

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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specifically focused on cross-sectoral biodiversity issues, considerable effort has been placed on trade and environment connections, which is a central issue in biodiversity conservation. International organisations have often been the impetus for PNG's policies; for instance, development of the Mining Policy was funded by the World Bank. However, government officials have often been driving the implementation and enforcement processes. Compromises have sometimes been reached between indigenous people and inter-governmental organisations, while international protocols, such as the Cartagena Protocol, have led government officials to develop domestic policies in a more sustainable manner.

Many general and specific PNG laws (Acts) include the concept of biodiversity, notably by adapting multilateral environmental agreements to the PNG context. These include the Physical Planning Act (1988), the Environment Act (2000), the Fisheries, Land, Mining and Forestry Acts (respectively 1998, 1996, 1992, and 1991), the International Trade (Fauna and Flora) (Amendment) Act of 2003 (which refers to CITES), the National Parks Act, and the Crocodile Act.

To circumvent criticisms that these acts were too sectoral and too hierarchical, a Decentralization Framework was established, designed to give more power to local governments. The provincial and local level governments were given legislative power, the opportunity of participating in policy making, and the right to consult on development initiatives. This participatory and consultative approach was reaffirmed in enabling legislation, including the Provincial Administration Act. This act, aimed to devolve law making and implementation to the local level through administration, financial and political mechanisms, but did not give sufficient recognition to the wards and the clans, which are the real masters of indigenous laws. Consequently, decentralisation did not result in community empowerment, and was ultimately a disappointment.

## Lessons learned and recommendations

Existing national policies and legal frameworks are inadequate as they are sectoral in nature and not appropriately decentralised, and there is no policy and legal regime for effective decentralisation. Therefore, reforms are needed in PNG (and in other Pacific countries) in the areas of integrated biodiversity policy and law, biodiversity management, access benefit sharing and intellectual property rights, research and development, and biodiversity governance.

- The challenge today is to find mechanisms to seek cooperation between all sectors to operate under a single authority so as to resolve the problem of disparate approaches on customary law and traditional knowledge of marine management at the different levels of government.
- The PNG government needs to learn and produce new policies on traditional practices, but most of all it needs to link policy and law with the people, notably for biodiversity governance, where decentralisation is vital.
- There is a lack of capacity to translate scientific knowledge into policy, because degree programmes are too sectoral; but linking sciences and laws requires competencies in both subjects. There is now a pressing need to set up some cross-sectoral discipline training and increase capacity in marine policy formulation.
- Another problem lies in PNG's cultural diversity: the national constitution had to take into account 800 languages and 2000 cultures and took two years to draft. Unfortunately, many good customs were swept aside. This could be explained by the unwillingness of customary delegates to speak up in front of authorities during joint meetings; they may fail to assert their rights; or agree, but in practice never take actions not in accordance with their cultures. Encouragingly, a range of NGOs are now trying to safeguard the fading traditional practices.

