Secretariat of the Pacific Community
Global Climate Change Alliance: Pacific Small Island States Project
Climate Change Adaptation Activity Project Concept Note

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Coconut-based Integrated Farming to Enhance Food Security and Build Resilience to Climate Change in Tuvalu

Name of Country: Tuvalu

Name of Person/Agency:

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General Information:

Project Title: Coconut-based Integrated Farming to Enhance Food Security and Build Resilience to Climate Change in Tuvalu

Project sites: Funafuti and nearby outer islands including Vaitupu, Nui, Nukufeta, and Nukulaelae (with possible expansion to other islands)

Project Partners:
-Tuvalu Department of Environment, Department of Agriculture, Department of Lands, Surveys
-Tuvalu Ministry of Health
-Tuvalu Ministry of Home Affairs, Department of Rural Development
-SPC Land Resources Division (LRD)
-Other organisations and partners: Taiwan Mission to Tuvalu, Food and Agriculture Organization of the United Nations (UN-FAO), US Agency for International Development (USAID), Australian Agency for International Development (AusAID), GIZ Coping with Climate Change in the Pacific Island Region (CCCPIR) project, UNDP National Adaptation Programme of Action (NAPA) project.

Total Project Cost: €500,000

Project Duration: 18 months, July 2013 - December 2014 (with possibility of extension to June 2015 depending on the outcome of the extension request from the European Union)

Project Description:

The Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) project in Tuvalu aims to improve food security by increasing production from under-utilized land by establishing an integrated coconut-based farming system. Aspects of this coconut-tree centred agro-forestry approach have already been successfully trialled in Tuvalu by the Department of Agriculture. Such an approach will involve the purchase of heavy equipment such as diggers, power driven shake hammers, chain saws and bush clearing equipment to remove and thin out the senile coconut trees, replant young coconuts and other crops, and increase productivity. (An estimated 65-70% of the coconut trees in Tuvalu are senile and no longer bear fruit). Small cultivators will also be required to prepare the soils for the planting of fruit trees such as juvenile coconuts, breadfruit, pandanus, wild figs, and papaya, as well as non-traditional root crops such as cassava and sweet potatoes.

The project will demonstrate this coconut-based integrated farming method in Funafuti (the capital where over 50% of the population or 4,492 residents[1] live) and in the nearby outer islands including Vaitupu, Nui, Nukufeta, and Nukulaelae (where an additional 3,118 residents live) with possible expansion to other islands in Tuvalu. Diversifying crop availability in these locations will help stabilize food supplies, thereby enhancing food security and building resilience to climate variability and climate change. This is particularly significant for Funafuti, where they are already facing major difficulties with food supplies, due to urbanization, land limitations, and reliance on imported food. These diverse crops will also serve as reliable and healthy local food sources for both the urban and rural areas, and will help revitalize interest in traditional agriculture practices.

The project will establish one acre demonstration areas on each island (with the site on Funafuti being smaller due to a lack of land availability) and will replant them with trees and crops sourced from within Tuvalu, as well as imported from SPC's climate ready plant collections developed by the Centre for Pacific Crops and Trees (CePaCT). An extension team from the Department of Agriculture will train the land-owners and communities in the cultivation and usage of the crops from this coconut-based farming system. Training and awareness raising will be a key component of the project, and will target the land owners (who are also the farmers), as well as women and youth. Potential economic benefits of the project include producing coconut products and pandanus juice, as well as selling the fruit and vegetable in the Funafuti market and stores.

This project will be driven by the Tuvalu Department of Agriculture and will complement their existing activities to increase access to bananas and breadfruit, and a Taiwanese funded project focusing on vegetable farming and composting. Additionally, this project will complement the outcomes of an AusAID funded project entitled “Establishing nurseries in Tuvalu to support conservation and distribution of staple food crops and climate ready diversity,” which is currently being implemented in two outer islands (Vaitupu and Nukulaelae). SPC's Land Resources Division (LRD), through the Centre for Pacific Crops and Trees (CePaCT) is providing ‘climate ready’ plant varieties for this AusAID project, and for other Pacific Island Countries (PICs), and therefore collaboration will be central to the success of this project.[2] The project will also collaborate with the UNDP funded project aimed at implementing

Tuvalu's priorities under their National Adaptation Programme of Action (NAPA), particularly the activity focusing on food security through developing home gardens.[3]

Production of traditional crops and crop diversification is identified as a key priority in the Tuvalu National Development Plan. The Te Kakeega II: National Strategy for Sustainable Development also prioritizes agriculture, with its key policy objectives being to: 1. reverse the decline in subsistence agriculture production; 2. increase the availability of land for agriculture; 3. increase the production and consumption of local produce; and 4. mitigate climate change related agricultural impacts.

Background and Justification:

Tuvalu is situated in the western South Pacific Ocean between 176°E–180°E and 5°S–11°S. It consists of five true atolls and four raised limestone reef islands, with a total land area of approximately 26 km^2. Land levels are very low, with maximum heights above mean sea level typically ranging from 3 to 4 m and the maximum elevation being 4.6 m. Funafuti receives between 2,300 mm to 5,300 mm total annual rainfall, and this variability is expected to continue. The soils in Tuvalu are of poor quality making agriculture difficult. Most agricultural crops are produced in farms that are small in size (less than an acre) and communally owned. There is little local livestock production, although many families raise pigs and chickens for local consumption. Copra is the only national export, and is limited in its production.[4]

Approximately 75% of the population of Tuvalu is involved in subsistence farming [5], which is the main source of both food and income for many Tuvaluans, with crops including coconuts, breadfruit, taro, pandanus fruit, bananas and salt-resistant pulaka (swamp taro). However, domestic subsistence agricultural production has been declining in recent years, resulting in increased dependence on imported foods. Due to limited transportation and lengthy distances, such imported food is irregularly available in Tuvalu, creating recurrent food shortages. This unreliability in food supply causes the nation to be especially vulnerable to climate variability and change. Climate change has already had an adverse effect on agriculture, as many of the existing pulaka pit plantations have been compromised by saltwater inundation. Furthermore, in 2011, Tuvalu was faced with a serious drought which had a serious impact on the existing crops.

Project Cost and Budget:

The cost of the project will be approximately EUR 500,000 and the budget for various activities will be detailed when the project is fully developed.

General Criteria for Identification of Projects

Criteria	How does the proposed project adhere to the criterion?
1. *Feasibility*: Is the proposed project feasible taking into account: -Time frame of GCCA: PSIS, -Available budget,	Yes: The project falls entirely within the GCCA: PSIS project time frame, and the provision of EUR 500,000 will enable land clearing and planting of fruit trees and root crops, so that in the coming years the residents of Funafuti (4,492 people according to the

-National human resources, -Previous track record with project implementation.	2002 Tuvalu Census) and others will have increased access to diverse and healthy food supplies. This project will complement Taiwan's Horticulture Crop Development Project on Funafuti, which focuses on vegetable gardening, as well as a UNDP funded project focused on realizing Tuvalu's NAPAs through home gardening, and an AusAID funded project being implemented by SPC's LRD division, which focuses on developing and testing climate ready plant varieties in two outer islands.
2. *Cost:* Does the project require minimal resources	Yes: The project will require minimal resources and will complement activities being supported by other donors and ongoing government agriculture-based initiatives.
3. *Consistency:* Does the project support the country's climate change adaptation policy and planning	Yes: The project is consistent with the Tuvalu Joint National Action Plan on Climate Change and Disaster Risk Reduction (JNAP), as well as Tuvalu's NAPA document, which highlights food security and agriculture as a key area for adaptation activities. The Te Kakeega II: National Strategy for Sustainable Development also prioritizes subsistence agriculture production and mitigating climate change related agricultural impacts.
4. *Urgency*: Is the project urgent or could it be delayed 10 years with minimal impact	Yes: Further delay of this adaptation project targeting agriculture and food security will increase the vulnerability of the people in Tuvalu, especially as they are already facing food shortages and difficult agricultural conditions.
5. *Scientifically valid*: Is the project based on scientifically valid climate change projections	Yes: Year-to-year variability in rainfall is a real challenge for Tuvalu and annual rainfall in Funafuti varies from 2,300 - 5,200 mm per year. This variability is likely to continue in the coming decades, although projections show increased rainfall amounts in the future. Tropical cyclones and spring tides are the main extreme events. Sea level in Tuvalu is projected to continue to rise during the 21st century. Under the high emissions scenario a 9 to 28 cm rise is projected by 2055.[6]
6. *Equity:* Does the project involve all sectors of society (especially community participation and gender considerations)	Yes: This project is centred on the full participation of the selected communities, government, non-government, and community-based organisations, and provides opportunities for entry of gender considerations in the design and implementation of the project.
7. *Replication:* Can the project be replicated in the country or elsewhere	Yes: This project is focused on Funafuti and its nearby outer islands, and could easily be replicated and upscaled to outer islands in Tuvalu and to other PICs.
8. *Measurability*: Can the benefits of the project be measured and quantified	Yes: A M&E framework will be designed for this project and used to measure the success and impact of the introduced crops. A log frame will also be developed at the start of the project so that timelines, budgets, and activities are carefully planned and can be monitored.

9. *Scope of project:* 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)	Yes: The project is focused on the agriculture sector with strong linkages to health, livelihoods, and self-reliance. The project targets food security primarily, and will include extensive on-the-ground activities including land clearing and planting fast-growing and climate ready crops. Support activities include community outreach and education (communication strategy) programmes and capacity building, including hands-on training on agricultural practices.
10. Risks	Delays with project start-up; challenges with transportation; delays with shipping of equipment and with implementation of project activities; and extreme weather events.
Date of assessment	August 15, 2013

[1] Government of Tuvalu: Central Statistics Division. http://www.spc.int/prism/country/tv/stats/Publication/Pub_index.htm

[2] SPC assists post-drought Tuvalu with food security. SPC Land Resources Division. November 15, 2012. http://www.spc.int/lrd/index.php?option=com_content&view=article&id=1035:spc-assists-post-drought-tuvalu-with-food-security&catid=66:centre-for-pacific-crops-and-trees&Itemid=26

[3] Tuvalu's National Adaptation Programme of Action: Under the auspices of the United Nations Framework Convention on Climate Change. Ministry of Natural Resources, Environment, Agriculture and Lands, Department of Environment. May, 2007.

[4] Aregheore, E. Country Pasture/Forage Resource Profiles: Tuvalu. http://www.fao.org/ag/AGP/AGPC/doc/Counprof/southpacific/tuvalu.htm

[5] Encyclopedia of the Nations: Tuvalu Agriculture. http://www.nationsencyclopedia.com/economies/Asia-and-the-Pacific/Tuvalu-AGRICULTURE.html

[6] Australian Bureau of Meteorology and CSIRO, 2011; Climate change in the Pacific: Scientific Assessment and New Research. Volume 2: Country Reports.