



**GREEN
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Meeting of the Board
6 – 8 July 2019
Songdo, Incheon, Republic of Korea
Provisional agenda item 20

GCF/B.23/13/Add.01
21 June 2019

Consideration of restructuring paper – Addendum I

FP015–RP1

Summary

This addendum contains the following four components:

- (a) A restructuring paper for FP015 “Tuvalu Coastal Adaptation Project (TCAP)”;
- (b) A no-objection letter issued by the national designated authority(ies) or focal point(s) for the project in the restructuring paper;
- (c) A revised implementation plan; and
- (d) An updated Secretariat review of the restructuring paper.

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Note to accredited entities on the use of the Restructuring Proposal template

- Sections **A, B, C, D** and **E** of the Restructuring Proposal require detailed inputs from the accredited entity.
- The total number of pages for the Restructuring Proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

OPM@gcfund.org

Please use the following name convention for the file name:

“FP015-UNDP-RP1”

A.1. PROJECT/PROGRAMME MILESTONESS			
Date of Board Approval	30/06/2016		
Date of Signature	31/05/2017		
Date of Effectiveness	07/06/2017		
Closing Date	07/06/2023	Revised Closing Date	<u>Same as original</u>
Project Completion date	07/06/2024	Revised completion date	<u>Same as original</u>
Number of Disbursements to date (by instrument - loans, grants, equity)	2		
Total disbursed Amounts (by instrument- loans, grants, equity)	Loans Grants – USD 6,706,974 Equity		
Undisbursed amounts (by instrument- loans, grants, equity)	Loans Grants USD 29,303,026 Equity		
Cancelled amounts (broken down by instrument - loans, grants, equity)	Loans Grants Equity	Cancellation date	<u>dd/mm/yyyy</u>

A.2. SUMMARY OF PROPOSED CHANGES TO THE PROJECT/PROGRAMME (max 300 words)

Please provide a brief description of the proposed changes to the project/programme, including the rationale and justification for the restructuring changes including the objectives and primary measurable benefits (see [investment criteria in section E](#)). The detailed description can be elaborated in [section C](#).

This restructuring request is triggered by a change in the project baseline as well as technical assessment of the local conditions of the target sites. The proposed changes in the project interventions are in relation to coastal resilience measures under sub-activity 2.2.1 of the project and are summarized below:

- Reclamation of approximately 7.8 ha for the Fogafale lagoon shore (Funafuti)
- Berm Top Barrier (BTB) (raised mounds of earth with graded slopes approximately 3 m wide at the base and 1.0 m to 1.5 m high at their crest) protecting 643 m and 1,367 m in Nanumaga and Nanumea, respectively.
- Precast concrete unit revetment (150 m in length) in Nanumea
- Sheet piling in the central boat access channel area (150 m in length) in Nanumaga (although the final intervention and design is subject to the finalization of the plan for the World Bank wharf renovation project)

The reclamation in Funafuti, to be engineered to be well above anticipated 2100 sea level rise inundation heights, will secure the shoreline and permanently prevent wave over topping and erosion hazards. BTBs are an appropriate response in these rural settings to climate change induced wave over topping risk. They augment the natural shoreline system and avoid any negative interaction with the active beach sedimentary processes. They are simple, highly effective and relatively “soft” measures which can be further increased in height over time to accommodate additional sea level rise and incidence/severity of storms as required. They can also be easily extended and repaired as necessary using available resources in these tiny communities.

These revised measures have been discussed and agreed with community members of Funafuti, Nanumea and Nanumaga, the Government of Tuvalu (GoT), Councils (Kaupule) and Falekaupule and have also been approved by the GoT (see Cabinet Paper and GoT Decision Letter). The changes do not impact the Closing Date or Project Completion Date.

A.3. Is there any deviation from the AMA required for this project? Yes No If yes, please elaborate and justify why

A.4. SUMMARY OF CHANGES TO THE PROJECT. PLEASE MARK ALL THAT ARE APPLICABLE

<i>Change in Implementing/Executing Agency</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Project's Objectives</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Results Framework</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Change in Expected Impact</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Change in Legal Terms, Conditions and Covenants</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Closing Date(s)</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Completion Date</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Technical/Project Design</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Change in Scope</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Any Cancellations Proposed</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change to Financing Plan</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Changes to GCF Financing Amount</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Disbursement Arrangements</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Reallocation between Disbursement Categories</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Disbursement Estimates</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Change to Components and Cost</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Institutional Arrangements</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Financial Management</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Procurement</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Implementation Schedule</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Change of ESS category</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Other Changes to Safeguards</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Economic and Financial Analysis</i>	Yes [<input type="checkbox"/>]	No [X]
<i>Change in Technical Analysis</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Change in Environmental and Social Analysis</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Change in Risk Analysis</i>	Yes [X]	No [<input type="checkbox"/>]
<i>Other Change(s)</i>	Yes [<input type="checkbox"/>]	No [X]

Please fill out applicable sub-sections and provide additional information as necessary, as these requirements may vary depending on the nature of the project / programme.

B.1. ANY CHANGES TO STRATEGIC CONTEXT, FINANCIAL MARKET AND/OR PROJECT BASELINE SINCE APPROVAL THAT HAVE INFLUENCED THE CHANGE? YES NO IF YES, PLEASE ELABORATE

Funafuti

Developments in the project baseline, which took place between the design of the original proposal (2015) and the start of the implementation of the project (August 2017), has triggered the need for changes in the project technical interventions. More specifically, after the proposal was submitted, the Government of Tuvalu undertook reclamation work, financed publicly, in the section of the shoreline in Funafuti that is targeted in the Tuvalu Coastal Adaptation Project (TCAP). This work covers approximately 220 linear meters along the original TCAP target shore of 1,000 m in Funafuti, this reclamation serves as an effective coastal defense. This government-financed reclamation is locally viewed as a successful undertaking and the GoT and community expressed their strong desire for TCAP to expand the reclaimed area since the early phase of the project implementation.

Reclamation as proposed by TCAP also has very significant additional advantages in respect to the climate change impacts it addresses, including the original intent of the approved FP “protection from wave induced damage”. Once complete the new reclamation will be the highest land on Funafuti, which is also sufficiently distant from the deep-water, ocean side coast where catastrophic wave over topping damage can occur. It will thus be the safest land on Funafuti during a major storm event and the Funafuti community wishes to use this area as the site of a dual-purpose facility (e.g. a community hall or sports facility / cyclone shelter). The finished height of the reclamation also means it will remain well above projected sea level rise beyond the year 2100, again making it the only long term, safe land on Funafuti. The reclamation will also permanently protect the originally targeted shore of Funafuti over some 780 m and when combined with the existing Government reclamation will protect some 1,000 m of shoreline.

Nanumaga and Nanumea

Expert appraisal during the inception phase (November 2017) of the project implementation regarding the condition of the shoreline processes on both these relatively pristine, rural outer islands found it was necessary to consider a broader spectrum of infrastructure options. Whilst these two islands were heavily impacted by Tropical Cyclone Pam in 2015, at the time of the expert appraisal, the shoreline processes were in recovery. During the initial design of TCAP (2016), within a year of the cyclone landfall, it would have been difficult to determine the process of recovery on these shores as it would have been too early after the disturbance. During TCAP’s due diligence assessment, it was apparent that these shores remain (at this time) functional and it would thus be detrimental to disturb them with hard foreshore works as stipulated in the approved FP.

Cyclone waves can result in erosion and seawalls are often deemed the necessary response to protect people and property. During cyclone Pam, foreshore sediment was redistributed dramatically and over a very short time frame, and it caused damage to property, human hardship and ongoing anxiety. Notwithstanding the undoubted toll endured by the people on these islands, if foreshore seawalls are built, natural foreshore processes “beach recovery” cannot continue. In such a circumstance, hard engineering could only be considered if the resultant structure would more effectively protect people and property. Besides a 150 m length at the church compound on Nanumea (which is erosive and, thus, will be hardened in the restructured project) much of the natural shore on both islands remains functional; it follows that the scale and magnitude of the engineering necessary to replace a functional shore with a structure which can provide better protection is beyond the resources of TCAP and likely to become a very high risk undertaking in respect to environmental safeguards. If the active foreshore had become permanently destabilized or chronically erosive, then geo-textile revetments, as originally stipulated in the approved FP, would remain as an appropriate option. However, since active natural shoreline processes are functioning, it would be a mistake to interfere with the active foreshore.

The revised approach on both Nanumaga and Nanumea is Berm Top Barriers (BTBs – described below). BTBs are raised sloping ridges built along the highest part of the natural storm berm system. These work with natural processes and augment the natural protective function of the entire shoreline system. They do not interfere with the active beach sedimentary processes. However, BTBs do effectively reduce wave overtopping volumes and marine flooding associated

with tropical storms. Additionally, they are unobtrusive in these pristine environments and do not affect access (foot traffic) to the foreshore. It follows that these revised designs offer very significant advantages and respond to the more recent assessment of these shorelines. BTBs are also simple and relatively low-cost but if well designed can provide excellent protection from storm wave flooding. In the restructured proposal, BTBs will also allow a greater length of shoreline to be protected than the geo-textile intervention originally envisaged in the approved FP. In summary, BTBs are an effective solution to wave overtopping hazards, will not disturb the natural shoreline processes and will allow the protection of more infrastructure and a greater number of people.

B.2. CHANGES TO PROJECT / PROGRAMME OBJECTIVE AGAINST BASELINE? YES NO IF YES, PLEASE ELABORATE

Describe the baseline scenario (i.e. emissions baseline, climate vulnerability baseline, key barriers, challenges and/or policies) and the outcomes and the impact that the project/programme will aim to achieve in improving the baseline scenario.

B.3. CHANGES TO PROJECT/PROGRAMME DESCRIPTION YES NO IF YES, PLEASE ELABORATE

Under the proposed restructuring, Output 1 and Output 3 remain unchanged from the approved project. In accordance with the revised context and baseline described in Section B.1, changes are proposed under Activity 2.2 “Coastal protection measures implemented”, under Output 2, and more specifically, the changes are confined to Sub-Activity 2.2.1.

Under the proposed restructuring of Activity 2.2 coastal protection infrastructure will be constructed along 3,090 m of vulnerable shores on Funafuti, Nanumea and Nanumaga compared to 2,210 m in the earlier approved FP. The increased length of coastal protection translates into nearly 39% of high value shores of the country being protected under the restructured proposal, up from 28% in the original FP.

In Funafuti, a combination of reclamation and associated rock armor revetment to provide raised safe, flood free land is proposed. In Nanumea and Nanumaga, a combination of Berm Top Barriers and revetments in selected areas are proposed. Technical, social and climate change considerations that support the proposal of these interventions are detailed below:

Funafuti

As discussed above, initial TCAP scoping in 2018 of the Funafuti target shoreline (lagoon shore of Fogafale) confirmed that very significant changes had occurred since the design of the original proposal. Some 1,800 m of this shore had been subject to intended and unintended physical change, including: Reclamation 2.85 ha, beach nourishment (over spill of sand dredged to build the reclamation) and rock groyne construction. These profound changes required TCAP to re-assess the optimum approach to shoreline protection on this coast.

Technical assessment by a shoreline coastal hazards expert highlighted that not only do coastal adaptation solutions on the western, lagoon-side of the island need to address the sea-level induced wave damage (which was the original focus of the approved FP), but that solutions must also be designed with the full recognition that greater climate change induced hazards are likely to come from the eastern, deep-ocean shore during catastrophic cyclone events. The site of the proposed reclamation is the furthest point from the hazardous deep-water coast and thus offers the safest location on Funafuti during landfall of a major storm. Please note that due to the potential magnitude of storm waves on the deep-water eastern shore, construction of adequate protective infrastructure capable of withstanding cyclone events would be much more costly and far beyond the resources available in the approved project.

The importance of implementing effective adaptation solutions which address coastal hazards from either the lagoon (western) or oceanside (eastern) shores can be best described from the last major cyclone land fall in Funafuti, Cyclone Bebe in 1972. This event caused catastrophic wave overtopping impacts which resulted in entire buildings situated over 60m from the eastern shoreline being over-washed by fast moving marine water. Marine flooding up to 1.5 m deep also covered the international runway and impacted large parts of the Fogafale settlement. Hence, raised new land built as far

from the ocean-side (eastern) shore is the only way, on such a small cyclone exposed island, to provide a safe haven for the general population during major cyclone landfall.

With these factors in mind, it was concluded that the revised plan to reclaim new raised land and defend its seaward margin with a suitable hard revetment, is the only approach which can address the climate change related impacts of sea level rise and increasing incidence of wave impacts due to severe tropical storms.

In consultation with GoT, Funafuti Council and the Community an agreed concept for reclamation on the Fogafale lagoon shore was developed by TCAP. This will be approximately 7.8 ha in area and the finished surface elevation will be approximately 2.0 m above the highest measured sea level at Funafuti. This will ensure the surface of the reclamation will be a viable living area beyond a 2100 worst case scenario for sea level rise rates (IPCC, 2014) and will also remain well above anticipated cyclone wave over wash / marine flooding levels.

The seaward face of the reclamation will be armored with an appropriately designed and engineered foreshore sloping revetment. This will most likely be imported (Fiji) volcanic rock, sized to suit expected storm wave conditions in Funafuti lagoon. The fill material for the reclamation will be sourced via the established lagoon basin sediment resource area (SOPAC, 1995) which contains an estimated 24 million m³ of available material. The reclamation will require an estimated 350,000 m³. The characteristics of the Funafuti lagoon sediment, which will be used as the fill material for reclamation, have been characterized in an earlier study (SOPAC, 1995). As the sediment is relatively coarse, 100% reef derived carbonate material, with no clay or mineral silt content, it is more stable in comparison with continental estuary dredge material, reducing the risk of the land subsidence post construction. Furthermore, the pumping of the dredged sediment directly into the reclamation basin, the approach that will be used in the restructured project, will allow natural settlement and compaction to occur and further stabilizing the land. The pumping methodology will be properly specified in the tender document and contractual agreement.

Funafuti stakeholders also requested that TCAP assist to produce a consultative land use plan and strategy for the proposed reclamation to ensure its sustainable use. Local stakeholders expressed the view that the potential new land was a public space and may include recreational areas, a community cyclone shelter which maybe a dual-purpose facility (e.g. school, community hall) and as appropriate, potentially public housing may also be situated on the proposed reclamation. Plainly, implementing this next stage of development is beyond the remit or budget of TCAP; however, the TCAP team agrees to the strategic importance of developing an agreed, consultations driven, land use plan so that consensus is developed for the use of the area and the subsequent task of attracting funding for development made easier. This will allow the community goals to be realized. As part of the community consultations prior to and after the construction, community preferences will be assessed, and this information is expected to become an important input for future land use planning. TCAP does not have the resources to undertake this work but can help support them via the outcome of community consultations mentioned above and via the broader institutional support towards improved coastal hazards management objectives of TCAP.

These revised designs and measures have been discussed and agreed with Community, GoT, Council (*Kaupule*) and Traditional Funafuti Chiefs and have also been approved by the GoT (see Cabinet Paper and GoT Decision Letter).

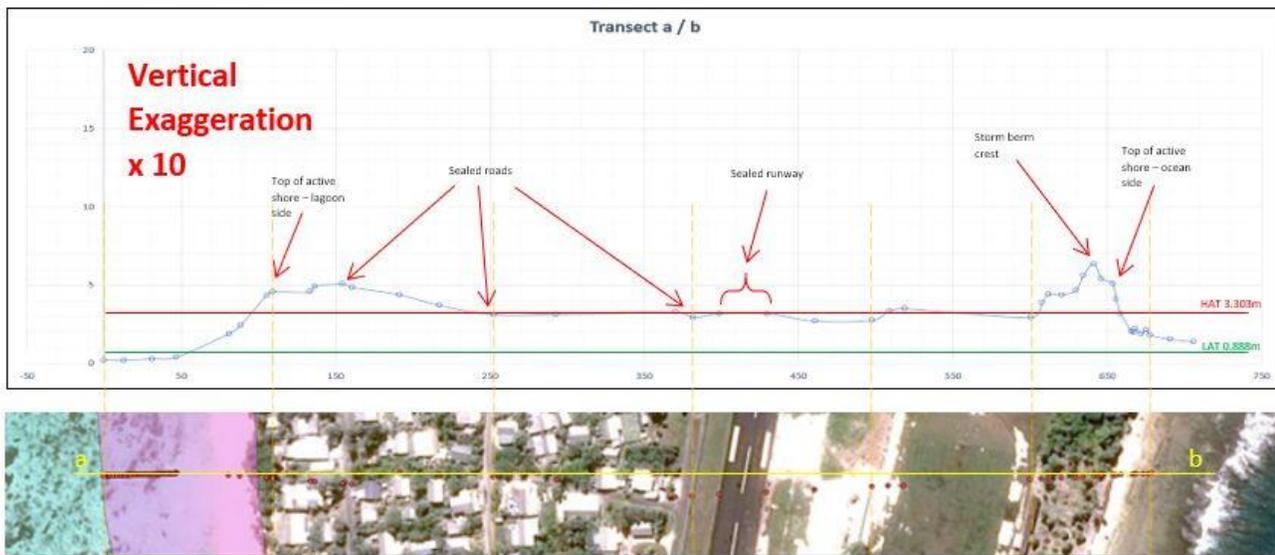


Figure 1. The upper image shows the complete plan view of the proposed reclamation footprint on Fogafale's lagoon shore. It is approximately 780 m in length and 100 m wide, an approximate area of 7.8 Ha. The section below provides an understanding of the extremely low laying nature of Fogafale. Note the darker, deep-water (eastern) shore to the right, this shore is associated with large cyclone driven waves and very hazardous over wash conditions.

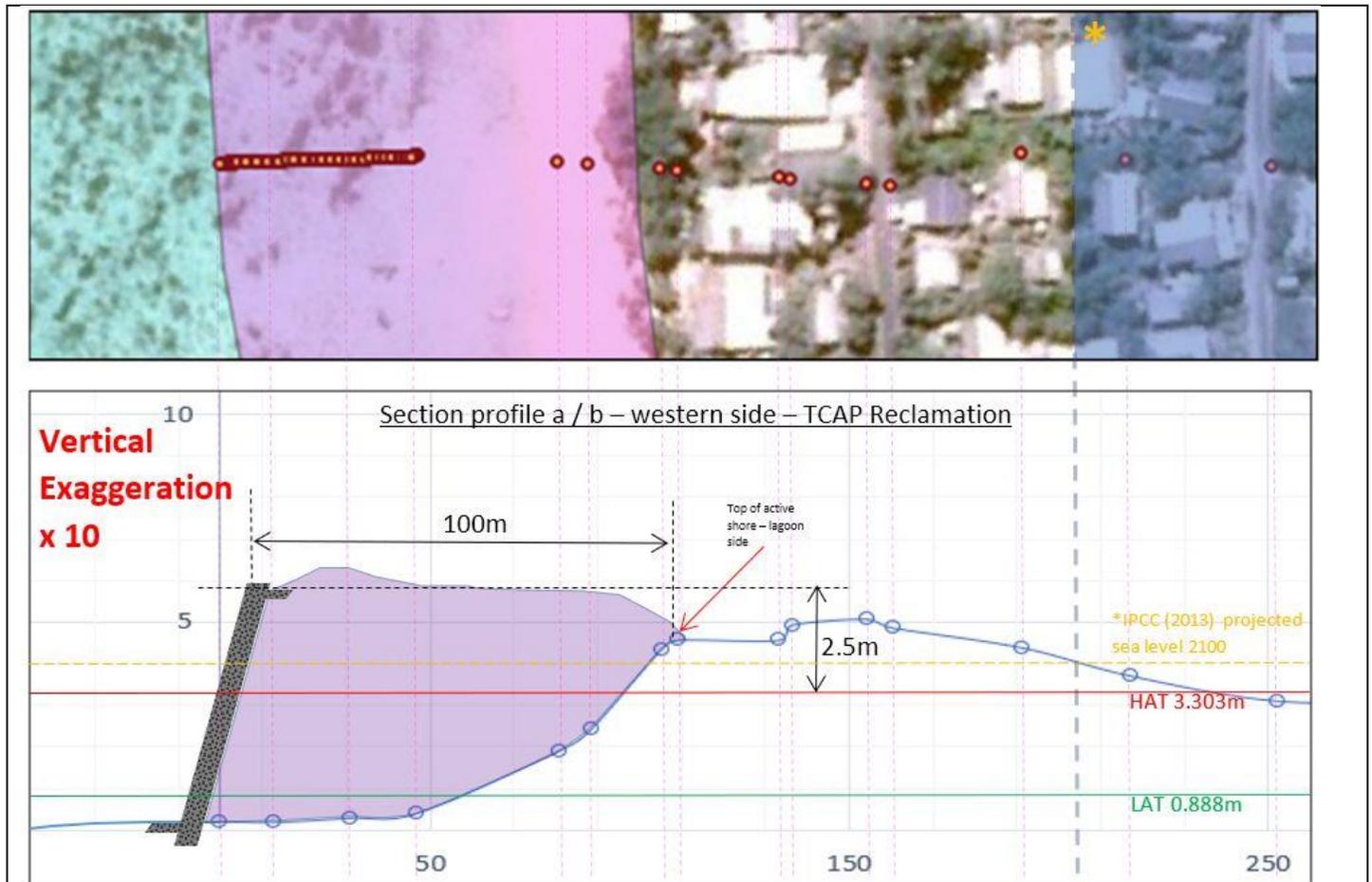


Figure 2. (Please be aware of the vertical exaggeration used to better visualize this conceptual design of the proposed reclamation). The substratum in transect a / b is representative of shoreline profiles of the entire length of the target shoreline prior to 2017. In places, sand over spill / beach nourishment from the Queen Elizabeth Park (QEP) reclamation (200 m south of this transect position) has adjusted the profile. This artificially-added sand remains highly mobile so it is not considered in this profile. Instead a more conservative approach is taken using the pre-2017 substratum. The surface of the proposed reclamation will be designed with a foreshore raised berm which will act as a “no-build” buffer zone. Otherwise, a gentle slope will be incorporated to facilitate drainage and avoid standing surface water “ponding” (a common feature in wet tropics atolls) and can be a health hazard. Overall, the upper surface of the reclamation is designed to be at least 1m higher than natural land elevation on the island on this shore so that it can act as a refuge during catastrophic cyclone land fall.

Fogafale (Funafuti)		
Investment criteria / other parameters	Original interventions	Adjusted interventions
Length of shoreline protected	1,000 m	780 m
Types of protective infrastructure	<ul style="list-style-type: none"> • Rock armour revetment (600 m) • Pre-cast concrete (Seabee) revetment (400 m) 	Reclamation foreshore

Relevant elements in the Results Framework	Input 2.2.1. Construction of coastal protection infrastructure in Funafuti, Nanumea and Nanumaga covering 2,210m of vulnerable coastlines	Input 2.2.1. Construction of coastal protection infrastructure in Funafuti, Nanumea and Nanumaga covering 3,090m of vulnerable coastlines
Budget	USD 9,525,973	USD 14,030,000
Direct beneficiaries	2,174	2,174
Indirect beneficiaries	3,262	3,262
Environmental and social risks	Moderate	Moderate

Further details on this intervention are provided in the Technical Note.

Nanumea and Nanumaga

As described in Section B.1., the proposed change of the interventions in these two outer islands is based on an assessment that took place in November 2017 when it was becoming evident a degree of natural recovery was occurring on these shorelines following the stress from Cyclone Pam (March 2015). The assessment revealed that while cyclone-induced waves cause beach damage and over wash which in turn damaged and flooded communities on these islands, the cyclone also deposited sheets of sediment across the beach berm increasing their height. The assessment concluded that the shorelines of these islands were disturbed by TC Pam but that they are (thus far) functional and recovering. It follows that seawalls would disturb or halt the natural recovery processes and given over wash and marine flooding were major impacts during TC Pam, alternate options which could provide protection for the communities but not interfere with shoreline processes were required.

Given the necessity to avoid negative interaction with the active shoreline but still provide effective protection from wave overtopping damage, TCAP has revised its approach on both islands. These will predominantly take the form of “Berm Top Barriers” (BTB). BTBs are constructed along the top of the natural storm berm. A berm is the naturally raised land immediately behind the active shore. On Nanumaga the berm crest is some 40 m inland from the active shore and some 7 m above average sea level. On Nanumea it is approximately 10 m landward of the active shore and about 4 m above average sea level. On both islands this land is predominantly undeveloped open coconut woodland and remains undeveloped because of its known exposure to wave over topping during extreme events.

BTBs are raised mounds of earth with graded slopes. They are likely to incorporate buried geotextile containers and will be approximately 3 m wide at the base and 1.0 m to 1.5 m high at their crest. They will be planted with appropriate local grass and tree species once complete and thus will blend unobtrusively with the surrounding environment. On Nanumaga, the BTB is expected to run parallel to the shore over a distance of some 643 m and on Nanumea 1,367 m.

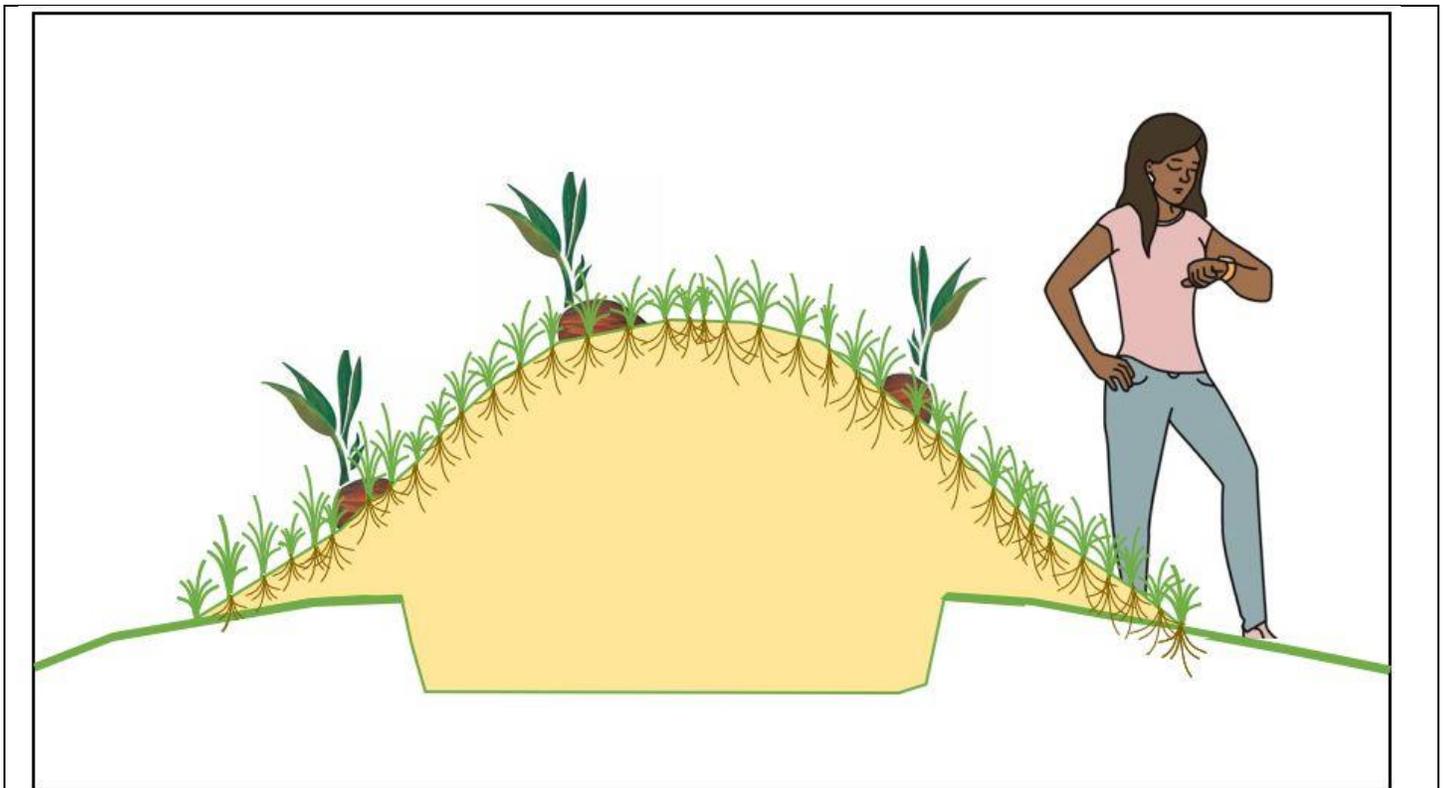


Figure 3. Conceptual sketch-up of the BTB - to scale.

BTBs are an appropriate response in these settings to climate change induced wave over topping risk because they augment the natural shoreline system and assist to prevent wave over topping and marine flooding risk effectively. Additionally, if, in the future, it is deemed necessary to further increase their height to accommodate additional sea level rise and incidence/severity of storms, they can be easily built higher with subsequent layers. Otherwise, in these relatively pristine environments with intact shoreline processes, BTBs offer an unobtrusive “soft” measure, which blends with the environment, is easily traversed to gain access to the shore, and does not negatively impact shoreline processes. Please see attached Technical Note for further details.

On Nanumaga, BTBs will not be used as shoreline defense for approximately 150 m in the central boat channel area of the village. At the time of writing (June 2019), the World Bank is currently planning to upgrade the Nanumaga channel and harbor facility. Since this will include foreshore works, TCAP is well advised to plan its subsequent approach in this area once the boat harbor plans are finalized. As a place holder, vertical aluminum sheet piling is considered a possible option to provide protection to buildings at this section of shoreline. However, final engineering designs cannot be made until the World Bank plans are finalized.



Figure 4. Close up of Nanumaga Village area showing location of planned BTB. The location of the BTB is aligned to the crest of the natural storm berm system and is some 7m above the reef platform (which in turn approximates mean sea level). Note that most of the buildings (other than the church and new clinic buildings) are built on the landward side of the main road likely because of the known impacts of storm waves. This means the BTBs do not interfere with or interact with the built environment for most of their length. Their foot-print mainly lays in open coconut woodland. Details of transect a / b appears below.

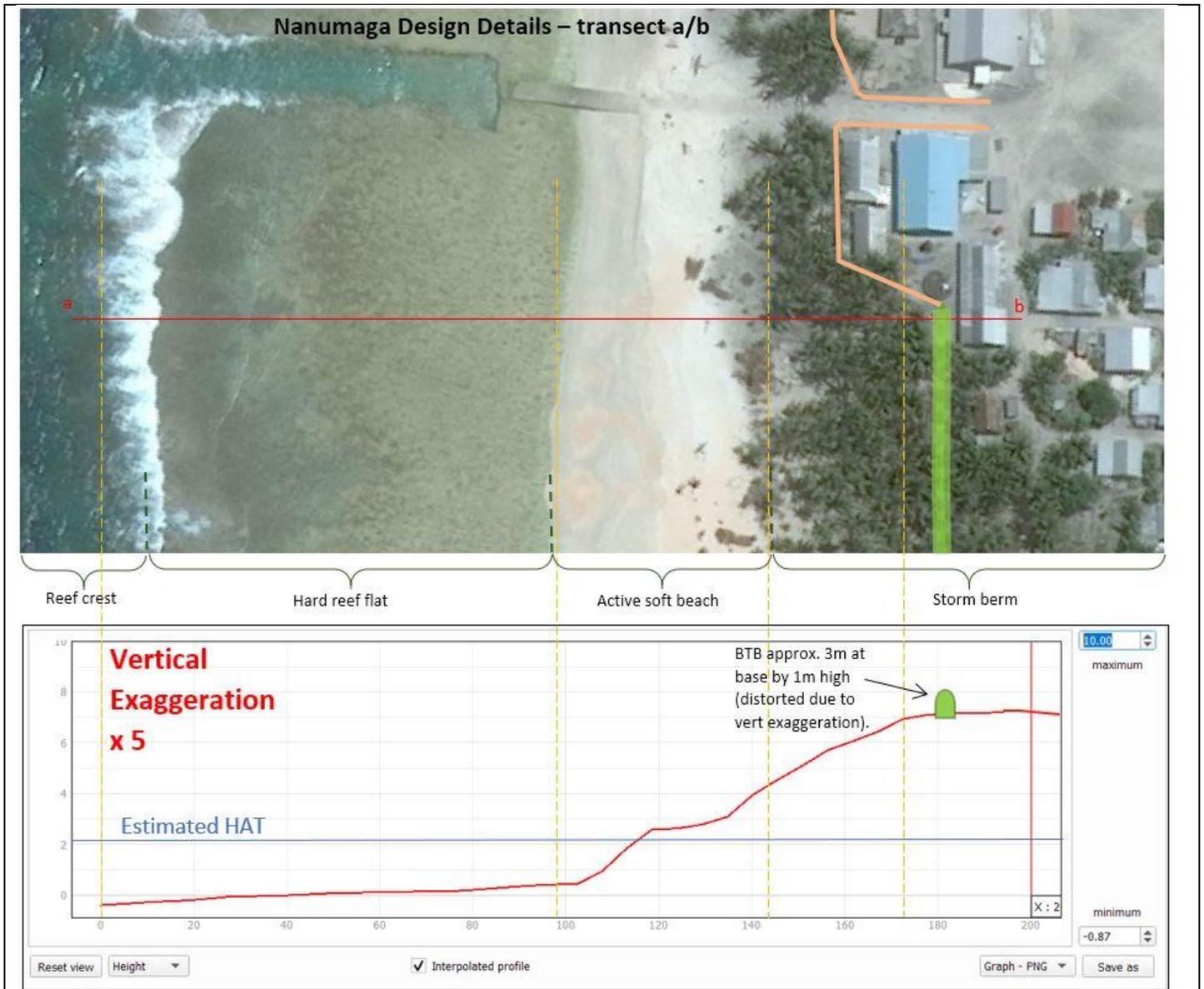


Figure 5. Topographic data used to construct this profile is a true representation of transect a/ b (data kindly shared by the World Bank Boat Harbour Project). Please note the vertical exaggeration in this profile (1:5 generated in QGIS). In this profile, HAT (highest astronomical tide) can only be estimated as no long term, controlled sea level data is available at this time (this is to be collected by TCAP). This profile shows the relative height of the storm berm system (7 – 8 m above the hard reef platform) and the placement of BTB. Note in the vertical image above that the BTB is placed well within the tree line on the natural crest of the berm and thus is not expected to be subject to normal active beach face variability in position (erosion / accretion).

Nanumaga		
Investment criteria / other parameters	Original interventions	Adjusted interventions
Length of shoreline protected	450 m	793 m
Types of protective infrastructure	Geo-textile container revetment	Berm top barrier

Relevant elements in the Results Framework	Input 2.2.1. Construction of coastal protection infrastructure in Funafuti, Nanumea and Nanumaga covering 2,210 m of vulnerable coastlines	Input 2.2.1. Construction of coastal protection infrastructure in Funafuti, Nanumea and Nanumaga covering 3,090 m of vulnerable coastlines
Budget	USD 4,436,100	USD 2,154,374
Direct beneficiaries	440	440
Indirect beneficiaries	111	111
Environmental and social risks	Moderate	Moderate

On Nanumea, there is likewise a 150 m length of shore associated with the village church compound where BTB's cannot be used because buildings have been placed over the foreshore. This area was previously protected with a hard-vertical seawall which has since failed. The proposed replacement protective measure is a sloped "Seabee" prefabricated concrete unit revetment designed to appropriate specification for this shoreline.



Figure 6. The revised TCAP proposal will protect a comparative 1,500m of shoreline with a mixture of BTB (green line) and a hard revetment at the main church compound (central area where there is a 150m gap in the BTB's). The red line is the original TCAP area of "high value coast" of which the central area of approximately 760m was originally targeted for geotextile bag revetments. Thus, the revised proposal provides protection for an additional 740m of shoreline ensuring important community sites such as the village solar array and battery and main cemetery are also protected from marine flooding during overtopping events.

Nanumea		
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Investment criteria / other parameters	Original interventions	Adjusted interventions
Length of shoreline protected	760 m	1,517 m
Types of protective infrastructure	Geo-textile container revetment	Berm top barrier (1,365 m) Hard revetment (180 m)
Relevant elements in the Results Framework	Input 2.2.1. Construction of coastal protection infrastructure in Funafuti, Nanumea and Nanumaga covering 2,210 m of vulnerable coastlines	Input 2.2.1. Construction of coastal protection infrastructure in Funafuti, Nanumea and Nanumaga covering 3,090 m of vulnerable coastlines
Budget	USD 7,492,080	USD 5,272,250
Direct beneficiaries	490	612
Indirect beneficiaries	122	0
Environmental and social risks	Moderate	Moderate

Further details on these interventions in Nanumea and Nanumaga are provided in the Technical Note.

It is important to emphasize that these proposed changes under Activity 2.2 will require changes at the sub-activity level, and for this reason, the underlying ToC and how they will contribute to the project objective, outcomes and outputs remain unchanged.

B.4. CHANGES TO FINANCIAL ELEMENTS OF THE PROJECT/PROGRAMME

As the changes proposed are only at the sub-activity level, the breakdown of cost estimates by sub-component remains unchanged from what was presented in the approved FAA. For reference:

Construction in the three islands falls within Contractual Services-Companies (budget code 72100) under Activity 2.2 of the approved budget. The details are provided under Budget Note 2c.

Total under Contractual Services-Companies (72100) = USD 23,606,624

As per Budget Note 2c- Coastal protection construction: Lump sum @ USD 21,456,624 spread across Y2-6.

The table below shows the changes to the breakdown per island with the proposed changes:

	Budget in FAA (USD)	Budget with the proposed changes (USD)
Funafuti	9,525,973	14,030,000
Nanumaga	4,437,019	2,154,374
Nanumea	7,493,632	5,272,250

TOTAL	21,456,624	21,456,624
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* Please note that co-financing also remains unchanged.

Due to changes in the implementation schedule, the annual budgets for the construction component have changed and with it the disbursement schedule.

	FAA figures (USD)	NEW disbursement figures (USD)
Disbursement 1	2,013,841	2,013,841
Disbursement 2	4,693,133	4,693,133
Disbursement 3	6,618,903	652,190
Disbursement 4	8,489,990	7,496,357
Disbursement 5	8,848,100	12,825,653
Disbursement 6	4,161,306	7,144,098
Disbursement 7	1,184,727	1,184,727

B.5. CHANGES IN PROJECT FINANCING INFORMATION? Yes No If Yes, Please elaborate below

	Financial Instrument ¹	Amount	Currency	Tenor	Pricing (% interest or IRR for equity)		
(a) Total project financing	(a) = (b) + (c)	<u>Options</u>				
(b) GCF financing to recipient			<u>Options</u> <u>Options</u>				
	* Please provide any changes to original economic and financial justification for the concessionality that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concessionality should correspond to the level of the project/programme's expected performance against the investment criteria.						
	Total requested	<u>Options</u>				
(c) Co-financing to recipient	Financial Instrument	Amount	Currency	Name of Institution	Tenor (years)	Pricing (% interest or IRR for equity)	Seniority²

¹ Broken down by instrument i.e. (i) Senior Loans; (ii) Subordinated Loans; (iii) Equity; (iv) Guarantees; (v) Reimbursable grants & (vi) Grants

² Seniority categories include Pari-passu; senior; junior

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Lead financing institution:

** Please provide a confirmation letter or a letter of commitment, for any additional co-financing resulting from changes, issued by the co-financing institution.*

<p>(d) Financial terms between GCF and AE (if applicable)</p>	<p><i>In cases where the accredited entity (AE) deploys the GCF financing directly to the recipient, (i.e. the GCF financing passes directly from the GCF to the recipient through the AE) or if the AE is the recipient itself, in the proposed financial instrument and terms as described in part (b), this subsection can be skipped.</i></p> <p><i>If there is a financial arrangement between the GCF and the AE, which entails a financial instrument and/or financial terms separate from the ones described in part (b), please fill out the table below to specify the proposed instrument and terms between the GCF and the AE and justify any deviation from initial terms described in the original Funding Proposal/FAA agreement.</i></p>				
	Financial instrument	Amount	Currency	Tenor	Pricing
	Choose an item.	<u>Options</u>	() years	() %

C.1. ANY UPDATES TO BACKGROUND INFORMATION ON PROJECT / PROGRAMME SPONSOR (EXECUTING ENTITY)?
 YES NO IF YES, PLEASE ELABORATE

Describe any changes in the project/programme sponsor and the implications for the quality of the management team, overall strategy and financial profile of the Sponsor (Executing Entity) and how it will support the restructured project/programme in terms of equity investment, management, operations, production and marketing.

C.2. ANY INSTITUTIONAL / IMPLEMENTATION ARRANGEMENTS? Yes No If yes, please elaborate

The implementation arrangement remains the same. However, since the construction of the Berm Top Barrier is generally a simpler undertaking than the coastal protection infrastructure envisaged in Nanumea and Nanumaga in the approved FP, there is a possibility that the Department of Public Works has adequate technical capacity to undertake the works, subject to the final detailed engineering design (expected in mid-2020 upon completion of the full ESIA) and the capacity assessment (to be conducted immediately after the detailed design becomes available). If this is confirmed to be the case, PWD would be invited as a Responsible Party and this will be reported during the Annual Performance Review.

C.3. UPDATED TIMETABLE OF PROJECT/PROGRAMME IMPLEMENTATION

Please provide a project/programme implementation timetable in [section I \(Annexes\) with information on milestones, deliverables and results in the cells](#). The table below is for illustrative purposes. If the table format below is used, please refer to the activities as numbered in Section H. In the case of outputs, please mark when all the required activities will be completed.

The table presented below only shows the implementation plan for Activity 2.1 and 2.2 which are impacted by the proposed changes. The latest timetable for all other Activities has been presented in the last APR, and any changes in the future will be reported during the regular APR process.

TASK	2017		2018				2019				2020				2021				2022				2023			2024		
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q24	Q25	Q26	Q27	Q28	
Output 2.																												
Activity 2.1	Consultation - Nanumea and Nanumaga	Consultation - Funafuti				EISA Company Contracted	Preliminary ESIA Funafuti	DA for 3 islands submitted			ESIA Complete Outer Is.	ESIA Complete Funafuti																
Activity 2.2								Detailed Design Work Starts		Procurement of Construction Company(s)	Detailed Design Work Ends	Capital works underway											Capital works complete					

D.1. ANY CHANGES TO VALUE ADDED FOR GCF INVOLVEMENT? Yes No If yes, please elaborate

Please specify why the GCF involvement is still required for the project/programme, in consideration of the new design or revision to the project and climate change rationale.

D.2. ANY CHANGES TO EXIT STRATEGY? Yes No If yes, please elaborate

The overall considerations for longer term sustainability of project results will remain unchanged. However, it is important to stress that the proposed coastal protection options will likely contribute to the *enhanced* sustainability of the project interventions. All the options have been selected for their optimum design life, ease of maintenance and capacity for future re-engineering as needed.

Reclamation design life is only limited by finished elevation and, in this case, will be 2.5 m above HAT (highest astronomical tide). An appropriately designed and built rock armoured revetment can be extremely durable over time and can last indefinitely with minimal maintenance. Natural rock revetments are also relatively easy to retrofit and add to over time. Pre-cast concrete units (Seabee) revetments, proposed in Nanumea, have proven extremely durable in comparison to other similar approaches and have been used with success in similar atoll environments elsewhere. A design life of 50 years is a very reasonable expectation with minimal maintenance. Berm Top Barriers (BTBs) like reclamation can be expected to last more or less indefinitely and are easily re-engineered to increase height into the future and if breached are easily repaired.

The maintenance requirements remain minimal for the proposed coastal protection options. The GoT's commitment from the Infrastructure Maintenance Budget for the maintenance from the approved budget remains unchanged and will continue to be supplemented through trainings for government staff and communities to ensure ownership and capacity for post-project monitoring and maintenance.

The exit strategy and the development of the conditions in the outer islands for the sustainability of the adaptation options remain unchanged with the proposed coastal protection measures.

In this section, the accredited entity is expected to provide a brief description of changes in the expected performance of the proposed project/programme against each of the Fund’s six investment criteria resulting from the proposed changes. Activity-specific sub-criteria and indicative assessment factors, which can be found in the Fund’s [Investment Framework](#), should be addressed where relevant and applicable. This section should tie into any request for concessionality.

E.1. ANY CHANGES TO IMPACT POTENTIAL? YES NO IF YES, PLEASE ELABORATE

Potential of the project/programme to contribute to the achievement of the Fund’s objectives and result areas

E.1.1. Mitigation / adaptation impact potential

The project, with the proposed changes, continues to contribute to the same Fund-level impact (A.3.0) and Outcomes (A5.0 and A7.0). However, it is important to stress that the proposed changes will increase the scale of impact (increased number of beneficiaries) and allow the GoT to achieve its sustainable development objectives in a more effective and sustainable manner.

The lagoon shore of Funafuti is a protected shallow water shore, and therefore, it is protected from open ocean swell and cyclone waves. The lagoon shore of Funafuti is not subject to life threatening, catastrophic wave overtopping but rather it is subject to regular (annual/seasonal) nuisance wave over topping as well as SLR-induced coastal erosion. The interventions envisaged in the original design were to address these risks aggravated by climate change. In contrast, the oceanside shore of Fogafale is subject to catastrophic cyclone driven wave impacts which can be so severe that they cause flooding across the whole island.

SPC’s (The Pacific Community) Marine Science Team undertook modelling at the request of TCAP to determine the potential return period for catastrophic cyclone landfall at Funafuti. A Cat 3 cyclone, equivalent to the last event (TC Bebe, 1971), which saw a catastrophic level of wave overtopping with water depths up to 1.5 m of fast-moving water over the main runway and through much of the settled area of Fogafale, is estimated to be a 1 in 100 year event. However, this return frequency does not account for climate change and thus the frequency is expected to increase.

The revised design recognizes the full spectrum of marine hazards in Fogafale and that there is little if any “safe” land on Funafuti during catastrophic TC landfall. Given the climate change impact of increased intensity of tropical storms for the in Tuvalu, the revised proposal will provide safe, raised land on the shore furthest from the ocean-side deep water coast. In other words, the intervention envisaged in the original FP, albeit their effectiveness in eliminating the SLR-induced coastal erosion and reducing the impacts from seasonal over topping, would not offer this additional, and significant, adaptation benefit of providing the only safe, flood-free land in Funafuti.

As a result of restructuring, the linear length of the vulnerable shoreline to be protected *increases from 2,210 m in the original design to 3,090 m*. The total *direct beneficiaries also increase from the original 3,100 to 3,226* while the number of indirect beneficiaries decreases by 122 people (This is due to the fact that the 122 people in Nanumea who were considered as indirect beneficiaries in the approved project are now counted as direct beneficiaries as a result of longer linear coverage by BTBs).

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	Expected tonnes of carbon dioxide equivalent (t CO ₂ eq) to be reduced or avoided (Mitigation only)	Annual	
		Lifetime	
	<ul style="list-style-type: none"> Expected total number of direct and indirect beneficiaries, disaggregated by 	Total	3,226 direct beneficiaries (of which 1,568 are women) and 3,373 indirect

	<i>gender (reduced vulnerability or increased resilience);</i> <ul style="list-style-type: none"> • <i>Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)</i> 		beneficiaries (of which 1,639 are women).
		Percentage (%)	30% of total population (direct); 62% of total population (direct and indirect)

Other relevant indicators	<p><i>Examples include:</i></p> <ul style="list-style-type: none"> • <i>Expected increase in the number of households with access to low-emission energy</i> • <i>Expected increase in the number of small, medium and large low-emission power suppliers, and installed effective capacity</i> • <i>Expected increase in generation and use of climate information in decision-making</i> • <i>Expected strengthening of adaptive capacity and reduced exposure to climate risks</i> • <i>Others</i>
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The methodology of the calculation of the direct beneficiaries remain unchanged from the approved project.

E.2. ANY CHANGES TO OTHER INVESTMENT CRITERIA³? YES NO IF YES, PLEASE PROVIDE AGAINST EACH INVESTMENT CRITERION THAT IS AFFECTED BY THE CHANGE, AS APPLICABLE

While the underlying ToC remains unchanged, the restructuring would allow the GoT achieve the adaptation outcome in a much more effective, sustainable, scalable and efficient manner. As described above, the proposed changes will protect longer linear length of the vulnerable shoreline. Moreover, reclamation proposed in Funafuti contributes much more significantly to the long-term adaptation outcome of the country because it will, in addition to preventing SLR-induced coastal erosion and wave overtopping in the western shoreline, create the only safe, flood-free land in extremely low-lying Funafuti during catastrophic cyclone events – benefits that the original proposal of hard revetments would not offer. Reclamation is unanimously agreed by stakeholders consulted so far as the most preferred adaptation option.

Paradigm shift potential

Interventions proposed in the restructured project – reclamation, BTBs, Seabee revetment and sheet piling (TBC once the intervention plan in Nanumaga supported by the World Bank is confirmed) – are not only technically robust, but also all relatively or entirely new technical solutions in Tuvalu for coastal resilience building. The suite of site specific, effective solutions that will be introduced in the three islands in the project will enable the GoT to adopt and upscale the impact of the interventions at different locations. For example, the BTB approach is a relatively simple and inexpensive solution that can be replicated by the Tuvaluan authority in many parts of the country while harnessing the full potential of ecosystem functions. Moreover, both reclamation and BTBs, once designed properly, have excellent durability requiring minimum maintenance overtime, ensuring long-term sustainability of development impact. The effective use of ecosystem functions for coastal resilience building is relatively limited in the Pacific, despite the significant potential for replication and scaling as they are often lower cost and technically simpler than hard-engineered solutions. Successful demonstration of the effectiveness of the BTBs in Nanumea and Nanumaga is expected to pave the way for greater replication not only domestically but also regionally.

Sustainable development potential

Improvements in the sustainable development potential are also expected in the restructured project. The proposed reclamation and BTBs are expected to bring about a range of economic, social and environmental co-benefits. The restructured project is expected to have positive impacts on the NPV as the cost of the intervention remains the same and the quantified benefits stay the same or potentially improve as a result of a marginal increase in the number of direct beneficiaries, and thus, a new economic modelling is not required.

³ Besides impact potential, the other GCF investment criteria are paradigm shift potential; sustainable development potential; needs of the recipient; country ownership; and efficiency and effectiveness

Social co-benefits

As witnessed in the past, cyclones cause havoc in this small, but densely populated community, by displacing people, damaging houses and other important economic and cultural buildings, and heightening hygienic concerns in the aftermath. Funafuti, and the rest of the country, still has poor cyclone evacuation infrastructure – many are located within 10 m from the deep-water, eastern shoreline and others use church buildings as makeshift shelters during cyclone events. There is strong consensus to use the reclaimed area for communal uses and the development of a foreshore buffer zone including a seaside park which can be planted and grassed and act as a recreation / urban park area. Furthermore, cyclone shelter capable of safely sheltering several thousand people has also been proposed for this area. An improved evacuation facility in the central location, close from the National Disaster Operation Center, will make the economic and social recovery process more effective, efficient and timely, contributing to the overall resilience of the society. In addition, the reclaimed area will be owned by the GoT, as stipulated in the Tuvalu Foreshore Act, enabling the GoT to enforce the setback zone more effectively. No equivalent currently exists in Funafuti. Using the reclaimed land for commercial use is not being considered and, therefore, the request for grant funding from GCF remains valid under the restructured project.

Environmental co-benefits

The BTB approach to be adopted in Nanumea and Nanumaga does not interfere with the natural and dynamic soft beach system and generate greater environmental co-benefits. Built carefully, BTBs are gently sloping mounds which blend with the wider landscape and are easily traversed on foot providing unmitigated access to the shore.

Country ownership

The country ownership for the proposed interventions is extremely high. The Funafuti “Coastal Master Plan” which was developed through bilateral support was not accepted by the Funafuti community as the community demanded reclamation to be the primary means for long-term adaptation. In May 2019 the Funafuti Island Council and Funafuti Chief reiterated their support for the proposed reclamation proposal. The Cabinet approved the proposed interventions in the three islands, showing the full support towards the restructured project in May 2019 as well.

E. 3. Engagement with NDAs, civil society organizations and other relevant stakeholders

Please provide a full description of the steps taken to ensure country ownership, including the engagement with NDAs on the proposed changes. Please also specify the multi-stakeholder engagement plan and the consultations that were conducted with respect to the proposed changes.

The proposed coastal adaptation options are informed by several rounds of discussions with the NDA (May 2018 board meeting, August 2018 bilateral meeting, November 2018 Project Board meeting, February 2019 bilateral meeting, June 2019 tripartite meeting at GCF Headquarters with NDA), stakeholders at the national and island levels as well as with technical experts in the region. There is unanimous agreement on the new proposed coastal adaptation options as improved and more effective options given the changes that have occurred in the country.

Community outreach and consultations took place from November 2017. Direct interaction with stakeholders at the community, Falekaupule, Island Councils, GoT and NGOs has occurred on all three islands, most extensively on Funafuti where reclamation is planned. Visual presentations explaining the revised designs and open community and council discussions regarding the revised designs has met with unanimous agreement on all three islands. In May 2019 the Funafuti Island Council and Funafuti Chief reiterated their support for the present reclamation proposal. Also, in May 2019, a Cabinet paper explaining in detail the revised infrastructure designs was tabled in Cabinet and was approved without amendment.

The proposed adjustments in design and type of coastal infrastructure have also undergone extensive expert technical assessment and review by technical experts from Marine Science team of SPC (Secretariat of the Pacific Community), Manly Hydraulics Laboratory, NSW Australia and Coastal Engineers at NIWA's Pacific Rim Program, New Zealand. A preliminary hydrodynamic modelling was undertaken by NIWA to determine the relative effectiveness of Berm Top Barriers on Nanumea and Nanumaga and deemed them highly effective. In all cases, there is strong technical agreement these concepts are appropriate and represent technically sound adaptation solutions.

** The information can be drawn from the project/programme appraisal document.*

F.1. ANY CHANGES IN ECONOMIC AND FINANCIAL ANALYSIS? Yes No If yes, please elaborate

F.2. ANY CHANGES IN TECHNICAL EVALUATION? Yes No If yes, please elaborate

Please provide an assessment from the technical perspective on any changes in the project design/activity. If a technological solution that is different from the original proposal has been chosen, describe why it is the most appropriate for this project/programme.

Funafuti

Very significant changes had occurred along some 1,800 m the target Funafuti shore since the design of the original TCAP proposal. These included; reclamation 2.85 ha, beach nourishment and rock groyne construction. These physical changes required TCAP to re-assess the optimum approach to shoreline protection on this shore.

The revised technical proposal is for reclamation, rather than simple foreshore revetments as it offers a number of important adaptation advantages in this small, low lying atoll setting. Reclamation will more effectively secure the existing shoreline from the original problems of ongoing erosion and wave overtopping, but it will also provide safe raised land which will remain flood free during cyclone wave conditions. Seawalls alone cannot offer this advantage in this environment.

Much of the land on Fogafale (the main settlement on Funafuti) is so low lying that it is already several centimeters below sea level at spring high tide levels. This means large areas of Fogafale including parts of the international runway, main roads, Government facilities (powerhouse, meteorology station, Public Works compound) and many private homes become flooded with brackish water during normal high spring tides. Climate change induced sea level rise is making the depth, extent and the subsequent impact of this flooding worse every year and unless land surfaces are elevated the island will become untenable for occupation within foreseeable timeframes.

The proposed reclamation will have a surface elevation over 2.0 m above the highest measured sea level on Funafuti (approximately 2.5 m above HAT). It will thus become the only safe, flood free land on Funafuti well beyond the reach of sea level rise to 2100 and likely significantly longer. In contrast seawalls can only secure shoreline position and assist to mitigate wave impacts but they make no difference whatsoever to gradual inundation of low-lying coastal land caused by sea level rise.

As such, in comparison to the original approach, this revised proposal achieves the objective of the original FP but also address issues of exposure to deep water, tropical storm waves and it provides an effective pragmatic response to incremental sea level rise. It is by comparison a more wholistic, long term, adaptation response.

Reclamation is comparatively maintenance free once established and the selection of a well-designed volcanic rock revetment means these solutions likely will have design life which will span beyond 2100.

Nanumea and Nanumaga

Technical assessment and scoping on Nanumea and Nanumaga revealed that since the development of the original TCAP FP that the shorelines of both of these islands had undergone a degree of natural recovery since Cyclone Pam. “Recovery” requires that sediments naturally produced and transported in these systems are not restricted via hard engineering. It follows that foreshore revetments would likely interact negatively with these sedimentary processes and Berm Top Barriers (BTBs) were assessed as a more appropriate option in these relatively pristine settings.

Berm Top Barriers (BTBs) are continuous raised mounds of earth which run parallel to the shore along the crest of the natural shoreline raise berm system. The BTB’s augment the shoreline’s natural protect structure by raising its height, this in turn prevents wave over wash of the shoreline system and marine flooding of inland areas. Because they are positions higher than the active (sandy) shore they do not affect normal sedimentary processes and will not damage the natural foreshore. They are thus considered an effective approach to prevent wave induced flooding and are more appropriate in these recovering shoreline systems. Additionally, BTB’s do not impede foot traffic or access to the shore and will be more or less invisible once vegetated.

An approximate 150 m length of shoreline in Nanumea requires protection with a revetment because of the proximity of several community buildings and homes. Rather than geotextile bag revetments, precast concrete unit revetment “Seabees” are the preferred option. This is because Seabees can be manufactured to a size and weight which will allow lifting and installation and repair by hand. In comparison, sand filled geo-textile bags are of a size and weight which omits this. Nanumea is a small rural community (approximately 400 people) and there is no heavy equipment on island to facilitate revetment repair etc. As such, a Seabee revetment of the design being considered is the most appropriate approach and is also known to be a well proven technology in other similar atoll settings with good design life characteristics.

BTBs are situated well above the reach of routine wave climate and only play a protective role during extreme events. As such, they are also relatively free of maintenance and, if they are damaged during a storm, are very easy to repair. Likewise, the use of Seabee precast concrete units is based on their performance elsewhere in similar environments. They have a proven record of being long lived and very robust, yet if individual units are damaged, they can be replaced easily by hand with no special tools. The revised proposal would seek to ensure a suitable stock pile of spare units is left on Nanumea for this purpose and training of local stakeholders in the installation of said spare units is implicit in TCAP’s plans to use local labour to build this revetment. This also has additional advantage from an operation and maintenance perspective.

F.3. ANY CHANGES IN ENVIRONMENTAL, SOCIAL ASSESSMENT INCLUDING GENDER CONSIDERATIONS? Yes
No If yes, please elaborate

Describe the main changes in expected outcome of the environment and social impact assessment for the restructured project. Specify the Environmental and Social Management Plan, and how the project/programme will avoid or mitigate negative impacts at each stage (e.g. preparation, implementation and operation), in accordance with the Fund’s Environmental and Social Safeguard (ESS) standard. Also describe how the gender aspect is considered/addressed in the restructuring of the project, in accordance with the Fund’s Gender Policy and Action Plan.

A Preliminary Environmental Assessment has been undertaken to consider the impacts of the proposed changes, particularly at Funfuti. Based on the PEA, it was determined that the impacts and risks were moderate and could be managed to acceptable levels. A full Environmental and Social Impact Assessment will be done to confirm the PEA findings and provide the basis for a detailed Environmental and Social Management Plan. The full ESIA is expected by June 2020.

The following outlines the main impact differenced expected.

Funafuti

The revised proposal is for reclamation, rather than simple foreshore revetments. The revised scope impacts less foreshore (780 m vs 1000 m) but will require increased volumes of dredge sand and will cover a larger area (approx. 7.8ha). The following would be the main impacts expected:

- No significant change to impacts to foreshore due to both proposals involving modification of the immediate foreshore. The length of revised proposal is less, however recent GoT foreshore works immediately to the south of the proposed reclamation works have already impacted the foreshore.
- Increased area of reclamation. The revised proposal involves a significant increase in the area of reclamation (from approximately 20 m wide to 100 m wide). However, the foreshore and nearshore areas at this location have been heavily modified and impacted by historic heavy engineering works undertaken during WWII. Approximately 55% of the reclamation area has been previously modified.
- Impacts to marine organisms. The increased reclamation means that there is greater potential for impact to marine organisms. However, ecological assessments of the proposed reclamation area have found it to be depauperate in terms of aquatic ecology – previous areas of coral are already dead and there is now significant algal growth (promoted by high nutrient runoff from the nearby urban area) that is smothering any remaining coral. The area to be reclaimed is of limited habitat value for marine organisms.
- Need for more dredge material. The increased reclamation calls for more dredged sand, which will result in disturbance of a larger area of the lagoon floor. The sand resource has been identified to be significantly larger than is currently required (24 million m³ vs 35,000 m³), so the project will not result in the removal of all the material or habitat type. Further, ecological surveys of the lagoon floor have indicated that typical benthic organisms utilise the sand resource e.g. polychaete worms. Such organisms may be lost during dredging, but are known to rapidly recolonise disturbed areas.
- Turbidity due to dredging/reclamation. The revised proposal allows for improved design in terms of management of turbid water associated with the reclamation. The pumped material will be placed in cells so that turbid water both settles and is filtered by the structures (rock revetment/sand bunds) prior to release to the lagoon.
- Both proposals would have impacted boating access from the shoreline as the rock revetment walls will impede boat access. However, with the revised design a small boat harbour is proposed at the northern end of the reclamation. Access points (e.g. stairs or ramps) along the revetment wall will be considered. The raised land created by the reclamation will also provide a more secure location for boats and community uses.
- Increase in land above inundation levels. The revised proposal significantly improves the outcomes in terms of provision of land that is above inundation levels.

Nanumea and Nanumaga

Berm Top Barriers will replace the originally proposed foreshore revetments. This removes the impacts that would have previously occurred along the foreshore.

- No impacts to marine environment. There is a reduced risk of turbidity impacting the marine environment as the works are further inland. There will be no loss of foreshore organisms.
- Access impacts reduced. BTBs do not impede foot traffic, nor do they prevent small boats being brought ashore in the same way that revetments would have.
- Increased impacts to land. The BTBs, being further inshore, have potential to have more impact on private lands, particularly during their construction. However, land tenure is not proposed to change and the BTBs will not sterilise land use once constructed.
- Reduced visual impact. The BTBs will have significantly less visual impact once revegetated. They augment the existing, natural high point of the beach berm rather than creating something completely new.

Nanumea Revetment

The change from geotextile to Seabees is not expected to result in significant changes in impacts as the new Seabee revetment will lay directly over the footprint of a former failed seawall. Approximately 150 m of foreshore will be protected. There will be a visual difference between the two materials. Access would be improved with the use of Seabee as the current shore is rubble strewn with a steep erosive over hang preventing access. From a social stance, the use of Seabees means that the community can undertake maintenance and repairs themselves as heavy lifting equipment is not required, effectively empowering the community to continue to protect itself in the long term.

Gender

The revised proposal enhances outcomes on a gender basis as the project outcomes are improved. For example, the Funafuti reclamation will provide a greater area of land that is safer from inundation – as the carers of children and the elderly, having safe refuges particularly affects women. The additional land could also potentially be used for community facilities or gardens.

The exchange of revetments for BTBs will mean that foreshore areas will continue to be accessible for women, children and the elderly.

F.4. ANY CHANGES IN FINANCIAL MANAGEMENT AND PROCUREMENT? Yes No If yes, please elaborate

Describe any expected changes in the project/programme's financial management and procurement, including financial accounting, disbursement methods and auditing.

A revised procurement plan will be produced once the technical designs are finalized in September 2019.

G.1. ANY CHANGES TO THE RISK ASSESSMENT SUMMARY? Yes No If yes, please elaborate

Please provide a summary of main risk factors, including any newly identified risks from the restructuring of the project. Detailed description of risk factors and mitigation measures can be elaborated in G.2.

Several new risks apply with the restructured proposal. The main risks are summarized below and Table G2 provides an expanded explanation.

Funafuti

The revised proposal includes reclamation which; a) has a larger footprint (~ 7.8Ha) over the substratum than a foreshore revetment, permanently altering the near shore shallows and b) reclamation requires a source of fill material (350,000m³) which will be sourced from the lagoon basin sediment resource area. Both aspects of these activities may disturb the marine ecology and/or fisheries. It is also possible that extending the reclamation seaward may alter water flow regimes.

Best international practice to manage any such impacts will be deployed but key to the overall mitigation of such risks is the litany of pre-existing physical, hydrodynamic and chemical impacts already acting on this nearshore environment. Natural sedimentary processes are completely degraded, over 55% of the footprint of the reclamation is substratum which has already been physically disturbed and the entire area, including the sand resource area, lays in a zone of eutrophication and algal dominance and few if any living corals exist.

The dredging will directly impact benthic organisms (namely Halimeda algae and Polychaetae burrowing worms) within the sand resource area but these are common and known to rapidly recolonise disturbed sediments and the remaining sand resource is large and provides similar habitat. Nonetheless, the dredge process will be strictly manage using international best practice to minimize any possible impacts from turbidity or sedimentation.

Nanumaga and Nanumea

The revised design for the two outer islands are Berm Top Barriers (BTBs - described elsewhere in this document), which has two main risks; a) they will be located on privately / community owed land, necessitating individual permissions to build these structures and b) the material (2,500m³ and 4,700m³ on Nanumaga and Nanumea, respectively) to build the BTBs will be extracted from large ephemeral cyclone deposits at the northern and southern points of these islands.

Discussions with the Nanumaga and Nanumea Community and Councils has occurred and there was agreement with the BTB approach described here suggesting permissions should be forthcoming. The ephemeral storm deposits left by TC Pam are mobile and it is possible that another major storm could remove them from the island. These processes are impossible to predict, and timely implementation of works is of the essence.

In all cases full ESIA processes will be undertaken to identify and fully characterize risks and identify mitigation factors. An Environmental and Social Management Plan will also be prepared to manage any risks and insure that Grievance Redress Mechanism's are implemented on all three islands.

G.2. ANY CHANGES FOR RISK FACTORS AND MITIGATION MEASURES? Yes No If yes, please elaborate

Please describe additional (financial, technical and operational, social and environmental and other risks) that might prevent the project/programme objectives from being achieved. This section should also describe other potential issues which will be monitored as "emerging risks" during the life of the project (i.e., issues that have not yet raised to the level of "risk factor" but which will need monitoring). Also describe the proposed risk mitigation measures.

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
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<p>Nanumaga and Nanumea The proposed Berm Top Barriers (BTBs) are located on privately / community owed land above the active shore. It will be necessary the gain the necessary individual permissions to build the BTBs and this will be more complicated than the previous design and this may cause delay or limit complete implementation.</p>	<p>Social and environmental</p>	<p>High (>20% of project value)</p>	<p>Low</p>
<p>Mitigation Measure(s)</p>			
<p>On Funafuti, there is no change - the project will be implemented in the inter-tidal and sub-tidal off shore zone and thus takes place on “crown land” not owned by private citizens (<i>Foreshore And Land Reclamation Act</i>). On Nanumaga and Nanumea, gaining individual landowner consent may cause delay. Discussions with the Community, Councils has occurred and there was broad agreement that BTBs are an acceptable approach; Cabinet has similarly considered BTBs and approved their implementation. Nonetheless, ongoing interaction and communication with the community is of utmost importance and can best reduce the risk of conflict or delay.</p>			
<p>Selected Risk Factor 2</p>			
<p>Description</p>	<p>Risk category</p>	<p>Level of impact</p>	<p>Probability of risk occurring</p>
<p>Materials (sand) to construct BTB’s on Nanumea and Nanumaga are to be sourced from ephemeral storm deposits left be TC Pam. These deposits are mobile and it is possible that another major storm could remove them from the island.</p>	<p>Technical and operational</p>	<p>High (>20% of project value)</p>	<p>Medium</p>
<p>Mitigation Measure(s)</p>			
<p>Such processes are impossible to predict and it is equally possible another storm could add to their bulk. Nonetheless, the longer the implementation of work is delayed the great the risk these deposits could change. In a worst-case scenario, this could necessitate the importation of material and this would add substantially to the cost of the Project.</p>			

** Please expand this sub-section when needed to address all potential material and relevant risks.*

Selected Risk Factor 3			
Description	Risk category	Level of impact	Probability of risk occurring
On Nanumaga, the World Bank boat harbour project design has not been finalized; however some of the design options being considered may have a detrimental impact on shoreline sedimentary processes.	Social & Environmental	Medium (< 10% of project value)	Low
Mitigation Measure(s)			
TCAP is working very closely with the Engineering Company involved to try and ensure more complementary or benign designs are selected that will avoid destabilising the foreshore.			
Selected Risk Factor 4			
Description	Risk category	Level of impact	Probability of risk occurring
Impacts to marine ecology and fisheries. The project includes dredging, reclamation, and construction in marine environments.	Social & Environmental	Low (<5% of project value)	Medium
Mitigation Measure(s)			
At Funafuti, the area to be reclaimed has already been significantly impacted by engineering works to the point where it is now of limited value in terms of aquatic ecology. The reclamation area is not significant in terms of fisheries value.			
The dredging will directly impact benthic organisms that currently live within the sand resource. However, these organisms are common, and known to rapidly recolonise disturbed areas. The remaining sand resource is large and provides similar habitat. The dredging works may attract fish to the area during the works as a result of disturbance to the lagoon bottom and subsequent exposure/release of food organisms.			
Management techniques commonly used during dredging operations to minimise impacts would be applied.			
Selected Risk Factor 5			
Description	Risk category	Level of impact	Probability of risk occurring
Social impacts as a result of works eg noise, hazard, and loss of access.	Social & Environmental	Low (<5% of project value)	Low
Mitigation Measure(s)			
A full ESIA will be undertaken and it will identify potential impacts. A detailed Environmental and Social Management Plan will be prepared based on the outcomes of the ESIA. The ESMP will include elements to deal with potential social issues such as noise, hazard, safety, emergencies, dust, access etc.			
A Grievance Redress Mechanism will also be in place			
Selected Risk Factor 6			
Description	Risk category	Level of impact	Probability of risk occurring
Disruption/modification to hydrodynamics. The proposed reclamation will move the shoreline approximately 100m seawards. No downstream impacts	Social & Environmental	Medium (5.1-20% of project value)	Low

<p>are expected from this given shores both north and south are also predominantly very disturbed or engineered.</p> <p>Wave energy regime altered</p>			
Mitigation Measure(s)			
<p>At Funafuti, tidally driven longshore processes on this shoreline have long been disrupted through earlier engineering. hydrodynamic modelling confirms water exchange regimes (direction and velocity over time) show no significant difference between the presence or absence of the proposed reclamation.</p> <p>In respect to wave action the project will design an appropriate foreshore seawall which will absorb and reduce wave energy, prevent overtopping and minimize any wave reflection issues.</p> <p>The change from foreshore revetments to BTBs Nanumea and Nanumaga will allow natural processes to continue (noting that recent changes have been positive)</p>			

H.1. REVISED LOGIC FRAMEWORK.

Please update the logic framework in accordance with the GCF's [Performance Measurement Framework](#) under the [Results Management Framework](#).

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level⁴

There is no change in the Paradigm Shift Objectives and Impacts at the Fund level. The project will continue to contribute to the same Fund-level impact and Outcomes but in a more significant manner with the proposed changes. The impact is greater and is reflected in the change to the target for the Fund level indicator A7.0. The number of direct beneficiaries has increased from 3,100 to 3,226 individuals. Furthermore, the linear length of vulnerable coastline to be protected has also increased from 2,210 m to 3,090 m alongside a range of enhanced economic, social and environmental co-benefits. The adaptation outcome is now designed to be achieved in a more effective, sustainable, scalable and efficient manner with significant improvements to the sustainability and replicability of the interventions. The BTB options in Nanumaga and Nanumea are innovative, new and inexpensive technical solutions for Tuvalu with greater potential for replication within the country and the region. Reclamation will provide the highest land in Funafuti, sufficiently distant from deep water ocean side coast where wave overtopping damage can occur, providing the safest land in the capital.

A change to the target is presented in the table below and in Section H.1.2.

Paradigm shift objectives

<i>Choose appropriate expected result</i>	Please elaborate on the paradigm shift objectives to which the project/programme contributes. Provide a summary of the overall project/programme climate change objectives					
Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Fund-level impacts						

⁴ Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that some indicators are under refinement): http://www.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

	The area of reclaimed land in Funafuti	Implementation report by assessment/ construction vendor; Annual progress report; mid-term review; terminal evaluation	0 2.85 ha In Funafuti, 2.85 ha of land has been reclaimed by the Government		7.85 ha of additional land reclaimed in Funafuti	Final ESIA results in a moderate risk category
3.						
Activities	Description	Sub activities		Deliverables		
2.2 Coastal protection measures implemented	Coastal protection measures installed and monitored in identified sites.	2.2.1. Construction of coastal protection infrastructure in Funafuti, Nanumea and Nanumaga covering 3,090m of vulnerable coastlines		Complete engineering designs for all three sites; Engagement of construction companies including tender specifications for civil works; Capacity building of relevant Government agencies responsible for Operations and Maintenance of interventions		

H.2. ANY CHANGES TO ARRANGEMENTS FOR MONITORING, REPORTING AND EVALUATION? Yes No If yes, please elaborate

Besides the arrangements (e.g. semi-annual performance reports) laid out in AMA, please provide project/programme specific institutional setting and implementation arrangements for monitoring and reporting and evaluation

Please provide methodologies for monitoring and reporting of key outcomes of the restructured project/programme, and how data/evidence will be collected to substantiate the results reported and the proposed changes.

I. UPDATED SUPPORTING DOCUMENTS FOR RESTRUCTURING PAPER

- NDA No-objection Letter
- Feasibility Study
- Integrated Financial Model that provides sensitivity analysis of critical elements (xls format, if applicable)
- Confirmation letter or letter of commitment for co-financing commitment (If applicable)
- Project/Programme Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) – see the *Accreditation Master Agreement, Annex I*
- Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (If applicable)
- Appraisal Report or Due Diligence Report with recommendations (If applicable)
- Evaluation Report of the baseline project (If applicable)
- Map indicating the location of the project/programme
- Timetable of project/programme implementation
- Request for change of Scope and Design from Government
- Cabinet Letter of agreement on Nanumea and Nanumaga
- Funafuti head chief's letter on reclamation
- SESP
- Preliminary EIA
- Letter of Endorsement from UNDP Senior Management
- Technical Note
- Cabinet Paper on which decision was based

** Please note that a restructuring paper proposal will be considered complete only upon receipt of all the applicable supporting documents.*



Annex – No Objection Letter

GOVERNMENT OF TUVALU



PRIME MINISTER

10th June 2019

To: The Executive Director
Green Climate Fund Headquarter
G-Tower, 175, Ari Center-daero
Yeosu-gu, Incheon 22004
Republic of Korea

Re: Restructuring proposal for the GCF by United Nations Development Programme (UNDP) regarding Tuvalu Coastal Adaptation Project

Dear Sir,

I refer to the project: Tuvalu Coastal Adaptation Project (TCAP) in Tuvalu as included in the restructuring proposal submitted by UNDP to us on Monday, 10 June.

Pursuant to GCF decision B.04/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the project as included in the restructuring proposal.

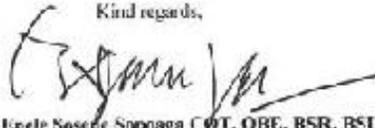
By communicating our no-objection, it is implied that:

- (a) The government of Tuvalu has no objection to the project as included in the restructuring proposal;
- (b) The project as included in the restructuring proposal is in conformity with Tuvalu's national priorities, strategies and plans;
- (c) In accordance with the GCF's environmental and social safeguards, the project as included in the restructuring proposal is in conformity with relevant national laws and regulations.

I also confirm that our national process for ascertaining no-objection to the project as included in the restructuring proposal has been duly followed.

I acknowledge that this letter will be made publicly available on the GCF website.

Kind regards,



Rt. Hon. Enele Sosefo Sopoaga CDT, OBE, BSR, BSI
National Designated Authority of Tuvalu
PRIME MINISTER

Updated Secretariat’s Review of the Restructuring Paper for FP015–RP1

Proposal name:	Tuvalu Coastal Adaptation Project (TCAP)
Accredited entity:	UNDP
Country/(ies):	Tuvalu
Project/programme size:	Small

I. Overall assessment of the Secretariat for the proposed changes to the approved FP

1. Having been assessed by the Secretariat as a major change, the restructuring proposal is submitted to the Board for consideration with the following summary remarks:

Strengths of proposed changes	Points of caution in relation to proposed changes
The proposed changes reduce both the vulnerability of three islands of Tuvalu to coastal inundation and erosion as well as to exposure to deep water, tropical storm waves and the threat of incremental sea level rise.	The intervention in Fogafale is now presented as a safeguard during tropical cyclones. The design and implementation of the land reclamation need to follow internationally accepted standards.
Changes to interventions in Nanumea and Nanumaga are simple and relatively low-cost and if well designed provide excellent protection from storm wave flooding and have potential to be scaled up nationally and within the region.	The intervention in Fogafale is limited to land reclamation only. Realizing the objective of providing a safe-haven during tropical cyclones requires additional investment for which the resources are currently not demonstrated.
Proposed changes allow for a greater length of shoreline to be protected than the geo-textile intervention originally envisaged in the approved FP.	Potential risk of cost overrun for the construction activities exists and would require financing from other sources.

2. The detailed assessment below against key GCF results areas, policies and criteria focuses on updates and changes to the initial Secretariat Assessment of the approved Project resulting from the proposed changes in the submitted restructuring proposal and/or experience to date in the project.

3. The Board may wish to consider approving the proposed changes together with any updates to the terms and conditions listed in the annex II to document GCF/B.23/13.
4. This restructuring proposal relates to the Tuvalu Coastal Adaptation Project (TCAP) - FP015, submitted by the United Nations Development Program (UNDP). The project activities are aimed at implementing sustainable coastal protection measures against the impact of increasingly intensive wave action on Tuvalu's infrastructure and population and reducing its vulnerability to coastal inundation and erosion. The project has three components aimed at: (i) strengthening the institutional capacity, local expertise and community awareness of the resilient coastal management protection; (ii) designing and putting in place coastal protection infrastructure along three selected islands; and (iii) establishing a financial mechanism that would be used to address long-term adaptation needs of the country. The total GCF contribution to the project consists of USD 36.01 million in grants. The project has a co-financing of USD 2.86 million in grants from Government of Tuvalu. UNDP is both the AE and the EE for the project.
5. The proposed changes to the project affect component 2 relating putting in place coastal protection infrastructure targeted at locations with a high concentration of residents in the islands of Funafuti, Nanumea and Nanumaga. These changes are triggered by developments in the project baseline of the target sites for the project which took place between the time design of the original proposal in 2015 and start of project implementation in August 2017; and, the technical assessment. These changes include:
 - (i) Change from initially planned 600 m rock armour revetment and 400 m of pre-cast concrete (Seabee) revetment to reclamation in central Fogafale lagoon nearshore area (approx. 7.8 ha) and protection of 780 m of adjoining shoreline. The finished surface elevation will be approximately 2.0 m above the highest measured sea level at Funafuti so as to ensure a viable living area beyond a 2100 worst case scenario for sea level rise rates (IPCC, 2014) and b) remain well above anticipated cyclone wave over wash / marine flooding levels. It is indicated that the reclaimed land would facilitate the development of public space including recreational areas, a community cyclone shelter which would also double as school or community hall; and provide for potential construction of public housing. However, no detailed land use plan has been developed and this is envisaged to be done once the clearance for the proposed changes is obtained.
 - (ii) Change from use of Geo-textile container revetment Berm Top Barriers (BTBs) in Nanumaga and Nanumea (combined with a 180 m hard revetment in Nanumea) and which do not interfere with the active beach sedimentary processes but effectively reduce wave overtopping volumes and marine flooding associated with tropical storms. The revised designs respond to the more recent assessment of these shorelines while offering significant advantages such as: a) they are simple and relatively low-cost; b) excellent protection from storm wave flooding, if well designed; and, c) in the restructured proposal, will allow a greater length of shoreline to be protected than the geo-textile intervention originally envisaged in the approved FP.

II. Summary of the Secretariat's Review

I.1 Climate objective:

6. The project aim of reducing the impact of increasingly intensive wave action induced by sea-level rise and intensifying extreme events as a result of climate change on key coastal infrastructure remains unchanged. Interventions are expected to, in addition to the original objective of enhancing the protection against wave overtopping during severe weather events emanating from the ocean side (loss of life and property), provide safe raised land that can be used for a community cyclone shelter.

7. The need for providing a cyclone shelter in Fogafale is not clearly demonstrated. Reference is made to a tropical cyclone in 1972 but no further subsequent noteworthy events. There is no elaboration of tropical cyclone prevalence and dynamics in the Pacific, nor of any increase in risk due to climate change.

I.2 Financing information

8. The overall financing information in terms of total project cost, co-finance and GCF contribution does not change. Similarly, breakdown of cost estimates by sub-component remains unchanged from what was presented in the approved FAA budget. The breakdown of the sub-activity changes for output 2 has been presented and remains within the allocated budget. Detailed budget will be provided later after the detailed technical designs are completed.

Output level analysis of proposed changes (where applicable)

9. The output analysis of the proposed changes is provided below:

Output 1: No Change

Output 2: The schematics of the interventions are not adequate to determine the validity of the design, with specific reference to the land reclamation in Fogafale. It is therefore difficult to assess the proposed solution. Detailed technical designs, based on current and future (climate change) hydrodynamic information of the ocean-facing shore of Fogafale, need to be supplied.

Component 3: No Change

Alignment with investment criteria

2.1 Impact potential

10. There is marginal change in direct beneficiaries from 3,100 to 3,226, but no change in total number of direct and indirect beneficiaries.

11. In addition to the original expected impact, the proposed changes are expected to provide protection against the climate change impact of increased intensity of tropical storms for Tuvalu by providing currently scarce safe raised land. The changes are also expected to increase the total length of the vulnerable shoreline to be protected from 2,210 meters in the original proposal to 3,090 metres under the restructured proposal.

2.2 Paradigm shift potential

12. The interventions proposed in the restructured project – reclamation, BTBs, Seabee revetment and potentially sheet piling are technically robust and relatively/entirely new technical solutions in Tuvalu for coastal resilience building. This suite of site-specific solutions that will be introduced in the three islands will enable the GoT to adopt and upscale the impact of the interventions at different locations across the country. Both reclamation and BTBs, if well designed, are durable, require minimum maintenance overtime and ensure long-term sustainability of development impact. Successful demonstration of the effectiveness of the BTBs is expected to pave the way for greater replication not only domestically but also regionally where effective use of ecosystem functions for coastal resilience building is relatively limited, despite the significant potential for replication and scaling.

2.3 Sustainable development potential

13. The proposed reclamation and BTBs are expected to bring about a range of economic, social and environmental co-benefits. The cost of the intervention remains the same and the quantified benefits stay the same or potentially improve as a result of a marginal increase in the number of direct beneficiaries.

14. The project is expected to generate additional social co-benefits accruing from the strong consensus to use the reclaimed area for communal uses and the development of a foreshore buffer zone including a seaside park which can be planted and grassed and act as a recreation / urban park area. Furthermore, the reclaimed land where the proposed cyclone shelter capable of safely sheltering several thousand people is expected to provide conducive ground work for an improved evacuation facility in the central location, that will make the economic and social recovery process more effective, efficient and timely, contributing to the overall resilience of the society.

15. Environmental co-benefits are expected to accrue from the BTB approach to be adopted which does not interfere with the natural and dynamic soft beach system and are easily traversed on foot providing unmitigated access to the shore

2.4 Needs of the recipient

16. No change

2.5 Country ownership

17. The country ownership for the proposed interventions is high and has secured the support from the Funafuti Island Council, Funafuti Chief as well as the Tuvalu Government Cabinet of Ministers.

2.6 Efficiency and effectiveness

18. The project changes will increase the total length of the vulnerable shoreline to be protected from 2,210 meters in the original proposal to 3,090 metres under the restructured proposal without additional resource requirements implying improved efficiency of interventions.

III. Assessment of consistency with GCF safeguards and policies

3.1 Environmental and social safeguards

19. The proposed changes would entail environmental and social risks and impacts that have not been assessed during the project's due diligence. It is expected that most of the environmental and social risks and impacts will be associated with activities related to the reclamation and sourcing of fill materials in Fongafale and the coastal protection infrastructure in Nanumea and Nanumaga.

Safeguard Instruments

20. Environmental and Social Screening. The accredited entity provided the result of its Social and Environmental Screening and supported by a Preliminary Environmental Assessment. The screening and preliminary assessment contained secondary information about the environmental and social aspects of the proposed changes in the project intervention, maintaining that the risks and impacts associated with the changes will remain moderate. Specifically, the AE indicated that: (i) for the proposed reclamation, impacts on the marine ecology would be moderate as the footprint is already a disturbed area, citing previous studies made for similar activities in proximate locations to support this notion; and, (ii) for the changes in the coastal protection infrastructure, the environmental risks, if any, would be much lower since the interventions (berm top barrier) will be constructed further away inland but that berm will be constructed on private lands and hence would require permission from the landowners.

21. Since the specific interventions and sites are already known, an ESIA will need to be prepared, pursuant to the ESMP that was provided prior to the approval of the project. The ESIA is also expected to validate the information provided in the Preliminary Environmental Assessment and confirm the moderate environmental and social risk category of the proposed changes. For example, the ESIA should pinpoint likely impacts of reclamation and other coastal protection infrastructure on the geomorphology of the adjacent areas, or, which land parcels will be affected and what are the impacts. The ESIA should be the basis for the updating of the ESMP and should specify any design, mitigation and control measures.

Key Environmental and Social Risks and Impacts

22. **Proposed reclamation in Fongafale.** The expected environmental and social risks and adverse impacts from reclamation activities are diverse and may include risks and impacts related to terrestrial and marine biodiversity, habitats, water quality and sedimentation, construction-related disturbance to habitats and communities, potential temporary livelihood disruption due to restriction of access. Physical alterations of the coast can lead to changes in coastal processes, including changes in the seabed and coastal geomorphology. The impacts can include adverse changes in the land and water during construction activities and/or over longer periods of time when reclamation is completed.

23. The reclamation would constitute only a small portion (0.02%) of the lagoon area. Hence any permanent modification of nearshore habitat may be insignificant vis-à-vis the entire atoll. The greatest threat may come from the potential habitat disturbance in the sourcing of fill materials. The disturbance, however, is expected to be temporary and dredged areas are expected to recover in the long term. The site and method of extraction of materials need to be given careful consideration.

24. The Preliminary Environmental Assessment was able to clarify the scale of work, the nature of works that will be undertaken, and the design of the coastal interventions. In particular, the actual disturbed area is likely to be 41% of the reclamation footprint or approximately 3.2 hectares of the total 7.8 hectares. The other remaining areas included in the reclamation footprint include the foreshore and beach areas which are considered disturbed. It is expected that as the disturbance to the 3.2 hectares is not significant and will involve marine faunal and floral assemblages that are common in the region, the potential adverse impacts are most likely to be moderate.

25. ***Nanumea and Nanumaga.*** As the proposed protection infrastructure will be located further inland, the key environmental and social risks and impacts will most likely be related to the use of private lands and construction-related risks and impacts. In this regard, the activity will require the voluntary permission of the landowners on the use of the lands. This may involve further assessment of existing property rights and land tenure of the areas and land use impacts of the proposed berm. Where the landowners have been identified, the process obtaining permissions and consultations, following the requirements of relevant safeguard standards will need to be established.

Application of the GCF ESS requirements on the proposed changes

26. The table below provides the environmental and social safeguard considerations of the proposed changes:

Safeguard aspects	Considerations for the application of the standards and due diligence of the proposed changes
Assessment and management of environmental and social risks and impacts	An environmental and social impact assessment (ESIA) study will need to be conducted covering all the sites and include the resource area, source of fill materials for the proposed reclamation. The ESIA will need to be based on up-to-date baseline information and specific to the project's influence area, preferably primary information. An ESMP with site-specific management measures shall be prepared based on the results of the ESIA.
Labor and working conditions	Assessment and management of occupational risks and impacts related to reclamation works and the protection infrastructure.

Resource efficiency and pollution prevention	The ESIA will need to cover risks and impacts related to water quality and contaminated sediments. Measures to avoid, minimize and manage such risks and impacts will need to be included in the ESMP.
Community health, safety and security	Community disturbance due to construction work will need to be assessed, including noise, vibration, traffic, the influx of laborers, among others.
Land acquisition and involuntary resettlement	The ESIA will need to include in the assessment a determination of the extent of land that will be required and any due diligence related to obtaining consent by the landowners to use portions of the land for protection.
Biodiversity conservation and sustainable management of living natural resources	The assessment of risks and impacts on the affected habitats and marine ecology will need to be included in the ESIA based on recent and primary information. Depending on the extent of such risks and impacts, a biodiversity management plan will need to be developed as a stand-alone document.
Indigenous peoples	This project does not trigger the application of the safeguard standard on indigenous peoples.
Cultural heritage	Chance find procedure and ongoing assessment during earth-moving activities.

Category of the proposed changes

27. The proposed changes in the coastal intervention are likely to generate environmental and social risk that will likely to remain as moderate or under Category B, based on the screening and initial assessment undertaken thus far. However, given that there is a need to update the information on risks and impacts, a full ESIA will need to be conducted. The ESIA is expected to validate the environmental and social risk category assigned to the project and specifically on the proposed changes. The proposed changes will not necessitate the application of additional safeguard requirements, apart from what were already identified and described in the ESMP. The ESIA will need to have coverage on biodiversity impacts, the environmental and social impacts of extraction and hauling of filling materials, and the impacts of reclamation and potential land use changes. Such changes and the likely environmental and social risks and impacts will also need to be subjected to meaningful stakeholder consultations as done for this project. The risk categorization screening is provided below.

Criteria	Assessment	Remarks
Are the impacts/risk significant?	TBD – To be validated by the ESIA;	Aquatic habitat disturbance may affect 3.2 hectares of nearshore area in Fongafale during construction. Social risks due to the land required for berms may likely to be significant given prevailing land scarcity. Risks and impacts will need to be assessed through

	Likely not significant	an environmental and social assessment as planned for this project.
Are impacts diverse?	No	Impacts from reclamation and coastal protection infrastructure are identified requiring the application of some of the relevant safeguard standards, for example, on labor, pollution, and biodiversity.
Are there impacts that are unprecedented?	No	Impacts are not likely to be unprecedented as reclamation activities have been undertaken in the country and in specific atolls. It is likely that there are previous experiences in the country in designing and implementing mitigation measures.
Are there impacts that are irreversible?	TBD – To be validated in the ESIA; Likely not significant	The permanent impacts of reclamation on the natural habitat will be minimal, given the area and length of the modified shoreline. The impacts of possible dredging for materials on the aquatic flora and fauna and their habitat could be significant but likely to be temporary.
Are impacts site-specific?	Yes	Impacts on water quality, which would mostly come from earthmoving activities are likely to be temporary and localized at the source, at the construction sites and along the hauling routes.
Can the impacts be addressed by available technology and management measures?	Yes	Proper siting, resettlement action plans, biodiversity management plans, best available technology assessments, etc.

Recommendations

28. Should the changes in the coastal interventions be pursued, the following are recommended:

- (i) Preparation of ESIA covering all three sites interventions, including sites of facilities and fill material extraction. The ESIA shall include identification and examination of impacts on marine environment and habitat, shoreline geomorphology and hydrodynamic processes, and land uses as a result of the coastal infrastructure. The ESIA shall be the basis for the preparation of site-specific ESMPs.
- (ii) Update of the present generic ESMP with site-specific measures based on the results of the ESIA. The capacities of all the entities involved will need to be re-examined to take into consideration the assessment and management of specific impacts related to reclamation activities and other proposed coastal interventions. The ESMP will need to consider

additional management plans that will address key environmental and social risks and impacts, including biodiversity management plan, contaminated sediment disposal, and resettlement/compensation action plans.

(iii) The ESIA and site-specific ESMPs shall be disclosed as required of Category B project.

3.2 Impact of Proposed Changes on Gender policy

29. The proposed restructuring will not change the kinds of activities the project had proposed to do through the gender action plan. It will continue with the proposed training to women and youth in the monitoring of coastal change, basic maintenance of coastal infrastructure, and implantation of ecosystem-based solutions to coastal protection. In addition, it will also continue with providing women and men from low-income and vulnerable households with the opportunity to receive skilled employment from coastal management and protection activities. Further, since the project is in the process of undertaking further gender assessment and updating the action plan, if there are outstanding issues, it could be captured during the revision process.

3.3 Impact of Changes on Project Risks

Overall project /programme assessment:

30. GCF has approved grant of USD 36 million for the funding proposal. The total project cost is USD 38.9 million with co-financing of USD 2.9 million from Government of Tuvalu. The project has three outputs; the output 2 of USD 28.2 million (72% of total project cost) is for reducing the vulnerability of key coastal infrastructure. The project is under implementation (part disbursement done). The changes proposed by AE are in respect of the output 2. While there is no change in the beneficiaries of the project, the below factors highlight the moderate implementation risks of the project.

31. While currently there is no change in the executing entity of the project, we note that the AE is in the process of conducting an ESIA and is expected to submit the same by July 2020. The AE has done a provisional ESS assessment of the changes and has assessed the ESS risk category for the changes is moderate (or Category B). However, the ESS categorization can be confirmed after the final ESIA. The AE is accredited for category B projects. Therefore, it is possible that based on the final ESIA if the ESS risk categorization changes to Category A, the project will be beyond the scope of AE's accreditation.

32. The output 2 involves construction activities which can be implemented post the ESIA. Thus, to expedite the implementation of this output it is necessary to have the ESIA in time. The AE has stated that the material (sand) to construct the BTBs is to be sourced from ephemeral storm deposits. However, AE indicated that there is a risk that these deposits could change over time. This may necessitate the importing the construction material adding substantially to the cost of the Project.

33. In Nanumea and Nanumaga, the proposed BTBs are located on private/community owned land. It will be necessary the gain the permission from individuals to build the BTBs. According to the restructuring paper, this will be more complicated and may cause delay in implementation. However, this risk is partly mitigated by the fact that discussions with the community, councils has

occurred and there was broad agreement that BTB is an acceptable approach; Cabinet has similarly considered BTBs and approved their implementation.

34. The land use plan for the reclaimed area in Funafuti is not yet finalized. There is strong consensus to use the reclaimed area for communal uses (e.g. a community hall or sports facility / cyclone shelter) and the development of a foreshore buffer zone. The AE has informed that using the reclaimed land for commercial use is not being considered and, therefore, continued to propose the grant funding from GCF. The financing for such community shelters is beyond the scope of this project

Compliance:

35. The Secretariat has made the following assessment:

- (i) The entities, activities and logistical factors for this project can generally be considered as MEDIUM risk. The country risk for Tuvalu, as per Know Your Country website (<https://www.knowyourcountry.com/tuvalu1111>) can be generally categorized as MEDIUM in terms of meeting international standards for AML/CFT and in perceived corruption levels.
- (ii) The AE is contractually committed to ensuring that AML/CFT measures are implemented, as well as efforts to prevent prohibited practices. Based on these factors, Compliance rates this project as MEDIUM.

Conclusion:

36. It is recommended that Board considers the above factors in its decision.

3.1 Fiduciary Assessment

37. Based on the proposed restructuring, the Secretariat recommends the following conditions:

- (i) Submission of the revised detailed budget for the restructured project with detailed budget notes on unit costs and quantities including any estimates and assumptions applied.
- (ii) Submission of a revised procurement plan for the restructured project.

3.2 Results monitoring and reporting arrangements

38. There are no material changes to the results and monitoring and reporting arrangements. However, the log-frame has been updated to reflect the changes in output 2 and to include indicators for the land reclamation and the extended shoreline protection in the target islands

3.3 Legal assessment

39. The Accreditation Master Agreement was signed with the Accredited Entity on 5 August 2016, and it became effective on 23 November 2016.

40. The Funded Activity Agreement for FP015 was signed with the Accredited Entity on 31 May 2017, and it became effective on 7 June 2017.
41. In accordance with the Policy on restructuring and cancellation adopted in decision B.22/14, the restructuring paper was presented to the Board for its consideration.
42. The proposed changes will be implemented in Tuvalu, country in which GCF is not provided with privileges and immunities. This means that, amongst other things, GCF is not protected against litigation or expropriation in this country, which risks need to be further assessed. The Secretariat recently re-submitted a draft privileges and immunities agreement to the government of Tuvalu on 5 June 2019.
43. The Heads of the Independent Redress Mechanism (IRM) and Independent Integrity Unit (IIU) have both expressed that it would not be legally feasible to undertake their redress activities and/or investigations, as appropriate, in countries where the GCF is not provided with relevant privileges and immunities. Therefore, it is recommended that disbursements by the GCF are made only after the GCF has obtained satisfactory protection against litigation and expropriation in the country or has been provided with appropriate privileges and immunities.
44. In order to mitigate risk, it is recommended that any approval by the Board is made subject to the following conditions:
 - (i) Signature of the amendment to the Funded Activity Agreement for FP015 in form and substance satisfactory to the Secretariat within 180 days from the date of Board approval; and
 - (ii) Completion of due diligence to the satisfaction of the Secretariat.

