

or farming might be encouraged as a way of reducing dependency on marine resources. These types of measures have led to a 35% increase in household incomes between 1998 and 2002.

### Lessons learned and recommendations

In the past six years, thanks to the development of LMMAs, the number of tabu sites and *qoliqolis* has increased significantly; the number of skilled practitioners is more than 30; and people are now eager to work cooperatively and to commit to the protection of marine resources.

The first marine protected area in Fiji was gazetted recently (September 2002) but many problems

remain in protected areas, including poaching, meeting community needs, and reversal of tabu designation. Some of the challenges include harmonising the work with existing national projects and finding ways to maintain *qoliqolis* in the future. The main recommendations are to:

- Encourage the scientific community to develop the means by which local communities can evaluate the effectiveness of their management actions; and
- Communicate evaluation results periodically to communities in a simplified and user-friendly way in order to allow adaptive management and learning to occur.

## Case Study 10

### Traditional and modern law: A marriage in progress – The draft Talasea Local Government Marine Environment Law (Papua New Guinea)

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#### Status of biodiversity and threats

Kimbe Bay contains several interacting ecosystems and is one of the region's most biodiverse areas. It is also the subject of extensive scientific and socioeconomic studies. The region includes barrier reefs, fringing reefs and atolls, with more than 404 coral species, 543 fish species and more than 10 species of whales and dolphins. Kimbe Bay includes mangroves, beaches, seagrass and freshwater areas, and diverse freshwater and estuarine fish fauna.

#### Empowering communities: legislation and management plans

The Nature Conservancy (TNC) initiated a programme with the aim of "harnessing traditional community values to protect and maintain the biological and cultural heritage of the Stettin Bay and wider Kimbe Bay regions". TNC has realised that there is a need for a legal framework, that could encompass some traditional management components and at the same time complement existing national laws.

Local-level governments (LLGs) come third in PNG's legal, political and administrative structure, which includes three tiers of government (national, provincial and local level). The constitution, the Organic Law and national laws define the legal, administrative and financial powers of

LLGs. LLGs are empowered under this legal regime to enact local environmental laws for the protection and management of marine and terrestrial biodiversity.

Talasea Rural Local-level Government has utilised this legal framework to develop local marine environmental legislation aimed at protecting and sustainably using the marine biological resources in the Kimbe Bay area. The draft law seeks to incorporate traditional knowledge and practices in the formal framework, with the goal of promoting sustainable resource use and management in Kimbe Bay. The draft Talasea LLG law will:

- establish and declare locally managed marine areas (LMMAs) and a network of marine protected areas (MPAs) within the proximity of Talasea LLG;
- assist Talasea locals to regulate marine resource use within the context of increasing populations and impacts from land-based activities; and
- allow communities and clans to manage their resources on a sustainable basis.

The process of declaring LMMAs starts with a request from the clans to the LLG, which refers the request to the Locally Managed Marine Area Committee (LMMAC). The LMMAC is appointed for five years and comprises three to five members from the clan, as well as members of NGOs, churches, Ward Development Committee (WDC),

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the LLG, women and youth groups. This group ensures liaison between clans and LMMAs, and takes into account both scientific and traditional knowledge. LMMAs are declared by the LLG but are managed and monitored by the LMMAC. Once declared, the LMMA is integrated into the governmental process. It is envisaged that the National Fisheries Authority will provide training for LMMAC members, appoint Local Marine Rangers for the Talasea LLG, oversee monitoring and enforcement, and provide funding support.

Planning for sustainable development in LMMAs has been established, and takes into account the marine resources owners, the local advisory committee, the Talasea LLG and the WDC. The LMMAC thus, contributes to institutional strengthening.

### Lessons learned and recommendations

This devolution of power allows communities to act on their own initiative and contribute to the process of community empowerment. Com-

munities can be asked to propose a reef closure according to their traditional knowledge, and this can be compared with proposals based on scientific knowledge; closed areas are often surrounded by buffer zones established by the village to protect specific resources (e.g. fish spawning aggregations). Monitoring and enforcement is the responsibility of villagers and fisheries wardens, with LMMA rules incorporating customary practices established by the LMMAC in close consultation with the clans.

However, problems with respect to LMMA management remain. The first problem is monitoring and enforcement, as the main offenders are usually the locals. TNC is implementing a programme of local awareness raising to assist local communities with enforcement. A second problem is the destruction of mangrove areas by settlers from other parts of PNG. Such violations have to be resolved through the village courts system, which have the power to punish people according to local customs, can impose fines that are not necessarily monetary, as locals often do not have cash.

## Case Study II

### Biodiversity and sustainable use of marine biodiversity in PNG: Policy and legal implications

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#### Status of biodiversity and threats

PNG is a biodiversity “hot spot” and has the second largest diversity of species in the Pacific. With 40,000 km<sup>2</sup> of reefs and a natural forest land cover of almost 77%, it hosts 7% of the world’s species of plants and terrestrial life forms. PNG’s natural habitats are as beautiful as they are diverse, including beaches and ridges, swamps, lowlands, foothills and mountains. It is estimated that approximately 60% of PNG’s plants are endemic. The country hosts 20,000 plant species, 800 species of corals, 304 mammal species and 733 species of birds.

Major threats to this exceptional biodiversity include unsustainable logging practices, large-scale mining, destructive fishing and other harmful subsistence practices, and industrial and natural disasters. PNG has been looking for models of sustainable fisheries for over 15 years, but few have been implemented, and destructive practices

continue. PNG no longer uses quota systems to regulate resource access but instead, limits the number of days when fishing is allowed to 4000 days. This national strategy is based on scientific data. Traditional practices are often beneficial in terms of marine management, but can also be destructive (e.g. slash and burn agricultural practices, or the use of *imora*, a poisonous plant, for fishing), which is so destructive that it has all but eliminated a spawning aggregation site.

#### Empowering communities: legislation and management plans

Many policies on biodiversity conservation and sustainable use exist in PNG, from the Environment and Conservation Policy (developed in 1976) to the Medium Term Development Strategy (MTSD) planned for the 2003–2007 period; the latter includes recommendations from the Convention on Biological Diversity that focus on agriculture. Although none of these policies are

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