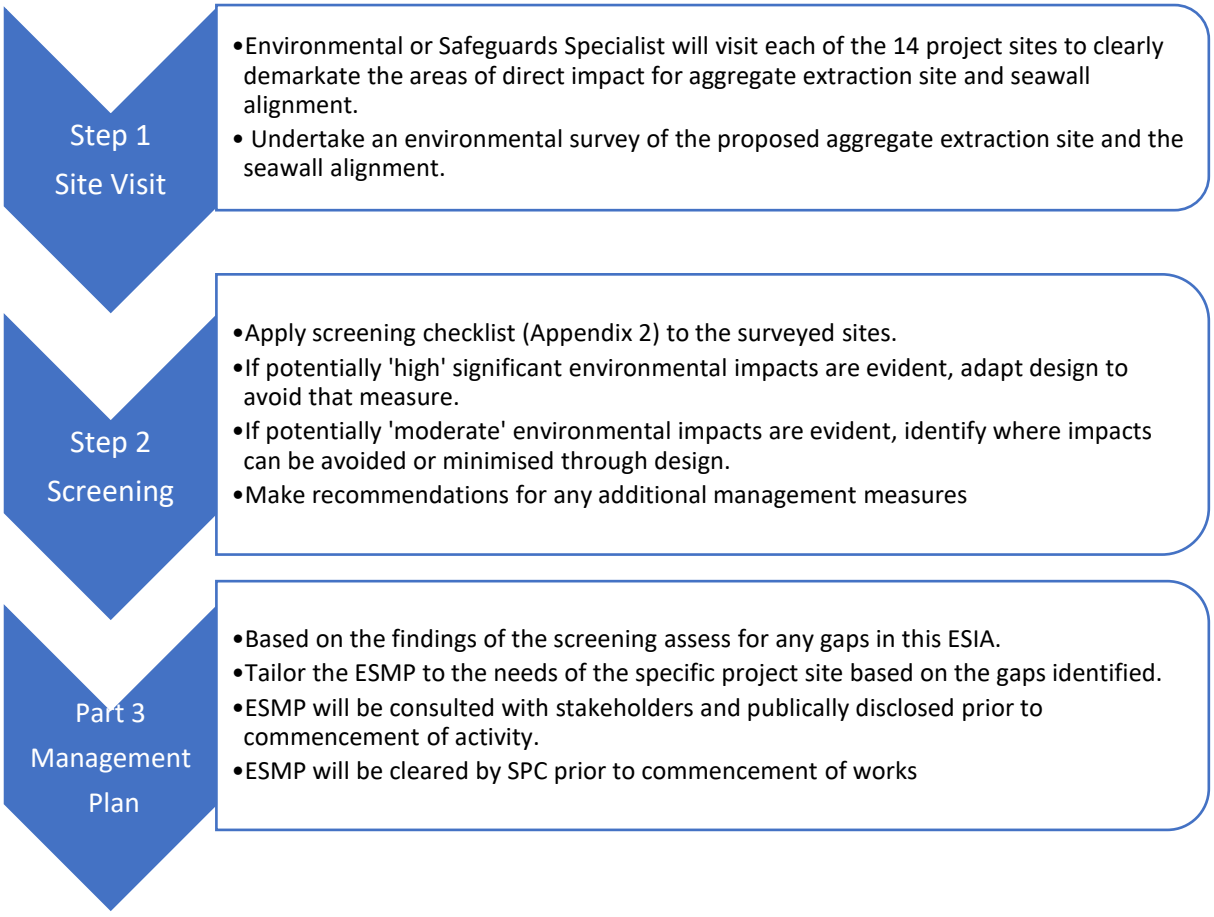
Activity	Potential Impacts	Mitigation Measures	Timing/ Duration	Who Implements	Monitoring Measure and Frequency	Who Monitors
		• Signage will be installed to advise drivers of the speed limit through residential areas.			Signage in place.	
Construction near residential areas	Community health and safety risks from construction activities	• Community consultations carried out as per the Project Stakeholder Engagement Plan. • Construction work will only be carried out during normal business hours. • Assign personnel to manage traffic movement and safety as required.	Throughout Construction	Contractor	Weekly: Any complaints from communities are addressed and resolved. Signage in place.	PMU

Table 22 Environmental and Social Management & Monitoring Plan

5.3 Screening During Project Implementation

As described in the Project Document, there is a need for site specific screening at each of the 14 NbS sites during project implementation. This is to identify any areas of natural and/or critical habitats at the aggregate extraction sites or along the seawall alignment footprint. Each extraction site and seawall alignment will be screened using the process below.

The PMU will be responsible for undertaking the SER screening which will then be validated by SPC with support from an International Safeguards Specialist where required. Activities which are screened and rated 'low' or 'medium' can be assessed by the PMU, any activities which are rated as 'high' may change the overall risk rating of the Project and would not be eligible under this project or AF standards.
All efforts should be made to ensure activity design is developed and/or adjusted to attain risk rating 'low' or 'moderate' impacts to nature and to avoid impacts to critical habitats through design. Avoidance measures can include clearly defining aggregate extraction sites to avoid critical habitat or through adjusting the NbS alignment where technically feasible.



5.4 Technical Assistance and Capacity Development

5.4.1 Policy and Plan Development

Any activities which require the development of policies or plans will follow this ESMP and the Gender Action Plan to ensure that all affected parties are engaged in the process of development and that broader impacts on gender, environment, etc. are considered.

5.4.2 Consultants

Consultants will be required for the technical reviews, studies, assessments and plan development associated with the Project activities. They may also be required for other technical, governance and capacity building activities. TORs for any consultants will require the consultant to comply with this ESMP, the Project Gender Action Plan, Fijian Labour Laws and the Adaptation Funds safeguards and gender policies.

For all technical assistance consultants this ESMP will be included in the TOR and final contract.

5.4.3 Capacity Building and Materials Development

Awareness materials will be developed and awareness raising activities will be undertaken under the Project. Gender balance shall be required during the activities to ensure that women are equally represented.

6 Institutional Arrangements and Capacity Building

The agencies with important responsibilities for ESMP implementation, monitoring and reporting are MoAW, the PMU and the Contractor. Details of the roles assigned to various agencies / organizations are summarised below.

6.1 Roles and Responsibility

6.1.1 Project Steering Committee

The Project Steering Committee (PSC) is formed of MoAW, AF DA, Ministry of Foreign Affairs and International Cooperation, Ministry of Finance, Ministry of Women, Children and Poverty Alleviation and Civil Society Representation. The PSC will review monitoring reports and will have a role in the GRM to resolve grievances that will be referred to it from the PMU Project Manager.

6.1.2 Implementing Entity

As the accredited IE, SPC is fully responsible (legally and financially) for the implementation of this project including the safeguards standards required by the Adaptation Fund. The IE:

- Acts as a focal point for communications with AF on project related matters
- Ensures compliance with AF funding requirements, including safeguard compliance
- Provide inputs into project scope and design
- Provide additional technical capacity to PMU where required
- Updating the ESIA/ESMP as necessary to reflect changes in the designs

6.1.3 Executing Entity

The GoF through the MOAW will be the Executing Entity (EE) for the project and will carry out the operational management of the project and day to day implementation of the project activities. The MOAW is well placed to manage operations on the ground, utilising its essential national knowledge to support and facilitate the implementation of activities, pursuing its ongoing efforts to implement nature-based seawalls across the country.

6.1.4 Project Management Unit

A Project Management Unit (PMU) will be established within MoAW and it includes a Project Coordinator, Monitoring and Evaluation Officer, Environmental and Gender Safeguards Officer and Technical Engineer. The PMU will maintain responsibility for the implementation of the ESMP and supervision of safeguards aspects of technical advisory and physical works for the duration of the project. Where additional technical capacity is required by the PMU, the IE will procure this resource.

The PMU will have the responsibility to oversee the implementation of the ESMP and their responsibilities include, but are not limited to:

- Acts on behalf of the PSC and works closely with all contracted parties to ensure that project objectives are delivered in a compliant manner consistent with State and AF safeguard requirements;
- Monitor and evaluate project activities and outputs and report the findings to the Project Board by periodic progress reports. These reports will include all aspects of safeguards compliance of the project including the results of scheduled monitoring, and instances of non-compliance, any environmental incidents and any GRM submissions/responses.
- Conducting quarterly safeguard audits with the Technical Engineer and other staff;
- Weekly monitoring of the physical investments as per the requirements of the ESMP Supervision Plan for compliance with the ESMP
- Monitors and manages all complaints/incidents reported to the Project GRM
- Manages the review process of Contractors management plan up to formal approval
- Updating the ESMP as necessary to reflect project change

- Applying for all approvals and permits
- Facilitate meaningful consultations with stakeholders and communities to enable them to provide meaningful input and direction into the Project
- Publicly discloses any project information and reports including this ESMP
- Receive and review monthly reports from Technical Engineer and share reports with PSC.
- PMU with the support of PSC is responsible for managing recurring instances of non-compliance by the Contractor.

The PMU Project Coordinator will be responsible for overall project coordination and technical guidance and will support the procurement of various packages and studies. Technical staff will be recruited as necessary to support the implementation of technical advisory components.
A locally based community liaison officer or safeguards administration officer may be recruited if necessary to support the PMU during busy periods such as consultations or construction monitoring.

6.1.5 Contractors

This section is applicable to any party undertaking physical building works under any project activity. It is the Contractors responsibility to:

- Ensure the Contractors project team includes experienced HSE experts with sufficient in-country time allocation and financial resources specified in the Contract
- Prepare and have cleared by the Technical Engineer the any environmental management plans required in this ESMP prior to commencement of works
- Carry out the project activities in accordance with the ESMP
- Conduct daily and weekly safeguard inspections of the works to ensure compliance and reporting the results of these inspections to the supervision entity.
- Undertake community consultations as required in this ESMP in coordination with the PMU
- Advise the Technical Engineer of any changes to works or methods that are outside the scope of the ESMP for updating
- Post all notifications specified in this ESMP at the site entrance
- Report all environmental and safety incidents to the Technical Engineer for any action
- Provide monthly reports of all safeguard monitoring, incidents, complaints and actions to the Technical Engineer.

Maintain a database of all complaints, incidents or grievances received. Any issues which cannot be dealt with immediately should be reported to the Supervision Engineer.

6.2 Capacity Building and Training

6.2.1 Capacity Development

The PMU will have a dedicated Environment Gender and Social Inclusion Officer (EGSO) who will be provided with support or technical input from the IE when required.

6.2.2 Training

The PMU EGSO and project team will require training to ensure effective implementation and oversight of the ESMP.
Areas recommended for PMU training include the following –

- Adaptation Fund safeguard policies, in particular those triggered and relevant to the project.
- Roles and responsibilities of different key agencies in safeguards implementation.
- How to effectively integrate the ESMP into project management, implementation, monitoring and reporting.
- Management of the GRM.

- How to facilitate meaningful community consultations.
- Integration of the ESMP and safeguard specific clauses into the contract and bid documentation.

On-going support will be provided by the IE for the duration of the project.

7 Monitoring and Evaluation

Per the E&S screening policies, the overall project E&S risks shall be monitored by the ESS and Gender Officer to ensure compliance with the ESMP as budgeted in the M&E plan. Monitoring will enable the project team to adjust and respond to unexpected events during the implementation phase as well as to build trust and respond to stakeholders and affected communities. The scope, robustness, frequency of project monitoring and reporting will vary depending on the type of activities and the significance of risks/impacts identified through the additional screening processes.

For implementation of the overall and any site specific ESMPs, ongoing M&E will be the responsibility of the ESS and Gender Officer along with support from the PMU and SPC. Reporting will integrate ESS tracking, monitoring and evaluation. Annual performance reports and end of project closure reports will include updated information on E&S risks and this information will be reported to SPC and AF.

Site specific ESMPs will be implemented building off of the screening for additional risks at aggregate extraction sites. These will be submitted and certified by the ESS and Gender Officer to ensure identified risks have been mitigated and that any site-specific ESMPs are being followed appropriately.

Appendix 1: Full SER Screening Results

SER Screening Questionnaires		Risk Description Yes, No, n/a, TBD	Risk assessment to be completed only if the answer is "Yes" under the risk description column If no answer, please shortly justify. If Yes answer, describe potential issues, specify activities causing the risk identified. Characterise the identified risk or impacts (likelihood, intensity, duration, reversibility) Indicate the risk localization (local/national/global)	Score Where applicable, identify the remedial actions that would mitigate the identified risk	SER Screening Questionnaires Characterize the inherent risk level: Low (L), Medium (M) high (H)
SER Screening Area: Labour and Working Conditions					
	AF Equivalent Principle: Core Labour Rights				
1	Will the project present unsafe, indecent or unhealthy working conditions for stakeholders involved?	Yes	The project will be undertaking quarrying of boulders for the seawall construction. There will also be the use of heavy machinery to transport the boulders and to construct the seawall. No blasting will be used. This presents H&S risks to project workers at the project sites. Risks will be short term however any serious injury has the potential to be significant for the worker for the longer term.	No blasting activities will be permitted. The Contractor will be required to have a Health and Safety Plan in place. The Contractor will be required to adhere to the national H&S requirements. All staff will be provided with the appropriate H&S training and PPE.	Medium
2	Is there potential for the project to apply adverse discriminatory practices based on religious, racial, gender, disability or political considerations?	No	Full, inclusive and participatory consultation has been held and will be ongoing with each community following their request to be part of the MoAW NbS program. A comprehensive Gender Action Plan has been developed to address needs and vulnerabilities that are specific to women, including the provision of targeted activities for women (Annex 2)		
SER Screening Area: Climate Change					

	Equivalent AF Principle: Climate Change				
3	Could the project adversely contribute to climate change by generating greenhouse gas emissions including through deforestation or forest degradation?	No	No significant greenhouse gas generating activities are part of the project.		
4	Could the project negatively affect the resilience to climate change?	No	Project activities are known to enhance climate resilience of target communities.		
SER Screening Area: Resource Efficiency and Pollution Prevention					
	Equivalent AF Principle: Pollution Prevention and Resource Efficiency				
5	Will the project generate hazardous waste?	No	No hazardous waste will be generated		
6	Is the project likely to lead to environmental damages due to an uncontrolled management of waste?	No	No large volumes of waste are expected		
7	Is the project likely to lead to pollutants release? Are chemicals (including pesticides) likely to be used during the project?	Yes	1. Fuel, oil and hydraulic fluids will be required for the use of heavy plant and equipment. This brings the possible risk of spills into the marine and terrestrial environment. • • Given the limited volume of these substances on project sites, any spill would create a localized short term negative impact 2. These is the potential for pollution to be	1. Spill prevention and response measures are included in this ESMP. • • Spill kits will be available on site and workers will be trained in their use. • • Any refueling at the site will be carried out at dedicated areas using a drip tray.	Low

			created by the improper management of solid waste generated by the works. Expected solid waste would be general waste from consumables (food/drink packages, paper, buckets/cartons, etc)	2. The Contractor will be required to implement the waste management measures in this ESMP.	
SER Screening Area: Human Rights					
	Equivalent AF Principle: Human Rights, Marginalised and Vulnerable Groups & Access and Equity				
8	Is the project likely to negatively impact on the human rights of the affected populations? (e.g. their rights to water, work, health, to a healthy environment, etc.)?	No	There are no expected negative impacts on the human rights of community members. People's lives within the villages will be improved by the level of protection afforded by the NbS seawalls. Full, inclusive and participatory consultation has been held and will be ongoing with each community following their request to be part of the MoAW NbS program.		
9	Is the project likely to create less favourable treatment of, or discrimination against, any person or group such as persons with disabilities?	No	NbSs provide benefit to all community members through the nature of the protection afforded from coastal defenses Gender quotas have been established where relevant and necessary and a comprehensive Gender Action Plan has been developed to address needs and vulnerabilities that are specific to women, including the provision of targeted activities for women (Annex 2) Ongoing project engagement has been integrated into activity design and designed to be fully inclusive and participatory. No impacts or project benefits will be experienced disproportionately by any one group.		
SER Screening Area: Impacts on Affected Communities					

	Equivalent AF Principle: Public Health				
10	Is the project likely to increase community exposure to disease (water borne, water based, water related and vector borne diseases as well as communicable diseases)?	No			
11	Any risk that populations perceive they did not receive enough opportunities to raise their concerns regarding the project?	No	Full, inclusive and participatory consultation has been held and will be ongoing with each community following their request to be part of the MoAW NbS program. The small size of the target communities, the decision-making processes within a community structure and the process undertaken by each community to advance their application means that each community has been invested in the desire for a seawall for a long period of time. Participation in projects is solely by community request therefore it is highly unlikely that there are concerns which have yet to be raised. During implementation there will be ongoing engagement at the community level and project decisions impacting communities are community driven, as is the usual custom for government led projects of this nature in Fiji.		
12	Is there a risk that the project would create or exacerbate conflicts with or within affected populations?	No	The project activities have been requested by the individual communities and full, inclusive and participatory consultation has been held and will be ongoing with each community following their request to be part of the MoAW NbS program.		
13	Will the project require the construction or rehabilitation or any structural components	Yes	- The construction of the seawalls and the extraction of the aggregates will be carried out within the community areas. This brings the	1. The Contractor will clearly demarcate their working areas.	Medium

	which could pose a risk to affected communities?		community members into close contact with health and safety risks. • • This presents H&S risks to project workers at the project sites. Risks will be short term however any serious injury has the potential to be significant for the worker for the longer term. - The MoAW NbS concept design is generic and is not tailored to the individual sites. If the boulder size is insufficient for the hydrodynamic conditions of the site, there is a risk that the boulders could become dislodged during significant wave events and become a risk to public safety. • • Given the anecdotal conditions at the seawall sites and the fact that these designs have been successfully rolled out in a number of communities without any instances of dislodgement, the likelihood of this is low, however the impact would be significant if it did occur.	• • Fencing will be used to exclude members of the public from any active working sites at the seawall alignment or the aggregate extraction sites. Signage and outreach will be used to ensure the public are aware of the safety risks during construction. 2. Activity 2.1.1 will provide the technical studies necessary to ensure the design specifications are adequate for the hydrodynamic conditions of each site. •	
SER Screening Area: Gender					
	Equivalent AF Principle: Gender Equity and Women's Empowerment				
14	Is there a likelihood that the project would have adverse impacts on gender equality, and/or the situation of women and girls?	No	GEDSI approach is integrated in project activities through implementation of MoAW'a GEDSI Action Plan Gender quotas have been established where relevant and necessary and a comprehensive Gender Action Plan has been developed to address needs and vulnerabilities that are		

			specific to women, including the provision of targeted activities for women (Annex 2) Full, inclusive and participatory consultation has been held and will be ongoing with each community following their request to be part of the MoAW NbS program.		
15	Have community groups/leaders raised gender equality concerns regarding the project during the stakeholder engagement process?	No			
16	Would the project potentially limit women's ability to access or use natural resources upon which they depend for a livelihood?	No	It has been confirmed through direct engagements with the women in the communities that there are no areas of livelihood generating activities at any of the 14 seawall alignment sites. The project sites are already degraded and are not a primary source of food or other livelihood or subsistence activities.		
SER Screening Area: Resettlement					
	Equivalent AF Principle: Involuntary Resettlement				
17	Could the project involve the physical relocation of people? (encompassing displacement as well as planned relocation)	No			
SER Screening Area: Use of Natural Resources					
	Equivalent AF Principle: Protection of Natural Habitats, Conservation of Biological Diversity & Land and Soil Conservation				

18	Could the project lead to adverse impacts on biodiversity or natural habitat?	Yes	• Aggregate extraction sites are proposed for vegetated areas in all 14 project sites. It is not yet known whether the areas of vegetation are natural or critical habitats, or whether there are any key areas of biodiversity. Vegetation removal will be a long-term localized impact of varying magnitude depending on the type of vegetation removed. 1.	1. Environmental screening and surveys will be required at all aggregate extraction and seawall alignments. No critical habitats will be removed from aggregate extraction sites. For each project site, the ESMP will be updated to reflect any additional management measures identified in the screening. Vegetation clearance will be strictly controlled and only vegetation necessary for extraction works or seawall construction will be permitted. Any significant mature tree specimens will be left in place where technically feasible. FPIC will be obtained from all stakeholders prior to the removal of any vegetation. Aggregate extraction sites will be revegetated with native species similar to those removed on completion of works. No aggregate extraction will take place prior to the applicable licenses or permits being in place.	1. Medium • 2. Medium • 3. Medium

			Extraction of aggregates from the identified sites will expose large areas of soil due to the vegetation clearance. This presents the possibility of soil erosion in the localized area which could undermine existing land forms and/or run into neighbouring properties. This would be a short term localized impact that can be easily managed through the measures in the ESMP using known standard measures. The clearance of vegetation and operation of heavy machinery along the alignment of the NbSs will increase the chances of run off	Vegetation clearance will be strictly controlled and only vegetation necessary for extraction works or seawall construction will be permitted. Aggregate extraction sites will be revegetated with native species similar to those removed on completion of works. Implement soil erosion measures in the ESMP at all sites.	

			during rain events leading to sedimentation in the marine environment. This will be a short term and localized impact that can be easily managed through the known standard measures in the ESMP. No critical habitats have been identified within the seawall footprints. All targeted seawall sites are degraded habitats subject to active erosion.		
			In Saioko village where there are potentially mangrove mud crabs which may have their habitat removed to accommodate the NbS in that village. Photographic assessment of the proposed project site identifies that while there is potential habitat mud crabs, this is not critical or unique habitat as there are little to no mangroves to offer protection to the crab holes within the seawall footprint. Furthermore the potential habitat is subject to further degradation from active erosion. Healthy mangrove ecosystems and therefore mud crab habitat is abundant adjacent to the proposed seawall footprint therefore this risk is considered to be a low impact.	No specific mitigation measures required.	
19	Is the project likely to negatively impact a protected area?	No	There no protected areas in or around the project sites.		
20	Is the project likely to introduce invasive alien species to the project area?	No			
21	Is the project likely to favour unsustainable exploitation of a renewable resource	No			

SER Screening Area: Peoples Rights and Tenure					
	Equivalent AF Principle: Human Rights & Indigenous People				
22	Is the project likely to restrict People's access to natural resources and their means of livelihoods?	TBD	There may be food bearing or crop trees within the 14 aggregate extraction sites or at the village. These sites require environmental screening (integrated into the activity 2.2.1 design) that will determine whether there are any potential impacts to means of livelihood or subsistence harvesting. The screening will determine the extend and magnitude of any such impact.	The screening process described in Section 5.3 of the ESMP will be implemented. This screening process has been integrated into project activity 2.2.1.	Low
23	Is the project likely to negatively affect Peoples or communities rights: rights of affected populations, including procedural rights such as the right to be consulted or to have access to information, or substantive rights (real or personal) such as the right of access to natural resources or benefit-sharing related to these natural resources (carbon rights, benefits from access to genetic resources ...).	No	There are no expected negative impacts on the rights of community members or individuals. People's lives within the villages will be improved by the level of protection afforded by the NbS seawalls. Participation in this project is triggered by community request. Additionally, full, inclusive and participatory consultation has been held with each community following their request to be part of the MoAW NbS program. A comprehensive Gender Action Plan has been developed to address needs and vulnerabilities that are specific to women, including the provision of targeted activities for women (Annex 2). All communities have confirmed that there are no food gathering, livelihood or substance activities taking place within the targeted seawall sites.		
24	Could the project require the relocation of Peoples from their	No			

	homes or lands subject to traditional ownership or customary use?				
SER Screening Area: Cultural Heritage					
	Equivalent AF Principle: Physical and Cultural Heritage				
25	Is the project likely to negatively affect cultural heritage?	No			
26	Is the project likely to negatively affect a legally protected cultural heritage area?	No			

Appendix 2: Project Site Additional Screening Form

Aspect of the environment	**Questions to be considered**	**Yes/No/na Give brief description**	**Is this likely to result in a significant impact? Yes/no? long term, short term or irreversible**	**Is further investigation required? Will it require management?**
Plant life	Damage to or clearing of vegetation communities?			
	Damage to or destruction of important plant communities (e.g. plants with medicinal, cultural or commercial value; unique, threatened or endangered plant species)			
	A reduction in agricultural crop production?			
	The spread or introduction of and invasive plant species?			
Animal Life	Reductions in the number of rare, unique or endangered species			
	Damage to or destruction of habitat for animals communities on land?			
	The spread of invasive species			
Natural resources	Substantial depletion of non-renewable resources			

Annex II. Gender Assessment and Action Plan

1. Overview

Fiji is a country in the Pacific Ocean with 332 islands, 110 of which are inhabited, and is home to 924,610 people (2021), approximately 75% of whom live within 5 km of the coast and 27% within 1 km. It is a middle-income country with a GDP of 4.3 billion USD (2021), with tourism (40% of GDP) and agriculture (15% of GDP) accounting for majority of livelihoods. It is an economic hub in the Pacific, but is highly vulnerable to external shocks, including climate change. Between 1999 and 2018, Fiji was ranked 13th most affected country by extreme weather events, and currently ranks 15th among countries with the highest disaster risk due to high exposure to extreme weather events and sea-level rise. Small Island Developing States (SIDS) such as Fiji are affected disproportionally by climate change compared to continental land masses, are heavily dependent on the functioning of coastal ecosystems, and have economies that are highly sensitive to climate fluctuations.

Most of Fiji's population lives on two main islands: Viti Levu (with about 75% of the total population) and Vanua Levu (with about 20%); and there are two main ethnic groups: i-Taukei (indigenous Fijians) who make up about 57% of the total population and Fijians of Indian descent who account for 37%[100]. Even with cultural variations across ethnic groups, social norms and gender roles remain generally patriarchal; women are key actors and agents of change in the home, community, and larger society, yet their voice and decision-making continue to be limited in different ways. Since electing a democratic government in 2014, Fiji has enacted a National Gender Policy in support of its international and regional commitments to gender equality and women's empowerment. Yet in 2019, only 7% of village chiefs were women, and as of 2022 only 20% of the national parliament seats are held by women. The prevalence of VAW (Violence Against Women) in Fiji is at 64%, which is 2nd in the region tied with the Solomon Islands. Climate change and disasters exacerbate these pre-existing and intersecting vulnerabilities of women and marginalised groups in Fiji.

The following Gender Analysis provides the overall context and framework for mainstreaming gender into the proposed Adaptation Fund (AF) project: *Strengthening the Adaptive Capacity of Coastal Communities in Fiji to Climate Change through Nature-Based Seawalls.* Embedded within this analysis is a set of recommendations for incorporating gender mainstreaming throughout the project's activities.

2. Methodology

This gender analysis and associated action plan was completed through a desk review of the legal and policy framework and publicly available gender data pertinent to this assessment. Some data specific to women and women's groups were included from the programme's community consultations, though overall there are several significant gaps in gender-disaggregated data and gender-specific metrics for Fiji. To account for this, the programme will have strong stakeholder engagement throughout the programme cycle. This will be centred around fair and equitable consultation and engagement with women and men. Ultimately the approach will ensure that stakeholders across groups are being informed and consulted both prior and during programme implementation and are given equal opportunity to influence programme activities.

3. Gender Baseline

3.1 Relevant Legal and Policy Framework

The following section details the legal frameworks and regulations related to gender, at the international, regional, and national levels that Fiji is party to[101].

[100] ADB (2015). Fiji Country Gender Assessment. https://www.adb.org/sites/default/files/institutional-document/210826/fiji-cga-2015.pdf.
[101] UN Women (n.d.). Asia and the Pacific: Fiji. https://asiapacific.unwomen.org/en/countries/fiji/co/fiji.

Level	Agreement/Convention/Treaty
International/Global	• UN Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW, 1995) • UN Convention on the Rights of the Child (1994) • UN Convention on the Rights of Persons with Disabilities (CRPD, 2007) • UN Protocol to Prevent, Suppress, and Punish Trafficking in Persons • ILO Violence and Harassment Convention (2019) • ILO Equal Remuneration Convention (2002) • ILO Discrimination in Employment and Occupation Convention (2002) • UN Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages • Convention on Biological Diversity (1992) • Beijing Declaration and Platform for Action (1995) • Agenda 2030 for the Sustainable Development Goals (SDGs)
Regional	• Pacific Principles of Practice of National Mechanisms for Implementation, Reporting and Follow up (NMRIF, 2020) • SIDS Accelerated Modalities of Action (SAMOA) • Pacific Platform for Action on the Advancement of Women and Gender Equality • Triennial Conference of Pacific Women and Meeting of Ministers for Women • Pacific Leaders' Gender Equality Declaration (PLGED, 2012)
National	• Fiji Constitution (2013) • National Gender Policy (2014) • National Climate Change Policy (2019) • Employment Relations Act (2007) • Family Law Act (2003) • Widows and Orphans Pensions Act (1914) • Married Women's Property Act (1891)

Table 23 Relevant Legal and Policy Framework for Gender Applicable to/in Fiji

Fiji has ratified all of the conventions and treaties listed (Table 1), with its national legal framework and legislation mostly aligned with its international and regional commitments. Gender equality is also identified as a goal in national strategic planning documents[102]. The Constitution of Fiji (2013) stipulates all Fijian people's rights to equality and freedom from discrimination on the grounds of "his or her actual or supposed characteristics or circumstances, including race, culture, ethnic or social origin, colour, place of origin, sex, gender, sexual orientation, gender identity and expression, birth, primary language, economic or social or health status, disability, age, religion, conscience, marital status or pregnancy"[103].

To support this, Fiji has comprehensive anti-discrimination laws, including a constitutional prohibition on discrimination on the grounds of sexual orientation or gender identity and expression. Sexual harassment is explicitly prohibited across the public and private sectors in formal employment legislation, and the country has national legislation which prohibits discrimination in employment on

[102] UN High-Level Political Forum on Sustainable Development (HLPF, 2023). Fiji – Voluntary National Review. https://hlpf.un.org/countries/fiji/voluntary-national-reviews-2023.
[103] The Constitution of the Republic of Fiji (2013). https://www.laws.gov.fj/Home/information/constitutionoftherepublicoffiji.

the basis of sex in both the public and the private sectors. Fiji is the only country in the Pacific region in which maternity and pregnancy are specified as prohibited grounds for discrimination, and it has the region's longest national maternity leave provisions, with women entitled to 98 days of paid leave[104].

Gender equality and women's rights are further incorporated in domestic laws such as the Married Women's Property Act (1891), Widows and Orphans Pensions Act (1914), Family Law Act (2003), and Employment Relations Act (2007). With these national commitments, the Fijian government has been striving to ensure women can live free from physical and structural violence, as well as participate in various forms of economic activities and decision-making processes in society[105]. The overall strategy of mainstreaming gender equality and empowerment into every aspect of Fiji's development and governance is found in the Fiji government's strategic vision document, "5-Year and 20-Year National Development Plan: Transforming Fiji"[106].

The National Gender Policy (NGP), adopted in 2014, is designed to develop plans and strategies in a gender-sensitive way and carry out gender impact assessments in relation to the utilisation of natural resources. The NGP is administered by the Fiji Ministry of Women, constituting a key platform for the country's implementation of CEDAW and other gender-related treaties and commitments. As of 2021, Fiji has made significant progress in establishing systems to monitor and disclose allocations for gender equality and women's empowerment. The country has implemented gender-responsive policies and allocated resources to support their implementation, and the government has provisions in place to ensure public access to information on allocations for gender equality and women's empowerment. However, there is currently no government mechanism to track these allocations through public financial management, which still needs to be established[107].

Despite these international commitments and national policies, overall progress towards gender equality remains mixed in Fiji as the roles, representation, and leadership of Fijian women continue to be largely determined by societal systems and customary values. Socioeconomic status, ethnicity, and the rural/urban context are some of the other factors that influence gender relations in the country, with more conservative gender norms generally practised in rural communities.

3.2. Existing Gender Inequality Statistical Overview

In the Pacific region, Fiji comparatively ranks higher than other countries and territories in high-performance and medium-performance gender indicators (Figure 1). However, there is a 71% gender data gap which indicates a still-incomplete picture of Fiji's progress in advancing its gender equality commitments, notably in data around gender-based violence (GBV).

[104] UN Women (2022). Gender Equality Brief for 14 Pacific Island Countries and Territories. https://asiapacific.unwomen.org/sites/default/files/2022-12/UN_WOMEN_REGIONAL_BRIEF.pdf.
[105] Pacific Islands Gender Mainstreaming Stocktake: Fiji (2023). Forthcoming publication.
[106] Republic of Fiji (2017). 5-Year & 20-Year National Development Plan: Transforming Fiji. https://www.adb.org/sites/default/files/linked-documents/LD4%205yr%20and%2020yr%20DP%20Transforming%20Fiji.pdf.
[107] HLPF (2023). Fiji – Voluntary National Review.

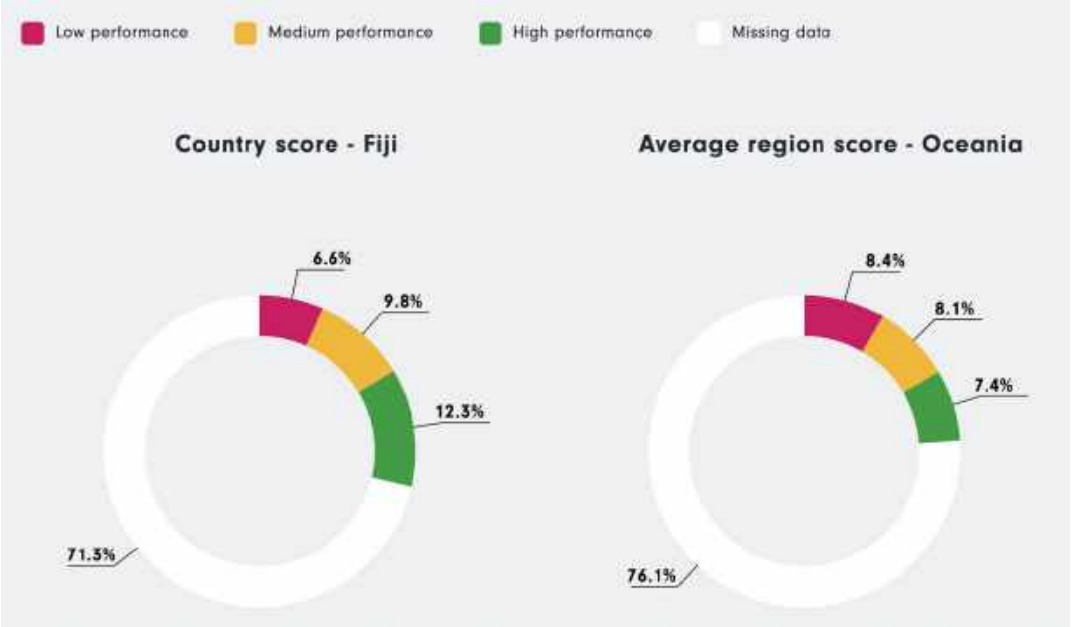


Figure 46. Fiji Gender Indicator Performance Comparison (Source: UN Women Country Data, Fiji)[108]

In the latest available data (Table 2), Fiji's achievement in gender equality in comparison to other Pacific Island countries is varied across development indicators. Women's political representation is 2nd in the region, yet the national budget to support government-wide gender mainstreaming through the Fiji Ministry of Women is only 6th overall. Women's participation in the labour force is only at 37%, and the female-male labour participation ratio is only at 0.5, which compared to the rest of the region is relatively low. Alarmingly, the prevalence of VAW in Fiji is at 64%, which is 2nd in the region tied with the Solomon Islands. Also of note are the indicators for which no data are reported, such as the completion rate for tertiary education, the female-male employment ratio, and VAW attitudes, among others.

Table 24 Overview Comparison of Gender Indicators for Pacific Island Countries (circa 2016)

Indicator	Cooks	FSM	Fiji	RMI	Niue	Palau	Samoa	Solomons	Tonga	Tuvalu	Vanuatu
Women Representation in Parliament	17	0	16	9.1	10	0	10	2	3.6	7	0
HD-GEN-1.1 MDG.3.3	2014	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016
Govt Budget Allocated to Women's Department (% Recurrent)	0.3	0	0.1	0	0.1	0	2	0.7	0.1	0.7	0.7
HD-GEN-1.4	2011-12	2004	2014	2015	2011-12	2014	2013-14	2014	2014-15	2014	2010
Tertiary Education Completion Rate	13.1	9.1		2.3	3.3	16.2	13.9	6	17.5	13.7	4.7
HD-GEN-1.7	2016	2013		1999	2001	2015	2013	2015	2016	2016	2013
Female Labor Participation Rate	58.4	36.2	37.4	35.4	63	74.3	43.5	71	41.9	35.4	85.7
HD-GEN-1.8	2016	2013	2017	1999	2016	2015	2013	2013	2016	2016	2016
Female-Male Labor Participation Ratio	0.8	0.6	0.5	0.5	0.8	0.9	0.6	0.9	0.6	0.5	1
HD-GEN-1.9	2016	2013	2017	1999	2016	2015	2013	2013	2016	2016	2016
Female-Male Employment Ratio	0.8	0.5			0.8	0.8	0.6	0.8	0.5	0.5	0.6
HD-GEN-1.10	2016	2013			2016	2015	2013	2013	2016	2016	2016
Women Employed in a Non-Ag Sector	48.8	33.1	34	36.7	49.3	48.7	38.5	65.5	46.3	36.4	41.3

[108] UN Women (2023). Women Count. https://data.unwomen.org/country/fiji.

HD-GEN-1.11 MDG.3.2	2016	2013	2007	2011	2016	2015	2013	2015	2016	2016	2009
Prevalence of Violence Against Women	33	33	64	51		25	65	64	40	45	60
HD-GEN-1.12	2014	2014	2013	2014		2014	2006	2009	2012	2007	2011
Attitudes VAW				56.5			55.7	65.8	26.4	71	59.8
HD-GEN-1.13				2007			2009	2015	2012	2007	2013

From this overview, we find that: first, there is clearly a need for more and better data in Fiji to track and monitor its progress in advancing gender equality and women's empowerment; and second, it seems the statistical information have yet to reflect the concrete application of the many gender-centric commitments that Fiji has signed. The overview suggests that there is much that is yet to be done, but it is promising that the government of Fiji has been consistent in affirming its gender equality commitments, and striving to enforce these through national policy. The succeeding sections delve into the numbers more closely.

3.3. Women's Voice, Decision-Making, and Access to Resources

In formal and traditional leadership roles, women represented 20% of the total seats at the Fijian national parliament in 2022, but as of 2019 only 7% of village chief positions were held by women and only 8% of positions as head of landowning units are filled by women[109]. Though this is a relative improvement in women's political participation considering 6% formal representation in 2000, the figure still cannot claim to sufficiently speak for all of women in Fijian society[110]. Limited political representation would suggest that in formal spaces, women are less able to meaningfully engage in decision-making.

Fiji has a history of strong civil society advocacy for women's rights and women's leadership at all levels, with organisations such as the Fiji Women's Rights Movement, Fiji Women's Crisis Centre, FemLINKPACIFIC, the Fiji chapter of Development Alternatives for a New Era (DAWN), and others remaining active in adapting their strategies to enhance women's participation in decision-making[111]. Over the years, the women's movement in Fiji has ramped up its public advocacy campaigns to encourage more women to exercise their right to vote and run for office. An example is the Fiji Women's Forum which was established in 2012 by a coalition of women's organisations to promote the goal of increased women's political participation[112].

On the community level, it is observed that despite cultural variations between the ethnic groups, gender-differentiated access to endowments, economic and political resources, and patriarchal cultures are shared commonalities amongst most Fijian women. Reach of women's voices varies depending on the community locations, the influence of social norms, or education levels and political connections. Especially in rural areas, men are often the voice for the families, and the culture puts the communal and collective benefits before individualistic benefits. Generally, women in Fiji have the same legal rights as men to inherit and have access to land and non-land assets regardless of their marital status; yet women are often excluded from the decision-making processes concerning communal land that makes up the majority of land holdings in Fiji, and traditional attitudes also mean that women are often dependent throughout their lives on their father or husband or male members of their family if they become widows[113].

3.4. Gender in Economy and Education

[109] UNW (2022). Gender Equality Brief for 14 Pacific Island Countries and Territories.
[110] The World Bank (2023). Gender Data Portal. https://genderdata.worldbank.org/indicators/.
[111] ADB (2015). Fiji Country Gender Assessment. https://www.adb.org/sites/default/files/institutional-document/210826/fiji-cga-2015.pdf.
[112] Kant, R. & Baker, K. (2023). A new era of democracy for Fiji – but where are the women? https://www.lowyinstitute.org/the-interpreter/new-era-democracy-fiji-where-are-women.
[113] ADB (2022). Women's Resilience in Fiji: How Laws and Policies Promote Gender Equality in Climate Change and Disaster Risk Management. https://www.adb.org/publications/women-resilience-fiji-gender-equality-climate-change.

Gender gaps in labour force participation are significant: most men aged 15 and above (81%) are employed or actively looking for work, while less than half of women (46%) are. Women account for 27% of the overall self-employed across both formal and informal sectors, mainly working in market-oriented agricultural production or fishing, handicrafts, and sales-related jobs. Very few—around 800 women compared with 4,300 men—are self-employed in the formal sector, reflecting the limited participation of women as business owners[114]. It would also be worth noting that none of these figures reflect the actual longer hours that women work in a day when factoring in unpaid care and domestic work, as well as time and labour spent volunteering in community activities. For instance, employed women spend an average of 64 hours per week in their main occupation and on household chores, compared with 49 hours spent by men[115].

Education is free and compulsory in Fiji. Fiji has one of the highest net enrolment ratios in the Pacific for girls' primary school education (98% in 2015, second only to the Cook Islands), and gross enrolment ratios for tertiary education (64% female GER and 43% male GER in 2019, second only to Palau)[116]. In Fiji, boys are more likely to study 'trade-centred' subjects (automotive engineering, welding, and carpentry), whereas most female students are enrolled in support and hospitality-related courses (catering, tailoring) although there have been attempts by the government to extend equal opportunities for women and girls in 'non-traditional' courses. Since 2015, the Technical College of Fiji has more women than men enrolling in agriculture, and women have also enrolled in construction and engineering programmes[117].

3.5. Women's Health and Violence Against Women

Rural communities face specific disadvantages in accessing quality health care, including travel costs to divisional health facilities and long wait times to receive care. These constraints impact women more than men due to their additional reproductive, caregiving, and subsistence responsibilities[118]. In 2014, the maternal mortality rate was estimated at 44 per 100,000 live births and the infant mortality rate was 14 per 1,000 live births. The 2007 census shows the rate of adolescent pregnancy as 36 births per 1,000 women aged 15–19; the rate was higher in rural (42) than urban (30) areas. Recent data from the Ministry of Health indicates that adolescent fertility in 2014 was 27 births per 1,000 women aged 15–19[119]. For women aged 15-49 who were married or in a union, the percentage who reported having their family planning needs satisfied with modern methods was 51.3% in Fiji (2nd highest in the region, following Kiribati)[120].

According to the latest available data, the highest rate of physical violence against women from intimate partners is found in Fiji: in 2013, 61% of ever-partnered women in Fiji reported experiencing physical intimate-partner violence in their lifetime[121]. A Fijian women's rights organisation reports a slightly higher figure of 64% of women aged 18 to 64 who have ever been in an intimate relationship, that report having experienced physical and/or sexual abuse by their husband or partner[122]. The prevalence of GBV has negative impacts on community and family capacity as well as on social cohesion. This, in turn, hinders economic positions and social development. Women from rural areas are more likely to be at risk of violence than those in the urban regions.

One of Fiji's objectives for gender and development is "to educate the community and law enforcement agencies to prevent and eliminate VAW"[123], although the general lack of GBV data

[114] ADB (2015). Fiji Country Gender Assessment.
[115] Ibid.
[116] UNW (2022). Gender Equality Brief for 14 Pacific Island Countries and Territories.
[117] Beijing+25 Fiji Country Progress Report (2019). https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/64/National-reviews/Fiji.pdf.
[118] ADB (2015). Fiji Country Gender Assessment.
[119] Ibid.
[120] UNW (2022). Gender Equality Brief for 14 Pacific Island Countries and Territories.
[121] Ibid.
[122] Fiji Women's Crisis Centre (2013). Somebody's Life, Everybody's Business! National Research on Women's Health and Life Experiences in Fiji. https://www.fijiwomen.com/wp-content/uploads/2017/11/National-Survey-Summary.pdf.
[123] FAO and SPC (2019). Country Gender Assessment of Agriculture and the Rural Sector in Fiji. https://www.fao.org/documents/card/es/c/CA6670EN/.

means it is difficult to monitor the fulfilment of this objective. Fiji also currently implements so-called "no-drop policies", whereby cases of domestic violence that are reported to the police must progress through the justice system regardless of whether the victim chooses to withdraw the case, which are designed to prevent victims from withdrawing a case due to reconciliation with the perpetrator, or in fear of the consequences they may face if they continue, as well as to discourage the use of reconciliation or community settlement resolutions to incidents of domestic violence[124]. Overall, the status of GBV and lack of GBV data and protection mechanisms in Fiji requires development interventions and climate actions to ensure sufficient safeguarding measures are set up and embedded in project designs.

4. Gender Analysis and Assessment

4.1. Gender in Climate Change and Nature-based Solutions

Climate change is not gender-neutral, as natural disasters and climate change have disproportional impact on diverse groups of women based on pre-existing vulnerabilities and inequalities in Fijian society. Disaster and climate risks are a greater threat to women's socioeconomic resilience than to men's, as women start from a position of having less secure, lower-paid work, and a high level of domestic violence and workplace sexual harassment that impact their capacity to develop and prosper.

On average, the people of Fiji experience 3 to 4 major disaster events over their lifetime[125]. Even as women are disproportionately impacted by disasters and climate change in negative ways, women's participation in humanitarian decision-making and leadership is considered low across the Pacific Island countries, from household decision-making to national legislatures. Women are less likely to receive critical information to prepare for humanitarian disasters and are less likely to influence decisions in community decision-making bodies and consultations on disaster risk management and climate change adaptation[126].

Although there are many gaps in statistical data, much is understood about the gendered impacts of sudden-onset disasters in Fiji based on Post Disaster Needs Assessments, evaluations of response efforts, and case studies of disasters. Two issues surfaced following Tropical Cyclone Winston in Fiji: increases in gender-based violence in temporary shelter and affected communities, and greater impoverishment of women in recovery and reconstruction. Moreover, the role of women in food production—through subsistence farming or growing crops for income—is likely to be significantly impacted by disasters and climate change.

Projected climate changes create risks to food security for families and communities. Changes to coastal marine fisheries and reduced availability of fish stocks due to the changing climate disproportionately affect women whose livelihoods and food security rely on them. In this context, protection of coastal resources is imperative in sustaining the livelihoods of vulnerable women. Women's participation in decision-making concerning climate change adaptation and resilience-building, environmental and natural resources management, and development planning is critical[127].

Women in Fiji represent a high percentage of the population in poor communities that depend largely on natural resources for their livelihoods, particularly in rural areas where they shoulder the major responsibility for household water supply and energy for cooking and heating, as well as for food security. Yet women have limited access to, and control over, environmental goods and services; and they have negligible participation in decision-making and distribution of environment management benefits.

[124] UNW (2022). Gender Equality Brief for 14 Pacific Island Countries and Territories.
[125] ADB (2022). Women's Resilience in Fiji: How Laws and Policies Promote Gender Equality in Climate Change and Disaster Risk Management.
[126] UNW (2022). Gender Equality Brief for 14 Pacific Island Countries and Territories.
[127] ADB (2022). Women's Resilience in Fiji: How Laws and Policies Promote Gender Equality in Climate Change and Disaster Risk Management.

In rural communities, local norms and distribution of work shape women's unique roles in domestic and productive uses of natural resources; often the primary collectors of water, fuelwood, and non-timber forest products, women are integral to the effective management of fast-depleting natural resources and the ecosystems services that they support, and studies show that women's leadership in managing natural resources can yield many positive environmental and social results[128]. Research shows that, at the local scale, rural women encounter key barriers to participation and benefit from nature-based solutions; NbS interventions are ultimately implemented at the local level in communities, where the distribution of power and assets, socioeconomic and gender roles and norms, and women's individual attributes are crucial factors influencing outcomes[129].

In Fiji, currently there is limited literature that comprehensively traces the positive impact of rural women's voice, leadership, and meaningful engagement in decision-making in coastal zone management or the effectiveness of nature-based solutions to climate change. This programme presents an opportunity to help bridge this crucial gender data gap and overcome barriers to participation.

To provide further gender context to the 14 Fiji villages engaged in this nature-based seawalls programme, community consultations were facilitated with approximately 544 participants, 47% of which were women and 3% children or youth below 18 years old. Community members validated that their main livelihoods and income-generating activities were tourism, fishing, farming, and semi-commercial production of crops, fruits, and vegetables. Where there are existing mangroves, they engage in crab harvesting, and also engage in farming and fishing for subsistence. Across diverse geographical locations, a common challenge is limited access to primary markets and social services due to the remoteness of their villages from the main town.

Some gender-differentiated qualitative data were available, such as in the western Saoiko village where beekeeping for women was identified as a previous livelihood opportunity, though its sustainability was poor due to damages caused by cyclones, the continual cost of rebuilding, and financial constraints. Rural women were also engaged in a livelihood initiative where they produced handicrafts and hand-printed or handwoven materials that were marketed locally and abroad. In Soliyaga village, the Soliyaga Women's Group leads the harvest of crown-of-thorns starfish as organic manure for their mangrove nurseries. Community members expressed concern on the effect of seawall construction to the fisheries and species in the intertidal area, which would require conservation as these are linked to their sources of livelihood. And in Sese village, some women inquired about selling their mangrove seedlings and bags as a source of livelihood. Although this is not within the project scope, this highlights women's context and priorities, such as livelihood opportunities. Even in the early design phase, rural women and community-based women's groups surfaced needs and priorities that intersect with and that may impact, or be impacted by, the programme implementation. Further phases of the programme would ideally look more closely at the roles, needs, and strategic interests of women (and diverse sectors of women, such as women with disability, of different ethnicity, and more) and adopt an intersectional approach in examining how (or if) they truly benefit from nature-based seawalls.

As part of their engagement in the programme, the communities agreed to provide "assistance in the nursing and planting of mangroves and maintenance of vetiver". Less clear in the available data is the gender-differentiated roles in this assistance and maintenance – most likely this would fall upon women – and the ways in which this responsibility is distributed most equitably to ensure the benefits are, in turn, received equitably. Integrating gender and social inclusion in nature-based solutions is essential to its success and sustainability[130].

In this process, comprehensive safeguarding mechanisms for the prevention of sexual exploitation, abuse, and harassment (SEAH) are similarly necessary. As an example, the communities agreed to

[128] The World Resources Institute. (2023). Working Paper: Enabling Women as Key Actors in Nature-based Solutions. https://www.wri.org/research/enabling-women-key-actors-nature-based-solutions.
[129] Ibid.
[130] World Bank (2023). Integrating Gender and Social Inclusion in Nature-Based Solutions: Guidance Note. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099060123165042304/p1765160ae46bb0aa0aefa0235601f9d0c6.

allocate lodging onsite for external or outsourced contractors building the seawalls, to save on travel time. Safety and security guidelines must be in place, as development interventions or climate adaptation actions must ensure SEAH risks are low for the women, children, and other vulnerable sectors of the community. As another example, tourism development as a result of improved climate adaptation and natural resources may also pose risks for sexual exploitation and abuse, particularly of women and girls[131]. Such considerations are mitigated in the ESMP.

4.2. Overall Assessment

Fiji has some foundations and legal enabling environment to advance gender equality as per their international commitments, yet there continue to be plenty of opportunities to accelerate this progress. Collecting and analysing gender-disaggregated data across development indicators; investing in and ensuring gender mainstreaming in sustainable development projects, humanitarian response, and climate adaptation actions; and supporting women's voice and decision-making in the home, community, and society by examining and challenging patriarchal gender norms are just some examples.

In natural resources management as well as with climate change adaptation actions, Fijian women play key roles as environmental stewards and agents of change, yet they are systemically and systematically excluded from access to and control over resources, and from meaningful engagement in decision-making processes that affect their own lives. Furthermore, women are not a homogenous group and the intersecting identities, roles, and vulnerabilities of women in Fiji are factors in the ways that they experience the negative compounding impacts of climate change (and by extension, the benefits of nature-based solutions). Rural women, women with disability, elderly and youth, and persons of diverse gender identity and sexual orientation are at higher risk of harm not just from disasters and climate change, but from gender-based violence as well.

To strengthen communities' awareness and knowledge of resilient coastal management and to reduce communities' vulnerability through nature-based solutions, a gender-responsive, locally-led, and socially-inclusive lens and approach is key. NbS programmes that are deliberately inclusive, that ensure women's meaningful participation in decision-making, and that harness women's leadership are demonstrably more effective in adapting to climate change and building long-term resilience.

4.3. Recommendations

Given the above analysis and assessment, the following recommendations are provided:

1. **Prioritise the collection and analysis of sector-specific sex-, age-, and disability-disaggregated data.** Gender-disaggregated data must be built into the project logframe, and reflected accordingly in the midterm evaluation and terminal evaluation report. More than the collection of gender, age, and disability data, it is important to examine and document how the intersecting vulnerabilities of already-marginalised sectors in the community affect their experience of the impacts of climate change, and the benefits of climate interventions.

2. Some points for analysis could include: (i) roles that community members take, and whether or not these are differentiated along gender (or age, or disability) lines; (ii) power-holders and decision-makers in the community, and the ways in which women are able or not able to engage them; and (iii) social norms that unintentionally or deliberately reinforce barriers for vulnerable sectors to access the benefits and resources of the programme; among others.

3. **Incorporate gender-responsive climate training in capacity development activities.** Climate

[131] Fiji Women's Rights Movement (2017). Pacific women demand climate justice: Women's voices from the Pacific Islands region. https://www.fwrm.org.fj/.

change is not gender-neutral, therefore technical training on climate adaptation and nature-based solutions should include a gender equality and social inclusion lens for extension officers, related staff, and community members. More than information and sessions on the differentiated climate impacts on the basis of gender, age, or disability, the approach is an analysis of power – looking at who makes the decisions in the community, who is excluded, and how the disparity is addressed through a whole-of-community approach that ensures no harm is done to more vulnerable groups.

- Some gender training modules would also include raising awareness on the risks and prevalence of gender-based violence, and how it is prevented and mitigated in the context of the project (see: ESMP). It would also take into consideration any differences in technical capacity, indigenous knowledge, and practical expertise along gender lines, so as to better inform the approach and content of the programme itself. For government staff, this aligns with the national goal of mainstreaming gender across departments and ministries.

4. **Meaningfully engage women, women's groups, and vulnerable sectors across the project timeline.** A locally-led, community-based approach entails the engagement of women and vulnerable groups in ways that are not merely tokenistic. Where possible in existing project activities, incorporate an updated mapping of rural women and community-based women's groups to create a baseline and determine where best to support women's leadership and decision-making in NbS and coastal protection.

- Take the lead of local women in designing the form, extent, and limits of their participation and engagement in the construction and maintenance of nature-based seawalls, and incorporate their preference in the frequency and convenience of feedback mechanisms for the project. Consult rural women and women's groups on their preferred ways of SEAH reporting and/or referral pathway mechanisms. Where NbS roles are differentiated along gender lines, consider targeted training for women and vulnerable sectors in local and accessible language. In midterm and terminal evaluation reports, highlight the points where women's feedback was incorporated and where their decisions influenced any key changes in the project implementation or evaluation.

To ensure gender-responsive outcomes of strengthened capacity and long-term climate resilience, it is recommended that socially-inclusive, gender-related interventions are embedded in the project design and implementation. The objective is to ensure equitable access to, and distribution of, the benefits of nature-based solutions.

5. Gender Action Plan

Based on the recommendations from the gender assessment, the following action plan has been developed for the project.

Table 25 Gender Action by Project Outcome.

Outcome/Output	Gender Action Plan (GAP) Integrated Activities	AF Gender Principle	Gender-Responsive Indicators and (targets)
Outcome 1. Strengthened awareness and knowledge of resilient coastal management and NbS for coastal protection.			
Output 1.1. Strengthened capacity to capture lessons and disseminate knowledge related to nature-based seawall benefits.			
Activity 1.1.1. Awareness raising and community consultation across all project sites	i. Include module focussed on gender and the climate crisis in technical training workshops, to emphasise sex-, age-, and disability-differentiated impact of climate change ii. Meaningfully engage	Equity Representation Participation	• % of gender-responsive technical training completed (40-50% women) • # of women and women's groups engaged meaningfully in community

Outcome/Output	Gender Action Plan (GAP) Integrated Activities	AF Gender Principle	Gender-Responsive Indicators and (targets)
	women, vulnerable sectors, and women's groups in community consultations by incorporating their roles, needs, & priorities iii. Schedule consultations and workshops with a design, and at a time, that is convenient to women and the community		consultations (14 women's groups)
Activity 1.1.2. Institutional strengthening of extension structures	i. Include gender-focussed module in training that emphasises value & strategies of equitable access and distribution to NbS benefits	Equity Access	• % of extension officers trained in gender-responsive NbS (100% of extension officers for target sites)
Activity 1.1.3. Strengthen data collection and storage principles to enhance data use for improved learning	i. In the gap assessment, identify if sex-, age-, and disability-disaggregated data are available, and to what extent ii. If disaggregated data is unavailable, ensure its inclusion in the developed systems and standards to ensure metadata collection to enhance gender data aggregation. iii. T	Access	• % inclusion of sex-, age-, and disability-disaggregated data in data collection and storage principles (100% of data collection at sites to have sex disaggregation) •
Outcome 2. Reduced vulnerability of coastal communities, livelihoods, and infrastructure through NbS.			
Output 2.1. Nature-based seawalls established for long-term climate resilience.			
Activity 2.1.1. Conduct baseline technical surveys and refine context specific NbS specification and management plans	i. Ensure consultation of women and vulnerable groups in validating baseline technical surveys	Access Representation Participation	• % of NbS seawall plans validated by community, particularly women and vulnerable groups (100% of plans validated)
Activity 2.1.2. Construction of NbSs at target sites	i. Ensure that technical training and capacity-strengthening on seawall functionality are reflective of gender norms and roles, easily accessible to communities, and available in local language ii. Consider women's care work and schedule in designing the timeline and plan for planting mangroves and vetiver plants iii. Design regular community	Equity Access Participation	• % of women and men that completed gender-responsive technical training (40-50% women) • % of community members, gender-disaggregated, that availed of feedback mechanisms (40-50% women) • # of SEAH complaints (0 complaints)

Outcome/Output	Gender Action Plan (GAP) Integrated Activities	AF Gender Principle	Gender-Responsive Indicators and (targets)
	feedback mechanisms throughout NbS development, specifically with women's insight, to iteratively ensure no harm is done iv. Ensure that appropriate safeguards for SEAH are in place and grievance mechanisms are understood by vulnerable groups if construction teams are temporarily stationed in communities		
Activity 2.1.3. Training of trainers for seawall operation and maintenance	i. Include gender-focussed training module on community-led, equitably-shared upkeep and sustainability of seawalls ii. Ensure women's representation and meaningful participation in training of trainers, particularly in illustrating gender-differentiated impacts and benefits of the project	Equity Representation Participation	• # of women and men that completed gender-responsive training of trainers (40-50% of participants are women) • % of women and community members reporting confidence in capacity to operate and maintain seawalls (100% of engaged women)

To ensure that the development, construction, and maintenance of NbSs do no harm to the community particularly women and vulnerable groups, a comprehensive management plan is outlined in Annex 1. To address any risks of sociocultural or household-based backlash due to the roles that community members and women take in this project, a comprehensive grievance and redress mechanism is described in the Stakeholder consultation section in the main document.

Annex III – Consultation attendance sheets and landowners consent forms

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