REQUEST FOR PROJECT/PROJECT FUNDING FROM THE ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/Project must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/Project document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat 1818 H Street NW
MSN N7-700
Washington, D.C., 20433 U.S.A
Fax: +1 (202) 522-3240/5
Email: afbsec@adaptation-fund.org

PROJECT/PROJECT PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROJECT INFORMATION

Project/Project Category: Regular Project

Country: Fiji

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

Type of Implementing Entity: Regional

Implementing Entity: Pacific Community (SPC)

Executing Entity/ies: Ministry of Waterways

Amount of Financing Requested: USD 5,764,000

Project / Project Background and Context:

Provide brief information on the problem the proposed project/Project is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.

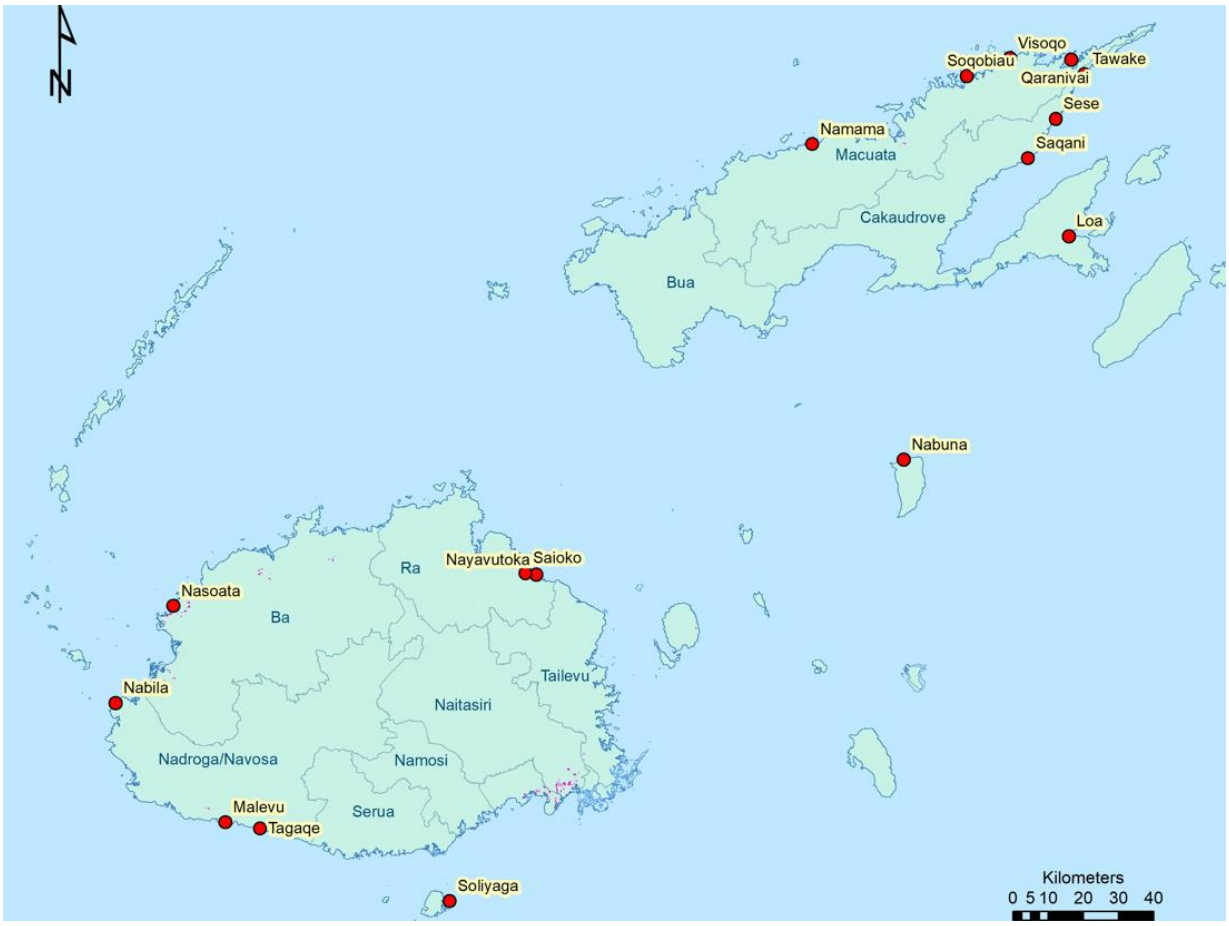
Summary
Coastal adaptation remains a top priority for the Government of Fiji (GoF) given the proportion of the population living in coastal areas. However, cost-effective solutions remain challenging to implement and scale up due to financial, capacity and other constraints. This proposed project seeks to deliver impact at scale by facilitating cross-ministerial cooperation, institutional capacity building and knowledge sharing to build nature-based seawalls using mangrove forests, locally sourced boulders, and vetiver grass to protect 16 coastal communities in Fiji highly vulnerable to impacts of climate change. These interventions will enable critical capacity building and institutionalise the engineering expertise required to design and implement innovative Nature-based Solutions (NbS) at local level.

The project will demonstrate transformational adaptation measures in communities by protecting them from climate impacts that negatively influence their livelihoods and safety. Project interventions will increase resilience of communities and enable them to adapt to climate change, enhancing their economic outlook and livelihoods.

Overview
Fiji comprises 110 inhabited islands and is home to nearly 900,000 people, approximately 75% of whom live within 5 km of the coast. It is an economic hub in the Pacific, but is highly vulnerable to external shocks, including climate change. 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 has made negligible contributions to global greenhouse gas emissions, 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 salt water. 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 seawalls and other protective measures. With these rising costs and risks, most Fijian communities struggle to access the 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.

Figure 1: Map of Fiji highlighting location of target communities



This proposed project will target over 3,000 people across 16 climate-vulnerable Fijian communities, addressing vulnerabilities through enhanced technical knowledge and financial assistance for locally designed nature-based adaptation measures. Further, the project will build the capacity of Fiji's Ministry of Waterways (MoW), target communities and other stakeholders to manage these interventions and implement similar measures in other communities. The targeted communities for this project are identified in Figure 1.

Economic 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[1], but then contracted nearly 20% in 2020 and 2021 due to the COVID-19

[1] https://countryeconomy.com/gdp/fiji

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[2]. Tourism, anchored by Fiji's beaches, coral reefs and tropical climate, comprises nearly 40% of the GDP, while agriculture (including crops and fishing) is also a significant driver of growth at 9% of GDP. Crucially, 41.5% of households in Fiji are involved in fishing and coastal activities[3]. The populations of all 16 communities included in this project rely largely on farming and fishing for their livelihoods.

Social and Gender Assessment

Context - Fiji has made several international and national commitments to gender equality, including the Convention on the Elimination of All Forms of Discrimination against Women, the Convention on the Rights of the Child, the revised Pacific Platform for Action, Fiji's 2013 Constitution and the 2014 National Gender Policy. Gender equality is also identified as a goal in national strategic planning documents.[4] Despite these commitments and good progress, gender inequality remains a significant challenge in Fiji with the behaviour and roles of Fijian women largely determined by societal systems and customary values. Socio-economic status, ethnicity and the rural/urban context are other factors that influence gender relations in the country, with more traditional gender norms generally found in rural communities. 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. Fijian male heirs generally inherit traditional titles and ensuing responsibilities, with women only inheriting titles if there are no male survivors.[5] 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. At the political decision-making level, women represented 16% of the total seats at the national parliament in 2018. Even though this was an enhanced situation, considering 6% in 2000, the figure was still insufficient to speak for women in the Fijian society.[6] In terms of gender-based violence, physical and sexual violence against women in Fiji is widespread. Almost two-thirds (64%) of women aged 18 to 64, who have ever been in an intimate relationship, report having experienced physical and/or sexual abuse by their husband or partner.[7] On health, rural people 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.

Gender-specific climate risks related to natural resources - 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. The 2010–2011 employment and unemployment survey shows that 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.[8] 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. Concomitantly, they have limited access to and control over environmental goods and services; they have negligible participation in decision-making and distribution of environment management benefits.

Gender is a critical determinant of vulnerability to climate change and natural hazards, as natural disasters and climate change have disproportional impact on women based on pre-existing vulnerabilities and inequalities in the Fijian society. Indeed, 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

[2] https://www.environment.gov.to/2020/05/21/fijis-ocean-waters-generate-2-5billion-full-control-of-eez-by-2030/
[3] https://www.agriculture.gov.fj/documents/census/VOLUMEI_DESCRIPTIVEANALYSISANDGENERALTABLEREPORT.pdf
[4] Republic of Fiji, 2019. Voluntary National Review – Fiji's progress in the implementation of the SDGs
[5] Fiji Development Bank and Green Climate Fund GESI Policy and Action Plan 2018-2021
[6] World Bank, World Development Indicator: Gender, http://datatopics.worldbank.org/world-developmentindicators/themes/people.html
[7] Fiji Women's Crisis Center, 2013. Somebody's Life, Everybody's Business! National Research on Women's Health and Life Experience in Fiji (2010/2011). Suva.
[8] Asian Development Bank, 2015. Fiji Country Gender Assessment

less secure, lower-paid work, and a high level of domestic violence and workplace sexual harassment that impacts their capacity to develop and prosper.

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 dominated 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. 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 these 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.[9]

Climate Context

Fiji is highly vulnerable to climate impacts, which will largely exacerbate existing vulnerabilities. It is ranked as one of the 15 countries with the highest disaster risk globally[10], a situation that will worsen as climate impacts intensify. Fiji's Climate Vulnerability Assessment and the NextGen Climate Project identify the five most pressing climate hazards facing the country as increases in: rainfall, temperatures, tropical cyclones, sea levels and ocean acidification.

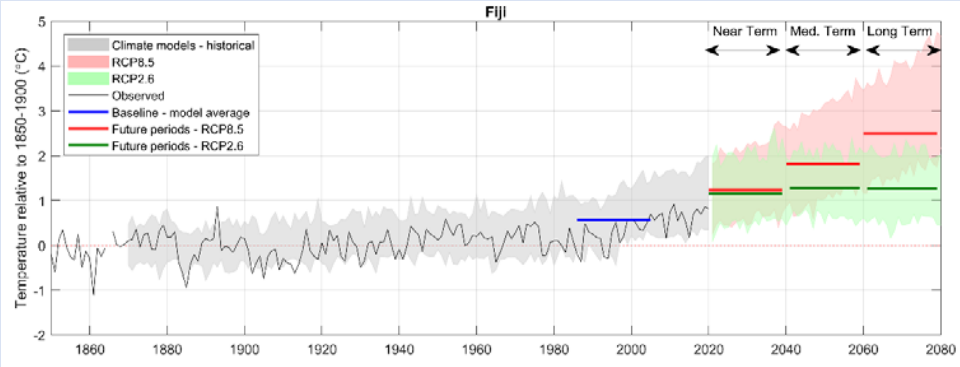
For communities living along the coasts, the human and economic consequences of these impacts are significant. More than 675,000 Fijians live near the coasts and are directly exposed to impacts associated with these drivers including:

- Saltwater inundation is contaminating drinking water and ruining previously fertile croplands, reducing crop production
- More frequent flooding at high tide is destroying houses, schools, churches, roads, and other critical infrastructure in the community
- Extreme flooding, due to storm surges or cyclones, is also destroying vital public infrastructure
- Coastal erosion, due to a combination of storm surges, cyclones, flooding, and sea level rise, is amplifying communities' exposure to the aforementioned climate impacts

The consequences for Fiji's development trajectory are significant. Intensifying climate impacts 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. 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 (TC) 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 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, improving public education, strengthening the healthcare system, or helping subsistence farmers adapt and scale climate-resilient agricultural practices. Table 1 shows observed and predicted climate trends as well as historic and future impacts.

[9] Asian Development Bank, 2022. Women's resilience in Fiji – How laws and policies promote gender equality in climate change and disaster risk management
[10] Bündnis Entwicklung Hilft and IFHV. 2020. WorldRiskReport 2021.

Table 1. Summary of observed climate and projected climate trends and their impacts in Fiji .[1]

Climate drivers	Observed climate trends	Future Projections
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).  *Figure 2 : Average annual temperature of Fiji relative to 1850-1900 (°C; grey band indicates the range of five global temperature datasets)*	Projections for all emissions scenarios indicate that the annual average air temperature and sea surface temperature (SST) will increase in the future in Fiji. In the near term (2020–2039) the range of projected temperature change is similar for both emissions pathways (Representative Concentration Pathway (RCP)2.6 and RCP8.5), but in the medium term (2040–2059) the pathways begin to separate. By 2030, the warming is likely to be +0.6°C (all RCPs), while by 2050 it is expected to be from +0.7°C (RCP2.6) to +1.3°C (RCP8.5) relative to 1986-2005 baseline. Increases in average temperatures will result in an increase in the number of hot days and warm nights and a decline in cooler weather. Intensity of major ENSO events are predicted to increase under continued global warming. This will in turn cause increased incidence of meteorological drought in Fiji.
	Impact: Projected temperature increases will result in drier conditions and more frequent droughts. Increased aridity and drought conditions will in turn affect food security, water security and local livelihoods. Furthermore, increased SST can induce coral bleaching events, depleting reef health and resulting in ecosystem collapse and cascading impacts that deplete fish stocks. Varied SST can also induce shifts in migratory routes causing variation in catchable fish stocks. Beyond this, increased drought periods will deplete surface and ground water reservoirs. Consequently, increased temperatures will threaten food and water security in Fiji.	
Tropical cyclones	TCs typically affect Fiji between November and April. Roughly 20 TCs affect 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.	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 storms (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.[2]
	Impact: Increased intensity of TCs will cause extensive damages to infrastructure and cause significant economic losses through repairs and reconstruction. In 2016, TC Winston hit Fiji as a severe Category 5 storm, causing nearly USD 1 billion in damages – the equivalent of one third of Fiji's GDP in 36 hours. Additionally, high-winds and increased rainfall during such events result in destruction of crops and inundation that can overwhelm	

	water infrastructure. As such, TCs can have negative impacts on food security, water security, infrastructure, and loss and damages. Since March 2020, when Fiji shut its borders due to the COVID-19 pandemic, eight TCs have impacted the country, including two severe Category 5 storms. These TCs caused at least USD 400 million in damages. In this time, the pandemic had already caused Fiji's economy to contract by 20% and the GoF to lose at least 40% of its revenues, forcing a 33% cut in domestic climate finance. These cuts included USD 3 million from the MoW's coastal erosion protection programme, which builds seawalls, groynes, and wave breakers to protect vulnerable coastal communities from sea-level rise and coastal erosion.	
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[11]. 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[3].	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. 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.
	Impact: Rising sea levels directly impact infrastructure and inundate community settlements, causing severe livelihood impacts and potential need for relocation. Approximately 30,000 Fijians currently inhabit land areas that are vulnerable to sea-level rise. It is estimated that 4.5% of all existing buildings on Fiji will be inundated by 2050 and 6.2% by 2100 because of rising seas. In low-lying provinces, these figures could be as high as 23% of buildings in the province (as predicted for Serua province under 2100 projections). Further to this, increased sea-level rise can extend the impacts of tidal events such as king tides, resulting in greater saltwater intrusion into coastal aquifers and surface water reservoirs, with impacts on community supplies of freshwater. Moreover, coastal ecosystems can be negatively impacted through land degradation and erosion. This can alter coastal geography, in turn impacting coastal roads and farmland. Therefore, sea-level rise can negatively impact food security, water security, infrastructure, and increase loss and damages.	
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[4]. Increased emissions of CO_2 have decreased the pH of the tropical Pacific Ocean by 0.06 pH units since the beginning of the industrial era.[5]	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. 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[6]. This represents a drop of approximately 0.6 in the tropical region, corresponding to a decline in coral calcification rate of about 10%.[7]
	Impact: With increasing atmospheric CO_2 levels, continued absorption of CO_2 into the sea will decrease water pH, resulting in more acidic conditions. This impacts the growth and health of organisms reliant on high carbonate saturation levels, including many coral species. Reef health is thus directly linked to ocean acidification, which will strongly affect coastal communities, the fisheries sector and the tourism industry, all of which are key economic	

[11] https://world.350.org/pacific/files/2014/01/1_PCCSP_Fiji_8pp.pdf

<table>
<tr><td></td><td colspan="2">sectors for Fiji. Food security will be negatively impacted under oceanic conditions with a lower pH. Moreover, as coral reefs play a role in dissipating 97% of wave energy, ocean acidification will also indirectly impact shorelines that will ultimately be less protected from storm surges and similar conditions.</td></tr>
<tr><td>Rainfall</td><td>Rainfall is affected by the SPCZ as air rising over warm water where winds converge results in thunderstorm activity. This is most intense during Fiji's wet season. 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[12]. Drought duration and severity are non-uniform in Fiji and drought conditions are largely associated with El Nino events.[8]
Observed Seasonal Precipitation
The identified sub-national units with the highest and lowest precipitation sums reflect the latest climatology, 1991-2020.
<table>
<tr><th></th><th colspan="4">1991-2020</th><th colspan="4">1961-1990</th><th colspan="4">1931-1960</th><th colspan="4">1901-1930</th></tr>
<tr><th>Units: mm</th><th>DJF</th><th>MAM</th><th>JJA</th><th>SON</th><th>DJF</th><th>MAM</th><th>JJA</th><th>SON</th><th>DJF</th><th>MAM</th><th>JJA</th><th>SON</th><th>DJF</th><th>MAM</th><th>JJA</th><th>SON</th></tr>
<tr><td>Country: Fiji</td><td>699.21</td><td>869.06</td><td>246.16</td><td>383.73</td><td>642.18</td><td>779.88</td><td>253.99</td><td>427.83</td><td>653.20</td><td>863.09</td><td>279.87</td><td>457.46</td><td>649.51</td><td>776.80</td><td>264.34</td><td>427.64</td></tr>
<tr><td>Highest: null</td><td>749.01</td><td>876.54</td><td>231.14</td><td>429.53</td><td>695.83</td><td>797.49</td><td>238.21</td><td>470.00</td><td>709.62</td><td>874.41</td><td>261.47</td><td>499.33</td><td>703.80</td><td>793.59</td><td>246.51</td><td>467.76</td></tr>
<tr><td>Lowest: null</td><td>585.56</td><td>789.83</td><td>319.86</td><td>411.57</td><td>550.40</td><td>731.92</td><td>318.38</td><td>447.64</td><td>570.19</td><td>789.24</td><td>346.94</td><td>475.14</td><td>557.96</td><td>727.50</td><td>331.63</td><td>450.31</td></tr>
</table>
Figure 3. Seasonal precipitation trends in Fiji (DJF: Dec, Jan, Feb; MAM: Mar, Apr, May; JJA: Jun, Jul, Aug; SON: Sep, Oct, Nov).</td><td>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).[9] 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. Droughts are projected to decrease in the duration, frequency and intensity by the second half of the century.</td></tr>
<tr><td></td><td colspan="2">Impact: More intense and frequent extreme rainfall events will have negative impacts on infrastructure, food security, water security, soil health, coastal ecosystems, and local livelihoods. Increased inundation events can contaminate water sources causing significant health risks to local populations and reducing agricultural productivity. Increased soil or coastal erosion can result in loss of nutrient rich topsoil and reduced agricultural productivity. Freshwater run off and siltation into coral and lagoon ecosystems can degrade reef health, negatively impacting fish stocks. Through the degradation of ecosystem health, local communities that depended on natural resources will suffer economic losses that will negatively impact their livelihoods.</td></tr>
</table>

[1] 'NextGen' Projections for the Western Tropical Pacific: Current and Future Climate for Fiji – Technical Report. (2021). https://www.rccap.org/uploads/files/3dc21bf2-e046-444c-b375-5678438f17e8/Fiji%20Country%20Report_Updated.pdf
[2] Knutson et al. (2020). Tropical cyclones and climate change assessment: Part II. Projected response to anthropogenic warming. Bulletin of the American Meteorological Society, 101 (3): E303 E322.
[3] Fiji - Sea Level Rise | Climate Change Knowledge Portal (worldbank.org)
[4] Douville et al. (2009). Boron isotopes in Fiji corals and precise ocean acidification reconstruction. In *AGU Fall Meeting Abstracts* (Vol. 2009, pp. GC24A-04).
[5] Raven et al. (2005). Ocean acidification due to increasing atmospheric carbon dioxide. The Royal Society, http://eprints.uni-kiel.de/7878/1/965_Raven_2005_OceanAcidificationDueToIncreasing_Monogr_pubid13120.pdf
[6] 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.
[7] Chan, N.C.S. & Connolly, S.R. (2013). Sensitivity of coral calcification to ocean acidification: A metanalysis. Global Change Biology 19:282–290, doi:10.1111/gcb.12011.
[8] Viliamu et al. (2021). Historical and future drought impacts in the pacific islands and atolls. *Climatic Change, 166*(1-2) doi: https://doi.org/10.1007/s10584-021-03112-1
[9] CSIRO & SPREP. (2021). 'NextGen' Projections for the Western Tropical Pacific: Current and Future Climate for Fiji. Final report to the Australia-Pacific Climate Partnership for the Next Generation Climate Projections for the Western Tropical Pacific project. Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Secretariat of the Pacific Regional Environment Programme (SPREP), CSIRO Technical Report, Melbourne, Australia. https://doi.org/10.25919/5gh8-qt86

[12] https://climateknowledgeportal.worldbank.org/country/fiji/climate-data-historical

Adaptation Problem

As outlined in Table 2 climate change is increasing the intensity of tropical cyclones and storm surges and driving sea level rise, which is e eroding protective shorelines, increasing the salinisation of groundwater tables, and reducing the productivity of soils. Climate change is thus reducing prosperity and undermining food and water security. These impacts fall disproportionally on the poorest and most vulnerable of communities, often situated in remote or marginalised areas. Awareness of climate impacts and their causes is limited at the community level and there are significant limitations in knowledge and action on sustainable adaptation solutions both at community level and across government extension structures. In Fiji, coastal areas are significant sources of economic growth but are also vulnerable to the most severe climate risks. For coastal communities, climate impacts are endangering households, livelihoods and health outcomes, and are disproportionately affecting women, who tend to be the anchors of economic activity and community life.

Adaptation Needs and Barriers

Observed and projected climate change scenarios highlight that there are significant challenges posed to coastal communities in Fiji. The effects of the five climate change drivers identified in Table 2 will result in severe physical impacts on coastal regions. This has led to considerable responsive expenditure on loss and damages at the national level. At the local level, loss and damages are felt both economically (through destruction of livelihoods and degradation of natural resources) and socially (relocations, degraded health systems, reduced incomes). Observed challenges posed by climate change are expected to intensify under future climate change conditions.

To overcome these challenges, coastal communities require enhanced and proactive support for climate adaptation of coastal defences to enhance resilience to the impacts of climate change. To achieve this, financing is required for:

i. Capacity building at both the national and community levels to create an enabling environment and improve technical capacities to promote adoption of concrete climate adaptation measures.
ii. Construction of appropriate and resilient coastal defences in targeted communities.

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

Adaptation need/gap	Barrier	Description
Greater knowledge and awareness on climate change at community level. Communities require further understanding and awareness of climate threats to and impacts on their livelihoods. This will enhance communities' abilities to act proactively to adapt to climate change rather than to rely on reactive responses from the national level.	B1	**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.
Bottom up and integrated planning processes. For enhanced uptake and sustainability of adaptation solutions, it is essential that community ownership in planning processes is established from inception and that all community stakeholders agree to interventions.	B2	**Limited community engagement** 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.
Strong technical assistance extension of climate adaptation 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	B3	**Inadequate technical and institutional capacity and standards.** There is presently limited understanding of climate-resilient livelihood and adaptation options in disaster-prone areas such as coastal zones. Currently, formal training in technical skills across extension structures is limited. Furthermore, a lack of standards, technical specifications and standard operating procedures for

knowledge systems. Consequently, access to extension structures for technical support is essential for communities to adopt adaptation measures.		interventions are outdated or lacking. For example, there is limited technical capacity and knowledge on how to construct NbS seawalls.
Informed and coordinated decision-making. Fiji is a geographically dispersed country with both high and low islands, that have different vulnerabilities to climate change impacts. There is a need for high-resolution data collection and projection to enable identification and prioritisation of priority areas and approaches	B4	**Limited 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 MoW apps require refinement and updates to enable more meaningful data use to inform decisions.
	B5	**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.
Access to climate finance resources. Although disaster risk reduction investments show positive net savings over time, available funding for proactive climate action is often not available. Multilateral/international climate finance resources are needed to provide sufficient financial support for concrete adaptation investments.	B6	**Insufficient funds** 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 - The COVID-19 pandemic Consequently, domestic climate finance resources for proactive disaster risk reduction investments are greatly depleted.

Targeted Beneficiaries

The proposed project will support GoF in implementation of nature-based seawalls in 16 vulnerable coastal communities to enhance their resilience to increased climate impacts. All 16 sites are indigenous I-Taukei communities with historical connection to the land, subsistence economic activities, and demonstrated climate vulnerability. These 16 were selected based on their climate vulnerability, technical analysis of the suitability of the intervention, and willingness to support project design and implementation.

Site Selection Process

The Ministry of Waterways under its NbS seawall programme has a coastal Protection Works, policy and procedures (please see link in Annex 1). 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 (MoW) through Divisional Office (DO), or Provincial Council Office (PCO). The 16 villages in this proposal each wrote to the DO's office requesting assistance from the MoW for an NBS sea wall. 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 (section 6.1) explain the climate vulnerability matrix used for selection of communities. After receiving the written request, a detailed scoping is carried out by the MoW technical team. MoW investigates severely affected communities based on the MoW 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 success seawall construction. MoW investigates the availability of raw materials based on the MoW 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 labours 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

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

Consultation Process

Consistent with the MoW's Nature-Based Solution Coastal Protection Policy and Procedures, all communities will partake in the following consultation process:

1) Communities submit an official written request for an NBS seawall to the MoW Coastal Protection Program indicating support of the leadership and broader community.
2) MoW'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 (see above for detailed assessment).
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 MoW technical team conducts another round of consultations. All community members participate in these meetings, where the MoW technical team outlines the project approach, the community's role, the expected outcomes, and all relevant safeguards to protect the community.

Since all 16 sites in this proposal are in highly vulnerable, indigenous iTaukei communities, the consultations will be conducted in both English and the local iTaukei language. This will ensure that all information is transparent and accessible to the marginalized communities benefiting from this project. The full funding proposal will include minutes from the consultations and all required landowner consent forms, building on initial screening consultations conducted to date.

Direct and Indirect Project Benefits by Site

Overall, the project will directly benefit 2,755 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 local institutional capacity and to protect local markets and livelihoods. Just under half the direct beneficiaries will be women. Table 3 provides a high-level summary of target communities and beneficiary dynamic.

Table 3. 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

Northern Division							
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
Western Division							
9	Ba	Vitogo	Nasoata Village	500	216	185	401
10	Nadroga / Navosa	Korolevuiwai	Taqage Village	400	174	209	383
11		Raviravi	Nabila Village	300	148	151	299
12		Conua	Malevu Village	450	89	77	166
13	Ra	Kavula	Nayavutoka Village	520	74	56	130
14		Nakorotubu	Saioko Village	360	86	104	190
	Maritime						
15	Serua	Beqa	Soliyaga Village	400	39	31	70
16	Lomaiviti	Koro	Nabuna Village	520	118	138	70
Total				**5,360**	**1,556**	**1,455**	**2,755**

Project Objectives:

List the main objectives of the Project.

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 three project-specific Objectives:

1) Create an enabling environment for the scaling-up and rolling out of NbS coastal protection approaches across Fiji.
2) Construct NbS seawalls in 16 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. More information on alignment of the project outputs with AF's results framework can be found in Part III – Section F, which will be further completed at funding proposal stage.

Project / Project Components and Financing:

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.

For the case of a Project, individual components are likely to refer to specific sub- sets of stakeholders, regions and/or sectors that can be addressed through a set of well-defined interventions / projects.

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	909,000
Outcome 2: Reduced vulnerability of coastal communities, livelihoods and infrastructure through NbS	Output 2.1: Nature-based seawalls established for long-term climate resilience	3,900,000
Project Execution cost (9.495% of Total Project Cost)		504,500
Total Project Cost		5,313,500
Project Cycle Management Fee charged by the Implementing Entity (8.475% of Total Project Cost)		450,500
Amount of Financing Requested		5,764,000

Projected Calendar:

Indicate the dates of the following milestones for the proposed Project

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 / PROJECT JUSTIFICATION

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

Project Description

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, 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 NbS seawalls in vulnerable sites. This financing of concrete adaptation action would enable communities to adapt to adverse climate impacts 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 in the *Targeted Beneficiaries* section. The project interventions will enhance resilience in target communities to ensure continued well-being and sustainable livelihoods without the need for resettlement. Beyond the target communities, enhanced institutional capacity within the MoW and other key stakeholders in extension structures will better enable scaling up 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 awareness and knowledge of resilient coastal management and NbS for coastal protection

Outcome 1 will strengthen the enabling environment for enhanced use of NbS approaches for coastal protection in alignment with Objective 1 of the project. This will be achieved through institutional capacity building focused on enhancing community engagement processes, increasing technical knowledge of NbS approaches across extension structures and improving data collection and management systems as well as improving community to decision-maker (vertical) communication channels.

Output 1.1: Strengthened capacity 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 will be bettered position to scale up and roll out NbS interventions across other vulnerable communities in need of coastal protection from climate impacts. The enabling environment created under this output will provide benefits to the 30,000 individuals currently identified as living in coastal communities deemed vulnerable to predicted climate change impacts. Lessons learned on NBS approaches from the target sites can be aggregated and knowledge products developed to enhance engagement with these communities and improve the efficacy of NBS sea walls in the future investments. This Output will be achieved through the following activities.

Activity 1.1.1: Awareness raising and community engagement consultation across all sites.

Through this activity, the project will engage community leaders through Talanoa held at each of the 16 project sites to:

i. provide technical training on the climate context and predicted climate impacts in the near- to mid-term (2030–2050),
ii. provide training at community level on NbS approaches to combat the predicted climate impacts,

iii. conduct consultations with community leaders (inclusive of female leaders and ensuring gender considerations are met) on resilient coastal zone management planning, and how best to integrate the NbS approach into community planning.
iv. create communities of practice between technical knowledge (extension staff) and societal knowledge (community level) domains to unpack and process lessons learned through implementation to enhance impact of NBS approaches.
v. encourage "over the fence learning" and enable community and tribal leaders to pass on knowledge in provincial telanoa's to enhance horizontal knowledge transfer.

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 above community engagements.

Through this activity, the project will directly target Barriers B1-2, enhancing community engagement in planning processes with MoW extension staff and increasing community knowledge and awareness of climate change issues.

Activity 1.1.2: Institutional strengthening of extension structures

Through this activity, the project will undertake the following:

i. An assessment of institutional processes, knowledge processes, communication channels and materials across the MoW extension structures.
ii. The assessment will inform a technical review and enhancement of Standard Operating Procedures (SOPs) to improve workflows and processes within the MoW.
iii. The SOPs will also look to enhance transparency in vertical communication channels so that there is a clear understanding of community needs at decision making levels and that data and knowledge from projects is accurately reported to decision makers.
iv. This will streamline data aggregation and knowledge generation to inform improved delivery of technical assistance by extension agents for NBS approaches.
v. Training will be provided through the project across extension structures on the enhanced SOP's to ensure that staff abide by the improved procedures to facilitate technical assistance to communities on planning and implementation of NbS coastal management improvements.

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 barriers B3 and B5.

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 , MoW interventions and field offices. This will ensure that: i) local-level data collection meets the requisite standards and needs; and ii) data can be aggregated for meaningful and informed analysis for decision making (tying into activity 1.1.2).

Data collection approaches and indicators will be standardised and systematised across MoW 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 MoW 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[13] to facilitate greater use of data in decision-making both within the MoW but also across the stakeholder landscape to maximize impact of interventions.

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

Through this activity, data quality, access and functionality will be enhanced to enable better knowledge generation, directly overcoming barrier B4.

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

Through investments into construction of NbS seawalls in target communities, this outcome will directly reduce vulnerability of coastal communities to the impacts of climate change. Furthermore, Outcome 2 will enhance experience 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 process and enhance effectiveness of 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 16 communities across the country to construct NbS seawalls to enhance community resilience to the negative impacts of climate change. This will directly enhance the climate resilience of 2,755 (1,455 women) beneficiaries in the target communities and will enhance the experience of MoW extension agents in implementing NbS approaches in seven provinces. The output will be achieved through the following activities.

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

Technical surveys[14] will be conducted at each site. Analysis from these surveys will inform 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. Consensus from the community is required for the approval of constructions activities. In this consultation process at least 80% of women in a community must be engaged as well as representation from all marginalised groups and indigenous groups. The Environmental and Social Impact Assessment (ESIA) will also inform the development of an Environmental and Social Management Plan and operation and maintenance manual that will be community led and ensure long-term sustainability and upkeep of the NbS infrastructure.

This will be supported by enhanced technical capacities provided under activity 1.1.2 to address barrier B3.

Activity 2.1.2. Construction of NbS seawalls at target sites.

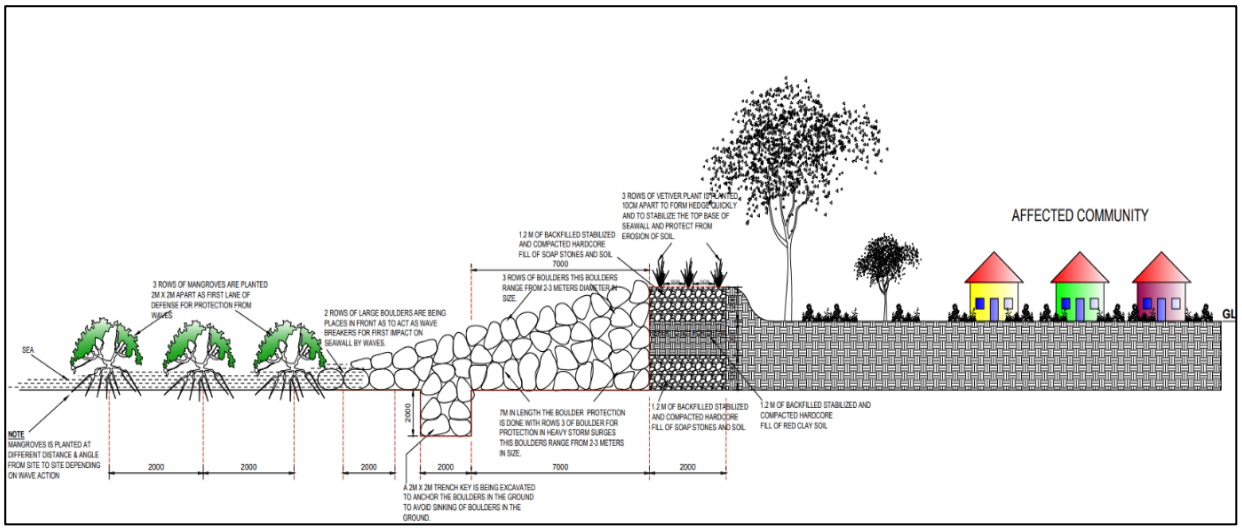
Building on Activity 2.1.1, service providers will carry out works as appropriate at each site to construct the NbS seawalls. Community members will also be engaged to carry out ecological processes to enhance engagement and ownership in the development of the seawalls whilst also increasing their capacity and technical understanding of the functionality of the seawalls, at least 50% female participation and 50% youth participation must be ensured in the capacity building activities. Contracting of service providers for provision of machinery and equipment will directly be financed from project grant resources as works are beyond the financial capacity of communities.

This activity therefore directly addresses barrier B6.

[14] Site-level Environmental and Social Impact Assessments, wave action analysis, king-tide height, community needs and land-use patterns. This list will be further refined at the full funding proposal stage.

The nature-based seawalls are illustrated in Figure 4 with further information the local adaptation solutions described in Annex 1. All 16 sites are currently experiencing intensifying climate impacts, while technical analyses have determined that the proposed solutions are the most cost-effective adaptation measures.

Figure 4: Example diagram of NbS seawall construction specifications



A typical NbS seawall is made up of four main natural components. The first defence is a seaward mangrove hedge. The mangroves are planted in three to five rows, 1 m apart. The second defence comprises approximately 7 m of boulder revetments. The boulders are a minimum of 2–3 m in diameter each, placed in several rows. Boulders are locally sourced from surrounding areas deemed suitable to not have a lasting negative impact through the ESIA. The third stage is a backfill of stabilised and compacted core of soapstone and clay soil. This provides added support to prevent displacement of the boulders. The compacted soil is 2 m in length and approximately 4 m in height. The final stage is a vetiver grass hedge planted on the top layer of the compacted backfill wall. The vetiver seedlings are planted three to five rows at intervals of 10 cm. The vetiver root system provides added strength and holds the soil firmly in place, further preventing erosion.

Project Monitoring, Evaluation and Learning

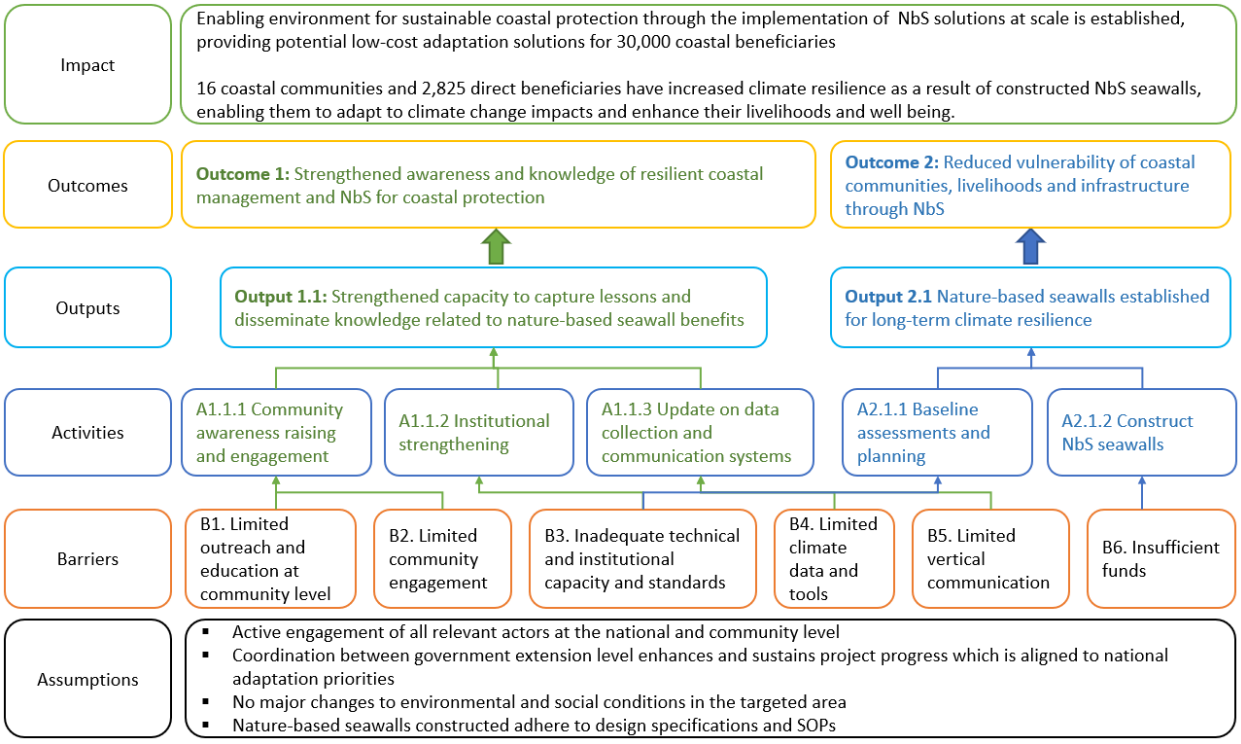
A framework will be established to monitor the progress of project results and activities, and changes to contextual factors that have a direct bearing on implementation. This framework will serve as an essential source of information for evaluation and learning. It will track the progress of activities 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 project log frame (to be developed at full proposal stage), 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 G and links to those activities under Output 1.1.

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 5: Theory of change diagram



B. 6Describe how the project / Project provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / Project will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Economic benefits

The project will implement NbS seawalls to protect coastal areas in the immediate proximity of communities with high vulnerability to climate impacts. The NbS seawalls 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 NbS seawalls 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 NbS seawalls 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 seawall 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.

From a livelihoods perspective, the project will also provide some job creation through the establishment of climate-resilient mangrove and vetiver nurseries at target sites without access to these resources. At least 50% of beneficiaries will be female and 50% of beneficiaries will be youth and marginalised persons to ensure equitable opportunity of employment.

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 seawall 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 4 summarizes the total project benefits, including coastline rehabilitated, new plants grown and established, and seawalls created. Additionally, the project will establish a mangrove and vetiver grass nursery in each project site. A total of 32 nurseries, each employing 3 people, will be established to support the direct creation of 96 NBS jobs in the vulnerable communities.

Table 4: Preliminary estimate of quantifiable impact of the project.

Village	Jobs created	Seawall Length	Mangrove plants	Vetiver plants	Coastline rehabilitation (m^2)
Qaranivai Village	3	100	2,000	2,500	2,000
Soqobiau Village	3	250	5,000	6,250	5,000
Visoqo Village	3	150	3,000	3,750	3,000
Namama Village	3	60	1,200	1,500	1,200
Saqani Village	3	350	7,000	8,750	7,000
Sese Village	3	400	8,000	10,000	8,000
Tawake Village	3	280	5,600	7,000	5,600
Loa Village	3	320	6,400	8,000	6,400
Nasoata Village	3	500	10,000	12,500	10,000
Taqage Village	3	400	8,000	10,000	8,000
Nabila Village	3	300	6,000	7,500	6,000
Malevu Village	3	450	9,000	11,250	9,000
Nayavutoka Village	3	520	10,400	13,000	10,400
Saioko Village	3	360	7,200	9,000	7,200
Soliyaga Village	3	400	8,000	10,000	8,000
Nabuna Village	3	520	10,400	13,000	10,400
Total	**96**	**5,360**	**107,200**	**134,000**	**107,200**

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

The NbS approach has been proven to be more cost-effective than conventional approaches such as concrete seawalls. Conventional concrete seawall cost USD 2,760 per metre in Fiji. In comparison, the average construction costs of the NbS seawalls planned across the 16 sites are estimated at USD 634.3 per metre (based on assessments presented out in Annex 1). Specifically, the project incorporates established best practices based on MoW's Technical Design Standards for NbS and Coastal Protection Policy to plant, cultivate, and nourish mangrove rows and vetiver grass at all 16 sites. At each site, six rows of mangroves will be planted seaward at intervals of 1 to 2 meters, and will line the seawall with roughly 20 centimetres between mangrove plants. This equates to roughly 20 mangrove plants per meter of seawall. Similarly, the project will plant roughly 25 vetiver plants per meter of seawall – with three rows of vetiver planted landward at an interval of 30 centimetres. These approaches will ensure the long-term sustainability of the seawalls by maximizing the health of the grass and mangroves. The project interventions are targeting approximately 5,360 m of NbS seawall across the target sites. The NbS approach will therefore save approximately USD 11.4 million in comparison to conventional approaches to seawall construction.

The use of NbS is therefore a very practical and cost-effective coastal defence solution and costs approximately 30% of conventional methods. 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.

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, protecting boulder barriers from excessive impacts that could cause dislodging and damaging. 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.

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

The 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 regional, national and sub-national policies and framework.

At a high level, this proposal is compatible with the following multilateral agreements to which Fiji is a signatory:

- The United Nations Convention to Combat Desertification
- Paris Agreement on Climate Change
- Convention on Biological Diversity
- The Strategic Action Programme for the Pacific International Waters
- The Regional Action Plan on Sustainable Water Resource Management
- The Ramsar Convention on Wetlands
- The Cartagena Convention and Protocols.

The project contributes to the following Sustainable Development Goals (SDGs 2030): SDG 11 – Sustainable Cities and Communities, SDG 13 – Climate Action and SDG 15 – Life on Land.

Furthermore, the project directly implements actions that contribute to the commitments under the Nationally Determined Contribution (NDCs) and national climate policies and strategies. Table 5 outlines the relevant policies and strategies with which this project aligns.

Table 5: Summary of relevant national policies and strategies

Document Title	Publishing Institution & Year	Description and Link to the Project
National Climate Change Act	GoF (2022)	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.
5-year & 20-year National Development Plan (NDP)	Fijian Ministry of Economy (MoE) (2017)	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.

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.
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)	The NOP intends to support, synergise, promote, and establish best practice standards for ocean management within the Fijian Government and for all relevant stakeholder groups**.** Costing the national ocean policy and doing a macro assessment of blue economy will identify and prioritise bankable blue economy programmes.
Updated NDC	GoF (2020)	Fiji commits to achieve net zero GHG emissions by 2050, enact its Climate Change Bill by 2021 and operationalise its NAP. Fiji also commits to adaptation actions such as resilience to cyclones and floods prioritizing nature-based economically viable solutions, promotion of coastal protection and preservation, enhancement of its mangroves and engagement with coastal communities.
NDC Investment Plan	GoF (2022)	The purpose is to provide essential information on opportunities for GHG mitigation in the transport (land, maritime, and aviation) and energy efficiency sectors and the potential means for financing these opportunities. This information is directed towards the Fijian Government ministries, agencies and state-owned enterprises, private companies and private investors and Non-Governmental Organisations in Fiji, and international partners for technical assistance and finance. The NDC Investment Plan and its Programme Pipeline present the priority transport and energy efficiency programmes for GHG emission reductions in Fiji.
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. 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.

E. Describe how the Project meets relevant national technical standards, where applicable, such as standards for environmental assessment,

building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

The project will be implemented in 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 Nature-Based Solution (NbS) Coastal Protections Policy and Procedures. the document specifically highlights that all project must comply with following national legislation; State Lands Act, Environment Management Act, Endangered and Protected Species Act, i-Taukei Land Trust Act, Minerals Act, Provincial and Local Government Acts (provisions for District and local level approvals), and Climate Change Act. Further information on the relevant standards in these acts will be provided in the full proposal. In addition, the MoW's internal Gender, Equity, Disability, and Social Inclusion Policy & Action Plan (GEDSI-AP) is scrupulously adhered to by all internal and external projects.

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

i. an environmental and social management system that ensures environmental and social risks are identified and assessed at the earliest possible stage of project design,
ii. measures to avoid or where avoidance is impossible to minimise or mitigate those risks during implementation, and
iii. 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.

Finally, the project will also comply with the MoW'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. Describe if there is duplication of Project with other funding sources, if any.

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). First, this project will adopt and incorporate technical specifications from these projects and from the Standard Operating Procedures (SOPs) in sea-wall design. This will feed into project activity 1.1.2 in the causal chain. Second, this will build off lessons and recommendations from initial evaluations of these projects by incorporating key lessons and recommendations for the project design and overall MEL framework into the full proposal design. While implementing the KIWA and ABD projects, the MoW is collecting and analysing additional data on how these NBS seawalls affect women and other marginalized groups and refining its overall GESI strategy as applied to this project. MoW is also collecting additional data on optimizing the NBS intervention, including in more remote areas and to maximize longevity of the intervention. Finally, procedures for community engagement were deployed and are being refined as part of the GRAF, KIWA and ADB parallel initiatives.

Across other projects, especially 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, will be incorporated into activities under 1.1.3.of this project. The table 6 summarizes additional synergies between this project and other relevant efforts to show that this project will build off emerging data and lessons from these projects.

Table 6: List of projects ongoing or in design of relevance to the Project

Relevant project/ pogramme	Project Scope / brief descriptions	*Complementary Potential/ lessons applied*	Project Timeline and Budget
Kiwa Initiative – NbS Seawalls	*6 NbS Seawalls - design and build	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 doe academia on NbS Sea Walls	2022-2025 FJD 1.5 million
Asian Development Bank – NbS Seawalls	*10 NbS Seawalls - design	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 doe academia on NbS Sea Walls	2023-2025 FJD 730,000
Global Risk Assessment Framework (GRAF)	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	Talanoa dialogue at site level, vulnerability assessments questionnaire, hazard mapping, GOS work	2022 To conduct GRAF Assessment FJD 100 000 Likely allocation FJD 1 million per community

	process on the SOPs to operationalise the PRGs		
CommonSensing (NORAD)	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
GEF 7 Biodiversity (MoE)	Biodiversity, Climate Change, Land Degradation https://www.thegef.org/projects-operations/country-profiles/fiji GEF funding is provided by participating donor countries and made available to developing countries and countries with economies in transition to meet the objectives of international environmental conventions and agreements	Biodiversity and land degradation technical inputs, this will be finalised before the inception of the planned project. Synergies on how to leverage success of the GEF 7 project will be incorporated into the Full Design.	2021-2022 $8,126,485
Blue Bond	The Blue Bond is aligned to Fiji's National Policies and Strategies, but Fiji must make it increase the incentive to investors and put forward a good financial case. Fiji will launch its first Blue Bond to fund ocean-centric projects later this year. This will support projects in: • blue shipping to reduce emissions, sustainable fisheries to expand aquaculture and protect natural fish stocks; • a blue investment fund to provide affordable blue debt to non-government organisations in the ocean space; and • sustainable waste management to build a second sanitary landfill and recycling facility in Fiji's Western Division.	Under implementation – synergies and lessons will be captured by MoE CCICD and incorporated to maximise impact of the Project. Potential base line methodology for capturing and quantifying Blue Carbon.	TBD
Coral Reef Insurance (ADB)	Parametric insurance - In terms of the funding from GEF (indirect support for Fiji) and the Asia-Pacific Climate Finance Fund - the ADB team is starting procurement for the regional firm / consortium soon conservation experts from the Vatuvara Foundation and the Nukubati Foundation that will look at how to	Given community reliance on coral reefs – the parametric insurance opportunity is of relevance to target communities. However, this activity does not tie directly into activities under this project. That said	TBD

	provide this sort of insurance product to tourism operators in cyclone vulnerable areas and ensure that the funds reach local communities in the event of disaster - but to prepare better and also how to respond in the wake of a cyclone. In essence preparation and response are all around resilience/adaptation and ensuring the natural buffers (reefs and mangroves etc) are as healthy as possible. Marine Spatial Planning | Waitt Institute	coastal protection from the NBS seawalls will provide added protection to associated reefs that should aid in the insurance scheme. Further synergies will be considered in the Full Design. Potential for replicating innovative financing mechanisms for NbS sea walls, such as Parametric Insurance and Results Based Finance (RBF) for maintaining sea walls.	
WAITT Foundation	Ocean Use Surveys – Marine Spatial Planning (MSP) is a public participatory process that uses the best available information about the natural environment and human activities (such as fishing, shipping, renewable energy, aquaculture, and infrastructure) to direct how we plan for future use and conservation of ocean space.	Inform communities that would require NbS for climate resilience in coastal communities, MSP will justify why these communities need NbS – quantifies financial requirements of coastal communities – to ensure resilience. Synergies will be sought in the Full Design on who this projects data can feed into the MSP systems at a national level – this links to data aggregation and streamlining under Outcome 1	TBC
Preparing the Nadi Flood Alleviation Project	The project involves a combination of structural and non-structural measures to achieve, in a cost-effective manner, a level of flood hazard protection for the Nadi town and the lower Nadi River floodplain accepted by stakeholders.	Utilisation of structural flood mitigation measures. `Flood management plans and early warning systems and National water resources and flood management governance strengthening mechanisms. There is geographic separation of target sites.	2019: USD $2.2m (Implementation in- progress)
Increasing the resilience of informal urban settlements in Fiji that are highly vulnerable to climate change and disaster risks	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	Reduced vulnerability at the city-level to climate related hazards and threats. Approaches to strengthened awareness and ownership of adaptation and	2017- 2022: USD $4.2m (Implementation in- progress)

	settlement) resilience strengthening: Enhancing resilience of community level physical, natural and socio-economic assets and ecosystems: Awareness raising, knowledge management and Communication:	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. There is no geographic overlap with this project.	

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

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:

i. Establishing and managing structured and controlled processes and workflows for data, information, and knowledge through. Activity 1.1.2.
ii. 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.
iii. Learning from experiences including past and ongoing implementation activities. Activity 1.1.3.
iv. Connecting experts and facilitating communities of practice to unlock and unpack knowledge and experiences Activity 1.1.1.
v. Identification and capture of good practice and support for innovation Activity 1.1.3.
vi. 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
- MoW 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. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

The MoW received requests for seawall development either through community consultations or directly via email directly. Locations were then categorised on a scale of one to five, ranging from those requiring immediate attention to those requiring delayed attention within a three-year timeframe. After selecting the locations outlined in this concept note, community leaders were officially consulted to ensure they were in support of the approach. Following this, consultations engaged village members 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 to provide unambiguous consent for the construction of NbS seawalls.

In addition, the process for NbS development was presented and the need for local materials highlighted. In the case of 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 MoW team took care to include the perspectives and opinions of the community's women, children, and disabled members. A minimum of 80% of women and young people's opinions were considered through the consultation processes.

Beyond community consultation, the MoW 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.

Through frequent interactions with landowners and other stakeholders during implementation, the project will address coastal erosion 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 are given high priority in consultations and all opinions incorporated into planning processes to integrate traditional knowledge and safeguard cultural heritage. These strategies, as well as those described under the project activities, will address the primary issues raised by indigenous representatives. Further consultations will be conducted throughout the full proposal design phase.

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

Baseline

Due to the threats posed by climate change in Fiji, the resilience of coastal communities must be strengthened. This AF project comprises actions that will enhance the resilience of coastal communities in Fiji. However, without support from the AF, the objective of this project would not be realized. Indeed, the support of the AF is vital for the realisation of the project's results as national resources are inadequate to finance the NbS works required.

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 dropping by 19–20% in 2020 due to the impact of the COVID-19 pandemic on tourism and related industries[15]. Even if

[15] https://english.news.cn/asiapacific/20220217/4b993b811b5241dc96b2ebd806dfe301/c.html

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 these works. It is further estimated that before the COVID-19 pandemic, 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 (see costings in impact sections of Table 1).

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

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.

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 5,360 m of NbS seawalls that would not be possible in the absence of AF funding. Construction of these seawalls will safeguard and enhance the livelihoods of the 2,755 direct beneficiaries identified in the most vulnerable communities across seven provinces of the country. The project will also provide funding to enhance institutional capacities in the form of technical enhancement of processes and specifications related to NbS coastal protection as well as enhance communication and management systems to improve informed decision-making processes. Through the targeting of seven provinces, national extension structures will be enhanced and valuable lessons captured to increase the effectiveness of NbS approaches. Ultimately, this 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, Fiji requests funds for urgent adaptation activities from the AF to avoid the baseline scenario and transition to the alternative scenario to induce a paradigm shift towards climate-resilient coastal protection using NbS seawalls.

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

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, MoW 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 MoW and other stakeholders in extension structures, the project allows for future scaleup 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[16]. Reduced impacts from sea level rise, TCs and coastal erosion will support enhanced natural resources and ecosystem services in project target areas. Mangrove plantations will also strengthen biodiversity conservation and related ecosystems. For example, to ensure maximum environmental sustainability the nature-based seawalls implement three different types of protection layers[17].

1) Mangrove: first line of defence (3-5 rows of mangrove planting), naturally occurring plants that provide balance in the ecosystem stabilizing the seashore and slowing erosion. They also provide a natural barrier protecting coastal communities from increased storm surge, flooding, and hurricanes (IUCN: WEF). Mangroves provide a friendly ecosystem to marine organisms and humans and become a natural habitat and important source of food. [18]
2) Boulders: which dissipate wave energy providing naturally occurring durable defence-Alluvial soap stone, igneous rocks and coral polyps are most commonly used and readily available in Fiji with natural back fill (angular quarried stones 800mm -1200mm dimeter) creating a natural ecosystem providing shelter and breeding locations for marine organisms[19]. Clay rich back fill material is recommended as it attracts positively charged particles such as calcium (Ca), potassium (K) and magnesium (Mg). For planting of vetiver slips for environmental sustainability it is very useful for clay soil to be placed on top of the backfill of the sea wall.
3) Vetiver Grass: Implantation 3 rows of Vetiver Grass – a simple, practical, low maintenance and effective means of soil and water conservation, sediment control, land stabilization and rehabilitation. Vetiver Grass provides a natural habitat, however environmental sustainability of the Vetiver System (VS) depends on the quality of planting and clear guidance should be followed as set out in the Ministry of Waterways, NbS design

[16] This estimate will be further explored at the full proposal stage with further information inputted by the NBS seawall evaluations that are on-going.

[17] The team is currently conducting scientific analysis on the overall environmental sustainability of NbS sea-walls as an adaptation solution, and aims to publish data in scientific journals and will incorporate this into the full proposal design

[18] For maximum environmental sustainability mangroves should be planted in accordance with the guidelines as set out in the NbS technical manual, Ministry of Waterways, Fiji

[19] An advantage of using boulder protection for sea walls is – no mesh is needed to keep rocks in place which dissipated wave energy and blends better with natural environment and they are a cheaper and more sustainable long-term solution. The NbS model has proven that it is ten times cheaper when compared to the rigid concrete alternative

document.

To ensure sustainability of the system the surveys must accurately mark all levels of the seawall considering the King Tide watermark. General design parameters incorporated height of 1-2m above high-water mark. The slope varies, but 1:2.5 can be used for design specification.

Economic and financial sustainability

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 resettle, 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.

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 MoW will also keep a regular monitoring schedule to see the seawall is functioning and serving its purpose. The MoW 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). Further to this, innovative financing mechanisms are being explored to promote sustainability of the nature-based structures such as results-based finance (RBS) and benefits share mechanisms but are not yet fully developed in country. They will be explored in more detail at the full proposal stage.

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

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

- **Minor risk** – aligned with IFC Category C rating[20]: 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 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 at the FP stage 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 three principles identified as medium risk. Consequently, the Project is ranked as **medium risks/ESS Category B.**

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

Table 7: 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
Compliance with the Law	No further actions required beyond on-going risk monitoring	**Minor risk.** There is a minor risk that some laws may not be adhered to over construction in remote areas e.g., labour and working conditions. **Mitigation measure** All activities of the project and MoW 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. To ensure compliance the MoW 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. This will be built into the Project level ESMP at the FP stage.
Access and Equity	No further actions required beyond on-going risk monitoring	**Minor risk.** There is a minor risk that some marginalised groups could be negatively impacted by the placement of NBS sea walls if not properly consulted through design phase **Mitigation measures** Project's extensive consultation approach 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 adopted by MoW for all its activities ensures that peoples' and communities' rights are always protected. From the design phase, the project has provided access and equity for women and youth groups. The activities are designed to engage and benefit vulnerable people. In addition, the ESMP to be developed at full proposal stage will provide guidance on implementation of this measure.
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 that NBS sea wall designs do not account for their needs. **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 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. From the design phase, 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	**Minor risk.** Fiji does not appear on the UNHCR Human Rights Council Special Procedures country list However, there is a very minor risk that the project may impede access rights to resources deemed a human right due to the placement of NBS sea walls. **Mitigation measures** The project respects the fundamental rights of people in the areas of intervention and therefore does not infringe on their freedom. All parties will be consulted as highlighted above to avoid infringement of access to important resources that are a human right. No project will be developed if a resource access right has been identified through consultation. With this mitigation, 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 will engage women and youth through consultation and make special provisions to ensure that 80% of women in communities are consulted for decision-making. The project will specifically ensure that gender-sensitivity is mainstreamed throughout project and that gender-sensitive indicators and activities will ensure that the priorities of women and other vulnerable groups are included.
Core Labour Rights	No further actions required beyond on-going risk monitoring	**Minor risk** There is a risk that some labour rights are ignored by contractors in construction. **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 regulations and laws. This will be imposed by the MoW through any contracting of service providers. There are no activities planned under the project that would entail unsafe, indecent, or unhealthy working conditions. The monitoring of basic labour rights will be carried out throughout project implementation.
Indigenous	No further actions	**Minor risk.**

Peoples	required beyond on-going risk monitoring	There is a potential for some indigenous people to be excluded in consultations. **Mitigation measures** The people-centred approach adopted by MoW for all of its activities ensures that peoples' and communities' rights are always protected and that indigenous peoples 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 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 level ESIA and ESMP development and continual monitoring	**Medium risk.** The project may have negative impacts on the biophysical environment, including natural habitats through the extraction of materials for the NbS seawalls if the activities are not properly monitored. Further, the placement of NBS seawalls could have unforeseen impacts on adjacent habitats. **Mitigation measures** The project includes capacity building for the villagers and indigenous population 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 level ESIAs and ESMPs will be developed for each site. Quality assurance carried out by ESS specialists to ensure that no lasting and non-localised damage could occur through project activities. Regular monitoring will be conducted throughout the implementation cycle.
Conservation of Biological Diversity	Site level ESIA and ESMP development and continual monitoring	**Medium risk.** The project may have negative impacts on the biophysical environment, including natural habitats through the extraction of materials for the NbS seawalls if the activities are not properly monitored. Further, the placement of NBS seawalls could have unforeseen impacts on adjacent habitats. The impact on habitats could directly and negatively impact biodiversity if certain faunal or floral groups are sensitive to associated disturbances. **Mitigation measures** Site level ESIAs and ESMPs will be developed, and quality assurance carried out by ESS specialists to ensure that no lasting and non-localised damage will occur through project activities. Regular monitoring will be conducted throughout the implementation cycle. 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.
Climate Change	No further actions required beyond on-going risk monitoring	**Minor 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. **Mitigation measures** 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 Prevention and Resource Efficiency	No further actions required beyond on-going risk monitoring	**Minor risk.** The project is only expected to lead to minor and negligible release of pollutants, largely from emissions from equipment such as vehicles. **Mitigation measures** Measures will be proposed in designs and construction plans to avoid the risks and impacts of water and soil pollution. 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	Site level ESIA and ESMP development and continual 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** Site level ESIAs and ESMPs will be developed, and 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.

PART III: IMPLEMENTATION ARRANGEMENTS

[This section is not required for a concept note.]

A. Describe the arrangements for project / Project implementation.

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

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

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

E. Include a results framework for the project proposal, including milestones, targets and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework, and in compliance with the Gender Policy of the Adaptation Fund.

F. Demonstrate how the project / Project aligns with the Results Framework of the Adaptation Fund

Table 8: Mapping of Project outcomes and outputs against those of the AF Strategic Results Framework

Project Outcomes(s)	Project Outcome Indicator(s)	Fund Outcome/ Output	Fund Outcome /Output Indicator	Grant Amount (USD)
Outcome level				
Outcome 1: Strengthened awareness and knowledge of coastal management and NbS for coastal protection	TBD	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1 Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	TBD
Outcome 2: Reduced vulnerability of coastal communities, livelihoods and infrastructure	TBD	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.2 Physical infrastructure improved to withstand climate change and variability-induced stress	TBD

Output level				
Output 1.1: Strengthened capacity to capture lessons and disseminate knowledge related to nature-based seawall benefits	TBD	Output 3.2: Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.2. No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	TBD
Output 2.1: Nature-based seawalls established for long-term climate resilience	TBD	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)	TBD

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

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

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

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

Mr. Shiri Gounder, Permanent Secretary, Ministry of Economy)	Date*: 08 August 2022*

B. Implementing Entity certification. Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/Project 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 and subject to the approval by the Adaptation Fund Board, commit to implementing the project/Project 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/Project.	
Dirk Snyman, Climate Finance Coordinator Implementing Entity Coordinator 	
Date: *08 August 2022*	Tel. and email: dirks@spc.int
Project Contact Person: Jack Rossiter	
Tel. And Email: jackr@spc.int	

MINISTRY OF ECONOMY

P.O Box 2212, Government Buildings, Suva, Fiji; Tele: (679) 330 7011, Fax: (679) 330 0834
Website: www.economy.gov.fj, Email: EconomyInformation@economy.gov.fj
Ro Lalabalavu House, 370 Victoria Parade, Suva

08 August 2022

By Email: Secretariat@Adaptation-Fund.org

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat

Dear Secretariat

Endorsement for Strengthening the Adaptive Capacity of Coastal Communities of Fiji to Climate Change through Nature-Based Seawalls

1. 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 Fijian Government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Fiji.

2. The outcome of the proposal complements key areas of Fiji's Climate Change Act, Fiji's National Development Plan, the National Climate Change Policy, National Adaptation Plan, Fiji's Updated Nationally Determined Contributions and Fiji's National Ocean Policy.

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

4. Please note that this Letter of Endorsement (**'LOE'**) applies to the Concept Note only. We will issue a subsequent LOE to the accredited entity for the implementation of the project upon receipt of a Full Funding Proposal. This will also be subject to a comprehensive review from the Fiji Climate Finance Sectorial Working Group.

5. For any enquiries, please contact Mr. Prelish Lal on email via prelish.lal@govnet.gov.fj or by phone on +679 322 1216.

Thank You.

Yours sincerely

Shiri Gounder
Permanent Secretary for Economy (AF DA)

Annex 1: Site scoping reports

Detailed site scoping studies were carried out in June 2022. Initial scoping reports for all target sites can be found at the following link https://drive.google.com/drive/folders/1mbtbLi-icrcoTFW2L-k_6rpl1WT2skMK?usp=sharing

The table below shows a summary of sites, project activities, and impact on resilience

Site	Site Description	Current climate vulnerabilities	Impact on resilience (description)
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 salt water 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. Direct beneficiaries: 350 (144 women)
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 salt water 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 seawall to minimise the impact of flooding/coastal erosion.	The 60 metres NbS seawall 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.

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 is 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 roundbout, 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 seawall 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 salt water 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 seawall to minimise the impact of flooding/coastal erosion.	The 350 metres NbS seawall 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.

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 salt water 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 seawall to minimise the impact of flooding/coastal erosion.	The 400 metres NbS seawall 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 seawall 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.

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 seawall 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 seawall.	The 150 metres NbS seawall 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.

Malevu Village	Malevu village which is located on the Western Coastline of Viti Levu in the tikina of Conua. It's about 7km from Sigatoka Town **Coordinates: -18.104952, 117.333810 or 18.105096 o S,117.335205 o E)**	The village gets heavily inundated with salt water 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. The location of the village below the hills, makes it prone to flooding and waterlogged. 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. The site requires 450m of NbS seawall to minimise the impact ofcoastal erosion.	The 450 metres NbS seawall at Malevu village will protect 35 residential houses, 2 church, 2 hall and 1 health centre. Additionally, the project will provide security to 4 acres of village residential area, 20 acres of land under agriculture with a possibility of the mataqali to expand into the total 2500 acres of mataqali land. The village produces cassava, dalo, breadfruits, bele, bananas, kumala, cabbage, avacado, beans, tomato, cucumber, and eggplants for income. The village also relies heavily on yaqona, cattle, poultry, horticulture, yasi orchids and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
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 salt water 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 seawall 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 seawall 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.

Nasoata Village	The Nasowata village is located on the Western Coastline of Viti Levu in the tikina of Vitogo, Lautoka. **Coordinates: 17°37'22.6"S 177°25'43.0"E**	The village gets heavily inundated with salt water during high tides and cyclones. An approximate 20 meters of coast has eroded since 19. The village has limited land availability for housing and agriculture. Currently tires are being used by the villagers to prevent further erosion and damage. The village had to be relocated during the cyclone season as sea water enters their houses. During high tides salt water intrudes approx. 8 houses along the coastline. Large tires are currently being used by the villagers to stop soil erosion. The length of the project site is 500m for NBS seawall, dredging of surface soil (mud) before stabilization, to minimize the impact of coastal erosion.	The 500 metres NbS seawall at Nasoata village will protect 90 residential houses and 1 church. Additionally, the project will provide security to 1 acre of village residential area, 40 acres of land under agriculture with a possibility of the mataqali to expand into the total 500 acres of mataqali land. The village produces cassava, dalo, yams, bele, bananas, kumala, breadfruit, cabbage, tomato, taro leaves and eggplants for income. The village also relies heavily on cattle, goats, fishing, and piggery farm. The seawall project will enhance income through reduced erosion, eliminating saltwater intrusion and improved soil quality for better crop yields.
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 salt water 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 seawall 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 seawall at Nayavutoka village will protect 41 residential houses, 1 community hall and 4 churchs. 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 salt water 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 seawall 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 seawall at Saioko village will protect 28 residential houses, 1 community hall and 4 churchs. Additionally, the project will provide security to 7 acre 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.
Tagaqe Village	Taqage 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 salt water 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 seawall to minimise the impact of flooding/coastal erosion.	The 400 metres NbS seawall 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.

Soliyaga Village	Soliyaga Village Coastal Community located between rocky hills and a rapidly eroding coastline. Strong wave action erodes existing seawall. The village is only accessible via fiberglass boats. Located along the coast with the reef end starting roughly 20 meters from the beach. The strong wave action damages a lot of concrete houses Coordinates: (**18°22′59.3″S 178°09′57.7″E). Soliyaga is only accessible by sea**.	Soliyaga village faces storm surges, coastal flooding, and coastal erosion, and the MoW has visited the village in the past to assess suitable mitigation measures. Soliyaga's reef begins only 20 meters from the shore, and the intense waves impact the village, causing cracks on the concrete houses lined along their coast. Accelerated flooding events with inland flooding or storm surge occur multiple times yearly, damaging and destroying a few homes. The rising seas are visible and threatening the village's water supply and soil. Once plentiful, fishing spots have become more unpredictable as warmer and acidic waters alter the nearby marine ecosystems. The request was made through Commissioner's Office where MoE and NDMO conducted an in-situ adaptation survey to evaluate the risks and identify alternative adaptation measures that can preserve the community.	The 500 metres NbS seawall will prevent further coastal erosion and the groyne wave breaker will slow down the wave impacts from causing further damage to house and infrastructure along the shoreline. The primary source of income is fishing and farming of root crops and vegetables such as tomatoes. They nurse mangroves along streams around the village to transplant to nearby areas once it is grown; there are a few fruit trees and many crops in nurseries which are later transplanted to their farmlands at the sheltered rocky lands behind the village, later harvested and sold in Navua and Suva. They are diversifying produce but access to markets is still challenging. The main risks remain coastal flooding and storm surges, with reported sea level rise. Their main concern is constructing an appropriate buffer from the strong waves continuously damaging homes and infrastructure including the existing vertical seawall constructed just 5-6 years ago. There needs to be proper assessment on the coastal wave breaker designed with an oceanographer and coastal adaptation experts, suitable for Soliyaga
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. MoW 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 NbS seawalls.	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 MoW. NbS seawall 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