

CLIMATE CHANGE ADAPTATION IN RURAL COMMUNITIES OF FIJI

PROJECT PROPOSAL TO AUSAID

1.0 Project Proponents

The Pacific Centre for Environment and Sustainable Development (PACE-SD) and the Institute of Applied Science (IAS) of the University of the South Pacific.

2.0 Project Concept

The purpose of this proposed project is to supplement the activities of the project titled *Climate Change Adaptation in Rural Communities of Fiji* funded by AusAID in July 2006 currently implemented by PACE-SD and IAS. The proposed supplementary project shares the same overall aim of the original project which is **to incorporate climate change adaptation in an integrated approach in the management of coastal ecosystems and water resources in rural communities of Fiji**. The original project sets out to achieve this aim through raising awareness about climate change, internalizing climate change adaptation and building local capacity in practical climate change adaptation science in six rural communities in Fiji.

A supplementary project is required and is being proposed for three main reasons. First, a preliminary assessment of nine communities in Fiji (upon which the six pilot sites will be selected) showed several possible adaptation activities that will require funds exceeding that which has been allocated for each site as contained in the original proposal. Second, although three of the nine sites were not selected as pilots for the original project, they along with other suggested sites have serious water and coastal management problems that can be effectively dealt with through projects such as this. In addition, as discussions about this project have widened, several other sites have been proposed. Third, there is a need to identify and assess factors that affect the sustainability of adaptation projects. This project proposes to incorporate an evaluative framework into the original project so that the benefits from lessons learned in the pilot projects are transferred to future community-based adaptation projects. These lessons of course are preliminary and can only be better refined by applying them at new sites.

Keeping in line with the aim of the original project, the proposed project will be supplementary with the following objectives and activities:

Objective 1: To replicate the piloted climate change adaptation approach to three other sites.

Activities:

- Conduct awareness raising workshop on climate change
- Conduct V&A and community-based sustainable development planning workshop (with adaptation measures incorporated).

- Commence implementation of adaptation measures.

Objective 2: To further enhance the adaptive capacity of the six pilot sites by incorporating activities such as reducing land-based pollution into coastal ecosystems and water resources and disaster preparedness.

Activities:

- Conduct workshops on waste (solid and liquid) management and/or sustainable land-use and/or disaster preparedness in the six pilot communities
- Develop and implement practical low-cost measures in reducing land-based pollution into coastal ecosystems (e.g. building compost toilets, waste recycling, incorporating terracing and buffing on agricultural land)
- Design and implement a simple climate and environmental monitoring at three selected pilot project sites

Objective 3: To evaluate the sustainability of nine climate change adaptation projects (six in initial project plus three more funded under this initiative).

Activities:

- Design evaluation plan
- Use the evaluation plan to assess project work in the nine sites
- Compile simple best-practice guidelines on the adaptation options for water supply, flooding/inundation, coastal protection, reef management monitoring and mangrove planting)

3.0 Project Background

Climate change¹ is one of the most pressing issues for the Pacific. The impacts of climate variability and extreme events (cyclones, floods, droughts, sea level rise, and other natural disasters) are rapidly pushing people beyond their coping range. The already strained economies are being drained trying to keep up with the impacts of these changes on livelihoods. In the 1990's alone, the Pacific Island region bore up to \$US1 billion costs related to climate extremes [1, 2] and the costs are expected to rise even further with a rise in the frequency and intensity of extreme events.

Climate scenarios predict up to 14% loss of coastal land due to sea-level rise and flooding by 2050 [2], and these are the prime areas (coastal) for economic activities and human settlements. In some areas the demand for water resources are expected to outstrip supply by 5-8% by 2050 [2]. Agriculture, human health, and fisheries will be impacted negatively because of climate change and, in turn, have a negative impact on Pacific Islands Countries (PICs) economies. Unless climate change adaptation is planned and implemented at all levels of the society, a small island such as Viti Levu (Fiji) could incur a cost equivalent to 2-4% of Fiji's GDP (US\$23-52 million) by 2050 in damages associated with climate related disasters [3]. It was estimated that the impact of climate change by 2050 on the coast of Viti Levu could incur between US\$8.4-20.4 million on

¹ The Intergovernmental Panel on Climate Change (IPCC) definition is used through this paper: Climate Change refers to any change in climate over time, whether due to natural variability or as result of human activity.

coastal assets and coastal ecosystems such as coral reefs and mangroves [3]. The estimates are based on future climate and economic scenarios, even if they are not exact, the direction they point to is quite consistent with current economic and cultural impacts of present climate variability and extreme weather events such as tropical cyclones and flash floods. It is quite likely that all Fiji islanders will be affected either directly or indirectly by climate change. However, the impacts may be experienced differently by all, with the poorest being most vulnerable, especially in rural areas, where there is strong dependence on subsistent fisheries and agriculture for sustenance.

3.1 Vulnerability of Rural Communities

The vulnerability of people and economic sectors to climate variability and subsequently climate change varies across the society as a result of differing capacities to cope, recover, and to take adaptive measures. In Fiji, two of the major barriers to implementing climate change adaptation are: (i) prevailing weak socioeconomic conditions and (ii) crosscutting issues such as the availability of capacity (resources – human, financial, and technical) and the practice of good governance at national and local level development planning [4]. Rural communities are often the most vulnerable to present climate variability, extreme weather events because of the above factors and other associated factors such as land tenure and cultural practices. Nonetheless, the need for planned adaptation is pertinent, and adaptation needs to be internalized within their local community level planning processes. The stress by present climate variations and future climate change on rural communities and their key livelihood sectors such as coastal zones and their ecosystems, watershed and agriculture is additional to the stress caused by non-climatic factors such as rapid coastal developments, land-based pollution, haphazard farming practices and deforestation.

3.2 Climate Change Adaptation

Climate change adaptation needs to focus on reducing the impacts of both climatic and non-climatic factors on important sectors such as coastal areas and water resources. The absence of reliable future climate scenarios relevant to island countries such as Fiji should not be a deterrent for taking adaptation measures. More importantly, the adaptation measures must abate their vulnerability to present and future climatic variations and change. For example, a seawall may have been identified as the optimum adaptive measure against coastal erosion initiated by normal tides and storm surges, considerations must be given to the height and strength of storm surges presently faced. In addition, the sea wall should withstand future storm surges, sea level, and pressure from coastal developments.

Climate change adaptation is often considered to be part of the development process and should not be pursued in isolation. Sometimes the word “mainstreaming” is used to indicate the same intention. In other words, development that does not recognize and include consideration of climate change and climate risks is not good development practice [5]. Climate risks and the adaptive response to them should be factored into development activities, especially those that are most at risk from climate extremes,

variability and change. Development plans and projects should be subject to some initial scrutiny for exposure to climate risks and adjusted accordingly, in a manner not dissimilar from the assessment of projects for their environmental impacts or their contribution to gender equality and poverty reduction. It is for the above reasons that this project also proposes to engage local communities to develop their own community-based management plans for their important sectors and resources that are most vulnerable to variations and changes in the climate. Moreover, the community management plans can facilitate the implementation of climate change adaptation measures beyond the project time frame, and serve as the basis for the communities to seek external assistance for climate change adaptation.

It is important to note that there is a vast array of adaptation measures, which could be implemented. However, proper prioritization and evaluation of adaptation measures must be done to avoid exacerbating existing vulnerabilities and minimize community indifference to suggested adaptation measures. The World Bank report [3] suggested the following criteria to guide the selection of adaptation measures:

- 1 No regrets. Adaptation measures that could be beneficial with or without climate change.
- 2 Level of implementation. Adopt more general rather than site specific adaptation measures, until, more certainty about future climate impacts [NB: in some cases, the precautionary principle is appropriate].
- 3 Bottom up or top-down. Use more bottom-up interventions, i.e. adaptation measures that can be implemented by local communities.
- 4 Environmental Impact. The adaptation measure should not enhance or create any environmental damage.
- 5 Cultural acceptability. The adaptation must be consistent with cultural practices.
- 6 Timing. Adaptation measures that will immediately alleviate a certain climate impact should be taken on board before those that may not bear immediate effect or may need extra resources.
- 7 Cost-benefit. The benefits of the adaptation measures should clearly exceed their costs.

In addition to the above, it is important that the adaptation measures suggested must alleviate vulnerabilities to both climate variability and change even if the impacts of climate change are not fully known (Precautionary Principle). It is also vital to ensure that a mixture of discrete, process-based, and crosscutting adaptation measures are implemented (see Table 1) at any particular community to maximize resilience building against climate variability and change.

4.0 Project linkage to national priorities and identified sectors for adaptation implementation

This project is a culmination of tripartite discussions involving USP (PACE-SD and IAS), AusAID (Fiji) and the Fiji Department of Environment (DoE). The consensus reached in these discussions was to implement adaptation measures at the community level, and utilize findings from previous climate change assessment reports, without

compromising the need to ascertain the adaptation measures against current and future vulnerabilities at each specific community earmarked for this project. Moreover, the adaptation measures should align with national and community priorities.

The draft Fiji Climate Change Policy paper prepared by DoE summarized the major findings from previous assessment reports (e.g. Pacific Islands Climate Change Adaptation Project-PICCAP, Fiji National Communication for UNFCCC, and the PICCAP Fiji Country Team Report to the World Bank), adaptation issues identified in these reports and more importantly outlined the strategies to guide its implementation [6]. Two of the Climate Change Policy's strategies, which are directly aligned with this project's objectives, are:

- Promote soft solution methods to address climate change problems through community participation in seminars and activities like reforestation.
- Provide external training to improve and raise public understanding through workshops to promote community stakeholder participation.

The identified sectors identified in the draft Fiji Climate Change Policy as being most vulnerable to climate change are, (i) agriculture, (ii) coastal zone, (iii) public health and (iv) water resources. The above sectors are therefore the foci for adaptation at the national and local levels. This project proposes to focus on rural communities with emphasis on coastal areas and water resources, which are vulnerable to climate change and important for the livelihood of rural communities.

It is obvious the process to be used for adaptation planning and implementation falls within the ambit of identified national priorities, and more importantly, the focal sectors of this proposal have been identified through previous reports [6] to be among the most vulnerable to climate change in Fiji. The PICCAP Fiji Country Team report to the World Bank [3] provided an excellent synthesis of the vulnerability and adaptation assessment findings of PICCAP in Fiji, which will guide the type of adaptation measures to be selected for implementation within this project.

This project proposes to implement appropriate adaptation measures in coastal areas and water resources and to an extent agriculture. Although climate change adaptation is not a new idea, this project proposal is among a few national climate change adaptation implementation projects with pilot sites proposed to be in more than three sites. Furthermore, it will be the first project to advance the mainstreaming of climate change adaptation at rural communities through community management planning.

This project targets waste management and sustainable land-use as additional sectors since the lack of these can seriously increase the impacts of climate change on the four key sectors identified by the Fiji Climate Change Policy. As the severe effects occur during extreme events, disaster preparedness is also included.

4.1 Project linkage to recent climate change adaptation implementation project in Fiji

The recently completed SPREP project: Capacity Building for the Development of Adaptation Measures in Pacific Island Countries (CBDAMPIC) identified drinking water shortages and coastal erosion and inundation as common climate driven problems raised by communities in their case study countries (Fiji, Vanuatu, Samoa, Cook Islands) [7]. Under the CBDAMPIC, the emphasis was on the implementation of discrete adaptation measures such as providing water tanks to cater for water shortage, constructing seawall to alleviate coastal erosion and inundation, and community relocation for communities under serious threat from coastal erosion and sea level rise. CBDAMPIC also focussed on mainstreaming climate concerns at the national level through the development of national climate policies and general climate change advocacy with policy makers. One of the other useful outputs from this project was the development and implementation of a simplified community vulnerability and adaptation assessment (CV&A) process. One limitation during the CV&A's application within CBDAMPIC was the limited input of future climate scenarios. This initiative intends to build on this CBDAMPIC experience by integrating climate change adaptation to management of their watershed, coastal zone, and coastal ecosystems, water resources, and the mainstreaming of climate concerns at the local level.

5.0 Experience of proponents in the activities relating to this project

PACE-SD and IGCI (University of Waikato) implemented a joint research project on the assessment of Impacts and adaptation to Climate Change Project (AIACC) implemented by the in Fiji and the Cook Islands. The AIACC project main output was a computer-based decision support tool (SimClim) for climate change vulnerability and adaptation assessment. PACE-SD has more than four years of experience in offering short and long-term training programs in climate change V&A and extreme weather events for the Pacific region. The centre is also the focal point for climate research and training for the Faculty of Islands and Oceans, and has expertise in climate change scenario development, vulnerability and adaptation assessment, and general environmental assessments.

IAS has been involved in community-based engagements for an integrated coastal zone management project in the coral coast of Fiji. As such, their expertise in the processes of engaging rural communities and develop community management plans for the exposure sectors will be crucial for this project. IAS is a significant partner within the Fiji Locally Managed Marine Areas (FLMMA) network, which has been involved in assisting and partnering with local communities to assess their problems, target useful local and external information, and produce action plans using adaptive management principles for marine resources management [8]. The approaches they have used for natural resource management will be combined with V&A assessment to arrive at locally appropriate adaptation measures.

6.0 Project Timeframe

Activity	Measures	Time (Month)
<i>Objective 1: To replicate the piloted climate change adaptation approach to three other sites.</i>		
1.1 Conduct awareness raising workshop on climate change	<ul style="list-style-type: none"> • Develop workshop programme • Collect resource materials for workshop • Secure relevant resource people • Logistical arrangements for workshop • Conduct workshop 	1 st - 4 th
1.2 Conduct V&A and community-based sustainable development planning workshop (with adaptation measures incorporated).	<ul style="list-style-type: none"> • Develop V&A and Adaptation workshop programme • Prepare resource materials for workshop • Identify and secure participants and resource people for workshop • Logistical arrangements for workshop • Conduct workshop 	5 th - 9 th
1.3 Commence implementation of adaptation measures.	Adaptation measure and implementation of plan will be determined after the workshop	10 th - 16 th
<i>Objective 2: To further build the resilience of the six pilot sites by incorporating activities that reduce land-based pollution into coastal ecosystems and water resources.</i>		
2.1 Conduct workshops on waste (solid and liquid) management and/or sustainable land-use and/or disaster preparedness workshops in the six pilot communities	<ul style="list-style-type: none"> • Determine pollution issue to address from each project site • Develop workshop programme • Collect resource materials for workshop • Secure relevant resource people • Logistical arrangements for workshop • Conduct workshop 	11 th - 14 th
2.2 Develop and implement practical low-cost measures in reducing land-based pollution into coastal ecosystems (e.g. building compost toilets, waste recycling, incorporating terracing and buffing on agricultural land)	Measures and implementation of plan will be determined after the workshop	15 th - 22 nd
2.3 Design and implement simple climate and environmental monitoring program at three selected sites	<ul style="list-style-type: none"> • Design a simple climate and environmental monitoring plan • Select the three pilot sites to monitor • Set up the monitoring system in the three sites • Conduct regular monitoring 	1 st - 24 th
<i>Objective 3: To evaluate the effectiveness of the adaptation options taken in the nine pilot project sites</i>		
3.1 Design evaluation plan	<ul style="list-style-type: none"> • Determine evaluation scope and indicators of effectiveness of adaptation options • Develop evaluation methodology 	1 st - 4 th

	<ul style="list-style-type: none"> • Develop evaluation and monitoring schedule for the nine sites 	
3.2 Use the evaluation plan to assess and document project work in the nine sites	<ul style="list-style-type: none"> • Conduct initial visit to describe and plan evaluation process with the community (To be incorporated into the V&A workshop in Activity 2 of Objective 1 and undertaken separately with the initial six sites) • Conduct three monitoring visits at the nine sites 	5 th – 22 nd
3.3 Compile simple best-practice guidelines on the adaptation options for water supply, flooding/inundation, coastal protection, reef monitoring, mangrove planting.	<ul style="list-style-type: none"> • Compilation and analysis of evaluation data. 	22 nd – 24 th

7.0 Budget

Activity Ref	Activity Description	Personnel	Time Spent/Days	Rate/AUD	Cost (AUD)
<i>Component One: Replicating the piloted climate change adaptation approach in three sites</i>					161,261.40
1.1	Prepare and conduct climate change awareness raising workshops in three communities	Project Coordinator (Pco)	15	57.69	865.35
		Research Assistant (RA)	15	38.46	576.90
	One-day awareness workshop in three communities	Disbursement	3x1day workshop	1,000.00	3,000.00
1.2	Prepare and conduct V&A and community-based sustainable development planning workshop	Pco	21	57.69	1,211.49
		RA	21	38.46	807.66
	Two-day V&A workshop	Disbursement	3x2day workshop	1,600.00	4,800.00
1.3	Implementation of adaptation measures	Disbursement	3 communities	50,000.00	150,000.00
<i>Component Two: Enhancing adaptive capacity of the six pilot sites</i>					162,392.13
2.1	Prepare and conduct workshops on enhancing adaptive capacity in the six pilot communities	Pco	21	57.69	1,211.49
		RA	21	38.46	807.66
	Two-day workshop on enhancing adaptive capacity	Disbursement	6x2dy workshop	1,600.00	9,600.00
2.2	Implementation of enhanced adaptation measures	Disbursement	6 communities	23,436.53	140,619.18
2.3	Design and implement simple climate and environment monitoring system in three selected communities	Pco	20	57.69	1,153.80
		Disbursement	3 communities	3,000	9,000.00

Component Three: To evaluate the sustainability of the nine climate change adaptation project.					12,749.85
3.1	Development evaluation plan	Pco	5	57.69	288.45
3.2	Conduct evaluation fieldwork - 2days x 3 sites x 3 visits (Evaluation in other six sites covered in original project) Monitoring visits 3 x 2day visits x 3 sites	Pco	18	57.69	1,038.42
		RA	18	38.46	692.28
		Disbursement	3 visits per 3 sites	1,000.00	9,000.00
3.3	Compile best-practice guidelines on adaptation measures	Pco	30	57.69	1,730.70
Component Four: Project Management					52,094.45
	Project coordinating personnel (Reporting and administration)	Pco	443	57.69	25,556.67
		RA	443	38.46	17,037.78
	Project management mechanisms (advisory, planning, operations and communications)	Disbursement	Office equipment and consumables		5000.00
		Disbursement	Communications & Publications		2,500.00
		Disbursement	4 x Project Advisory Committee meetings	500	2,000
Sub-total					388,497.83
<i>USP Overhead (at 15%)</i>					<i>58,274.70</i>
GRAND TOTAL					446,772.53