

# Global Change and Capacity Building in Coral Reef Management in the Pacific: Engaging Scientists and Policy-Makers in Fiji, Tonga, Samoa and Tuvalu

G. Robin South<sup>1</sup>, S. Bala, P. Chand, L. Limalevu, C. Morris, J. Veitayaki, C. Wilkinson

Corresponding author<sup>1</sup>

The University of the South Pacific, Institute of Marine Resources, Alafua Campus, Samoa. Email: south\_g@usp.ac.fj

## Abstract

Four successful workshops on Climate Change Adaptation were held for 130 senior officials from Fiji, Samoa, Tonga and Tuvalu between June and August 2010. These workshops, organised by the University of the South Pacific, featured briefings on likely impacts of climate change on Pacific Islands and sought suggestions for policy changes for island adaptation. Climate change will increase existing threats to coral reefs due to unsustainable fishing, pollution from the land and habitat destruction via sea level rise, sea temperature rise, ocean acidification and increased strengths of cyclones. Rapid population growth will exacerbate these. All countries recognise the threats posed by climate change and have signed relevant United Nations (UN) Conventions and Agreements. They all have policies to tackle climate change threats. However, the governments have a lack of capacity to seriously address climate change threats and these are yet to be incorporated as a cross-cutting theme among the relevant government departments. The countries recognise a need to raise awareness of the issues and include these in school curricula, which are often based on developed country models. Tonga recognises that existing government departments will need to improve communication and coordination to develop an integrated approach. Fiji questions whether a national ocean policy could serve the purpose of addressing issues such as

sustainable fisheries management (including ecosystem-based management), cross-sectoral corporation, linking scientists with policy makers, education and awareness. Samoa recognises the challenges presented by developing an integrated approach, which involves cutting across ministries. Tuvalu has several existing social and economic threats despite their traditional leadership system. The governments recognise that an expansion of Marine Protected Areas (MPAs) offers a potential mechanism, however only Fiji and Samoa have active MPA programmes in association with user communities. The countries recognised that building on the Regional Oceans Policy template approved by the Forum Leaders in 2002 was an essential first step in improving policy and all recognise the important role of climate change in the long-term sustainability of their marine resources and food security.

## Introduction

Healthy coral reefs are vital to the sustainability of the peoples' livelihoods in the Pacific Islands. However, global change including sea level rise, increased sea surface temperature, ocean acidification, and numerous natural phenomena like cyclones coupled with the effects of higher population, have increasing and often worsening impacts on Pacific coral reefs, leading to increased vulnerability of coastal communities. Integrating the

knowledge of global change across various national government sectors, then translating this into policies that lead to sustainable management of coastal ecosystems is the challenge that the present project is ultimately aimed at addressing. The project brought senior Pacific Leaders in Fiji, Tonga, Samoa and Tuvalu together with scientists and experts on the sustainable management of coral reefs, so that they could be apprised of the impacts of global changes and



of those factors that are affecting the health of their coral reefs. This engagement process was conducted through face-to-face dialogue between reef experts familiar with the science of climate change, and government, non-governmental organisations and civil society personnel responsible for the development of appropriate policies focussing on the sustainable management of coral reefs in the four target countries.

### Methodology

Workshops were held between June and August 2010, at which some 130 senior officials from the four countries attended. Prior to the workshop, detailed country dossiers were prepared by the project team in consultation with the countries. The workshop format comprised presentations on the current status of coral reef and climate change issues and policies and some existing initiatives given by the project team leaders, government officials, NGOs and civil society representatives. Following open discussions, break-out groups reviewed and analysed the needs and gaps (as per country dossier) and recommended modifications, additions and comments. The resulting conclusions were then discussed in Plenary, where a national coral reef action plan was formulated using the suggestions from the breakout groups.

### Results and Discussion

Most people heavily depend on coral reefs and their resources for their livelihood especially in the Pacific Islands. This over dependence on coral reef ecosystems can have adverse effects to the continuance of a balanced ecosystem. Some of the major threats that affect the reef ecosystem are: global climate change, overfishing, pollution, coastal development and biological threats. Exacerbating all of these is rapid population growth. All of these threats are evident to greater or lesser extents in the target countries. However, monitoring results in the South West Pacific have indicated that reefs in this region appear to be resilient in the face of continuing acute threats from increased sea surface temperatures, cyclones, tsunamis and crown of thorns, although there are suggestions that reefs are experiencing an increase in exposure to chronic stresses such as human-induced impacts, which are difficult to measure (Whippy-Morris, 2009). As suggested by Veitayaki *et al.*, (2007), the challenge for the Pacific Islands is to design and institute a disaster management plan at the regional, national and district local levels.

### Conclusions

Although there are great differences among the four target countries in terms of size, environment, culture and population, the workshops agreed on a number of common and recurrent themes. All of the countries are signatory to the relevant UN Conventions and Agreements relevant to global change and the environment, although for some, reporting presents

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Capacity in the Pacific: Engaging Scientists and Policy-  
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### Project Leader:

Prof G. Robin South  
Institute of Marine Resources  
University of the South Pacific  
FIJI  
Tel: +67 9 323 2151  
Fax: + 67 9 323 2158  
Email: robin.south@orda.com.au; south\_g@usp.ac.fj

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challenges. All countries have in place and are currently reviewing or updating necessary policies regarding the conservation and sustainable use of their coral reefs and marine resources, and all recognise the important role of climate change in the long-term sustainability of their marine resources and food security, but climate change issues have not yet been incorporated as a cross-cutting theme among the relevant government departments. In Tonga, for example, the Ministry of Environment and Climate Change seeks to put things in perspective under one umbrella, but it was evident that there are difficulties between them and Fisheries regarding allocation of funding and responsibilities.

In general, the governments recognise the need for integrated planning, but there is a need to improve communications among those line departments responsible for the management of coral reefs: for some this will require a significant change in mind-set and *modus operandi*. There was a universal lack of knowledge of the 2002 Pacific Islands Regional Oceans Policy (PIROP), developed and approved by the Forum Leaders and presented at the World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa. In discussions, two countries (Tonga and Tuvalu) resolved to examine the possibility of using the PIROP as a template for the development of National Oceans Policies.

The need to raise public awareness about global change and coral reef issues were recognised by all, as was the need to find ways to incorporate marine issues in the school curriculum. Much of the curriculum is currently based on developed country principles. This would require the necessary teacher education. Common threats to coral reefs throughout the region include unsustainable fishing causing stock depletion, pollution from land-based sources, habitat destruction and global climate change. All of these threats are evident to greater or lesser extents in the targeted countries.

All four countries recognise over-fishing and depletion of reef fish stocks as a major problem and this, coupled with ever-increasing population growth rates indicate that there will be serious fish shortages within the next twenty years, unless some strong conservation and management measures are put in place. The importance of monitoring in support of management and policy is considered a high priority in all countries, although the lack of monitoring capacity is a limiting factor. The difficulty in enforcement of fishery regulations is a serious problem throughout, largely because of a lack of capacity and the logistical challenge posed by the scattered nature of islands. Alternative livelihoods will need to be developed for disenfranchised fishers. The expansion of aquaculture is seen as a possible replacement source for reduced protein supplies; however, the scope for this is limited in Samoa and Tuvalu. With the exception of Fiji, National Biodiversity inventories are seriously inadequate and much of the marine biodiversity, with the exception of commercially important species, is unrecorded. All countries recognised the need for much more work on the development of their National Marine Biodiversity Inventories (NMBIs). The scarcity of national or regional experts in taxonomy is a hindrance and training in this area is urgently needed.

The establishment and management of MPAs (or similarly designated areas) is of high priority in all the countries, as well as the recognition of the important role they play in conservation; but only in Fiji and Samoa has this reached a high level of community engagement through the Fiji Locally Managed Marine Areas programme, and the Village Fish Reserves, accompanied by Village By-Laws in Samoa. Community engagement was seen as crucial to the long-term effectiveness of protected areas. Tonga has a variety of reserves and parks, with policies and community engagement still evolving, whereas in Tuvalu there is only one significant MPA (involving strong community participation), while the Falekaupule (traditional assembly) in the outer islands are exercising control in the use of their fisheries resources.

The project team will re-visit the target countries in 2011 in order to measure progress in the implementation of their workshop actions and/or respective coral reef action plans.

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## The workshops identified the following action for follow up:

- Need to upgrade NMBIs, and for surveys in Tonga, Samoa and Tuvalu.
- Introduction of the Seagrass Watch programme recommended for Tonga and Samoa.
- Development of a regional climate change clearing house proposed, preferably at USP.
- Need for capacity building in all countries.
- Need to address the disconnection between communities, government and other players.
- Need to harmonise projects so as to have better coordination among agencies.
- Need to assist with the marine science programme at the National University of Samoa.
- Need to raise public awareness of coral reef issues, and to find ways of introducing relevant curriculum in schools.
- Support the Two Samoas initiative.
- Facilitate attachments of USP students with their home governments.
- Introduce coral identification training in Tonga, Samoa and Tuvalu.
- Encourage closer cooperation with SPREP on coral reef and coral reef management issues.
- Need for good governance at the community level.
- Need for continuous monitoring in support of government policies, and create relevant statistics on stock and fishing in order to understand trends.
- Need for more MPAs

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## websites

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