

**GLOBAL CLIMATE CHANGE ALLIANCE:  
PACIFIC SMALL ISLAND STATES PROJECT**

**CONCEPT NOTE**

**TRIALLING COASTAL PROTECTION MEASURES IN EASTERN TONGATAPU, TONGA**

**Name of Country** : Tonga

**Name of Person/Agency** : Asipeli Pataki, Director, Ministry of Environment and Climate Change (MECC), Tonga

**General Information:**

**Project title:** Trialling coastal protection measures in eastern Tongatapu

**Project site(s):** Six coastal villages in eastern Tongatapu: Manuka, Kolonga, Navutoka, Talafoou, Makaunga and Nukuleka

**Project Partners:** MECC, EU-GCCA: PSIS

**Total Project Cost:** EUR500,000

**Project Duration:** 2.5 years

**Short Description of the Project**

The project will implement and evaluate different coastal protection measures along a 6 km stretch of low-lying (less than 2 m above mean sea level) coast in eastern Tongatapu. The six coastal villages and coastal road in this area are already vulnerable to coastal erosion, the impacts of which will be exacerbated by sea level rise. There are 3,367 people living in this area and 566 properties. A feasibility study and coastal engineering study has been conducted and an environmental impact assessment is in progress. The measures likely to be considered for implementation in this project include a mixture of soft and hard coastal engineering measures: beach recharge (moving sand from an accreting area to an eroding area); mangrove rehabilitation; and rock and gabion revetments. The project will adopt a consultative and participatory process with all sectors of civil society, including women and youth, and especially involving the communities living in the affected area.

**Background and Justification**

In Tonga much of the socio-economic activities and critical infrastructure are concentrated in low lying coastal areas which are highly vulnerable to the adverse impacts of climate variability, climate change and extreme events. In eastern Tongatapu residents have for several decades experienced historical inundation and land loss due to coastal erosion exacerbated by storm surges. Attempts to protect these areas have been piecemeal and inadequately engineered resulting in short-lived benefits. A seawall that was constructed adjacent along the main road is very badly degraded. During Tropical Cyclone Renee in February 2010, some of the coastal trees were uprooted and sea water not only flooded the roads but also lower residential areas on the landward side of the main road.

Intervention in this coastal area has been prioritised under Tonga's Joint National Action Plan (JNAP) for Climate Change Adaptation and Disaster Risk Management, 2010. A feasibility study, coastal design and costing for this coastal area was conducted in 2012 by CTL Consultants, under the direction of the Ministry of Environment and Climate Change and funded by the Government of Australia under its International Climate Change Adaptation Initiative. This feasibility study provides the basis for this project. An environmental impact assessment (EIA) is in preparation and likely to be completed during quarter 3 of 2012.

This project will not only provide coastal protection for the villages on eastern Tongatapu but also provide lessons and best practices for engineered coastal protection systems for other vulnerable coastal areas in Tonga and elsewhere in the Pacific Islands region.

Assistance may also be provided to Tonga as part of the GCCA: PSIS project’s mainstreaming activities to prepare a coastal zone management plan for Tongatapu which would include a shoreline protection plan. This will contribute to a comprehensive integrated approach to coastal management.

### **Project Cost and Budget**

The cost of the project will be approximately EUR500,000 and the budget for various activities will be detailed when the project is fully developed.

### **General Criteria for Identification of Projects**

<b>Criteria</b>	<b>How does the proposed project adhere to the criterion?</b>
1. <i>Feasibility</i> : Is the proposed project feasible taking into account: Time frame of GCCA: PSIS project, Available budget, National human resources, Previous track record with project implementation.	The project can be undertaken within the GCCA: PSIS project time frame and budget of EUR 500,000, based on the feasibility study and costing already undertaken and the EIA that is in progress.  Tonga has developed a good track record with its planning and project prioritisation under the JNAP. The feasibility study and ongoing EIA will inform effective implementation over the term of the project.
2. <i>Cost</i> : Does the project require minimal resources	The project will require minimal resources as indicated by the feasibility study and costing already undertaken with the support of other donors.
3. <i>Consistency</i> : Does the project support the country’s climate change adaptation policy and planning	The project is consistent with Tonga’s JNAP, and considered as high priority. It contributes to the JNAP Management Goal 3: Analysis and assessment of vulnerability to climate change impacts and disaster risks; and 4: Enhanced community preparedness and resilience to impacts of all disasters.
4. <i>Urgency</i> : Is the project urgent or could it be delayed 10 years with minimal impact	Delay of the project would render residents and coastal infrastructure in eastern Tongatapu even more vulnerable to climate variability and climate change through coastal erosion, storm inundation and loss of land.
5. <i>Scientifically valid</i> : Is the project based on scientifically valid climate change projections	Most recent climate change projections indicate that sea-level in and around Tonga will continue to rise over the course of the 21 <sup>st</sup> century. Relative to 1990, a rise of 7-27 cm is projected by around 2030, and 23-51 cm by around 2055 <sup>1</sup> . By the end of the century, projections suggest decreasing numbers of tropical cyclones but a shift towards more intense categories.
6. <i>Equity</i> : Does the project involve all sectors of society (especially community participation and gender considerations)	This project is centred on the full participation of communities, government and non-government organisations and provides opportunities for entry of gender considerations in the design and implementation of the project.
7. <i>Replication</i> : Can the project be	There are other coastal communities in Tonga

replicated in the country or elsewhere	experiencing similar issues. This project could easily be replicated in other areas of Tonga and Pacific Island Countries.
8. <i>Measurability</i> : Can the benefits of the project be measured and quantified	A M&E framework designed for this project will be used to measure the benefits. However, it is recognised that monitoring will have to extend beyond the project lifecycle to fully evaluate impacts.
9. <i>Scope of project</i> : Does the project activity focus on one sector and include a blend of visible (on-the-ground) activities and intangible support activities (e.g. policy development, capacity building)	The project is focused on coastal zone management with visible on-the-ground elements as well as planning elements. It has strong links to food security, health and livelihoods. Project activities are in line with Goals 3 and 4 of the JNAP and will provide opportunities for mainstreaming climate change into coastal planning and management.
10. <i>Supporting documents</i> :	Consultancy to conduct coastal feasibility studies, coastal design and costing for six communities on the eastern side of Tongatapu. 2012. CTL Consult. 2 vols.
Date of assessment	July 4 2012

<sup>1</sup> Australian Bureau of Meteorology and CSIRO, 2011; Climate change in the Pacific: Scientific Assessment and New Research Volume 1: Regional Overview. Volume 2: Country Reports.