

# Chapter 2

## Managing Coastal Areas

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### A. The Value of Coastal Areas in the Pacific<sup>2</sup>

Much of the daily life of Pacific Islanders is spent near the coast. For them, coastal areas are vital sources of food, income, housing materials, tourism, recreation and culture. The coral reefs and mangroves surrounding the islands also play vital roles in protecting the islands against erosion and storm surge.

**Food Security.** Pacific Islanders depend heavily on subsistence fisheries for their protein needs: seafood represents 28 percent of total animal protein in Fiji and 67 percent in Kiribati (FAO 2000). Estimated per capita seafood consumption (of 21-150 kilograms) is substantially higher than the world average of 16 kilograms per capita (table 2).

The value of subsistence fisheries for food security can be gauged by how much Pacific Island country governments would have to pay for imported substitutes if these fisheries ceased to exist (table 2). Fiji, Samoa, the Solomon Islands, and Vanuatu would each have to spend an additional US\$7–\$15 million a year to import substitutes with similar protein content – equivalent to a 1 to 19 percent increase in annual imports for Fiji and Vanuatu, respectively. Kiribati would require US\$18 million in alternative protein sources — equivalent to 38 percent of its GDP. Although many coastal communities now complement their diet with

<sup>2</sup> To better understand the challenges faced by coastal communities in the Pacific, the World Bank sponsored, in 1998-99, a study of 31 communities in Fiji, Palau, Samoa, Solomon Islands and Tonga (World Bank 2000a). This section draws on the results of that study, as well as on contributions by John Virdin (Virdin 1999) and Garry Preston (Preston 2000). Contributors to the coastal study are listed in the Acknowledgments.

**Table 2. Value of Seafood to Food Security**

Country	Seafood available for consumption (kilograms per capita)	Seafood as percent of animal protein	Value of subsistence fisheries to food security (US\$ million) <sup>a</sup>	
			In protein equivalent	In calories equivalent
Fiji	51	28	6.7	3.9
Kiribati	150	67	18.0	7.0
Samoa	46	—	13.9	5.3
Solomon Is.	33	77	13.3	11.6
Vanuatu	21	33	14.7	8.9
World Average	16	17	—	—

— Not available.

Notes: For valuation methodology, see annex A. Seafood consumption reflects 1995 per capita seafood supply derived from national statistics.

a. Cost of importing equivalent amounts of protein, or of purchasing substitutes with equivalent caloric content.

Sources: Seafood as percent of animal protein and world averages : 1997 data from FAO (2000). Others: World Bank estimates and Preston (2000).

canned fish, the depletion of subsistence fisheries would clearly have significant economic and dietary impacts.

**Income.** Many Pacific Island households complement their income with occasional sales of coastal products. While only about 20,000 Pacific Islanders were officially employed by coastal fisheries in 1996, an estimated 88 percent of households in Kiribati, 50 percent of rural households in Fiji, and 35–40 percent of households in Samoa fish on a part-time basis (figure 2) (KDOF 1999; SFD 1998; FFD 1997). Access to this opportunistic source of income is particularly important when the prices of agricultural products (such as copra) are low and in areas with modest remittances and scarce formal employment.

**GDP and Exports.** The contribution of coastal fisheries to Pacific Island country economies is often understated because of the difficulties of

collecting subsistence data. Fisheries contribution to total exports ranges from 6 percent in Fiji to nearly 90 percent in some Micronesian countries — but this reflects largely offshore tuna catches (table 3). Nonetheless, coastal products such as trochus shells (used in the manufacture of high quality buttons), bêche-de-mer (dried sea cucumber), giant clams, and pearls are significant contributors to national exports. The region exports 2,300 metric tons of trochus shells a year, or 59 percent of the world supply. Pearl exports — primarily from French Polynesia and Cook Islands — generate some US\$100 million in annual revenues (Icecon 1997; Dalzell and Adams 1994).

**Construction and Housing Materials.** Sand, coral, and coastal gravel and limestone are used in construction and landfills throughout the Pacific. In many atoll countries, coastal areas are the only source of construction materials (table 4). Even in countries with potential for quarry or river gravel mining, coastal materials tend to be preferred because of their accessibility and lower prices. In the mid-1990s, the annual extraction of sand—a key ingredient in cement—averaged 15,000 cubic meters in Tongatapu (Tonga) and 70,000 cubic meters in Suva (Fiji) (Howorth 1997).

**Table 3. Value of Fisheries to Pacific Island Economies**

Country	Fisheries as percent of GDP	Fisheries as percent of exports
Fiji	5 <sup>a</sup>	6 <sup>a</sup>
Federated States of Micronesia	2 <sup>b</sup>	89 <sup>a</sup>
Kiribati	13	27
Marshall Is.	9 <sup>c</sup>	89 <sup>a</sup>
Samoa	6	47
Solomon Is.	6	23
Tonga	—	13

— Not available.

Note: All data are for 1998, except where indicated. GDP and export data includes tuna fisheries, as disaggregated data for coastal fisheries were not available.

a. 1997. b. 1996 c. 1996/7

Sources: IMF and country economic reports.

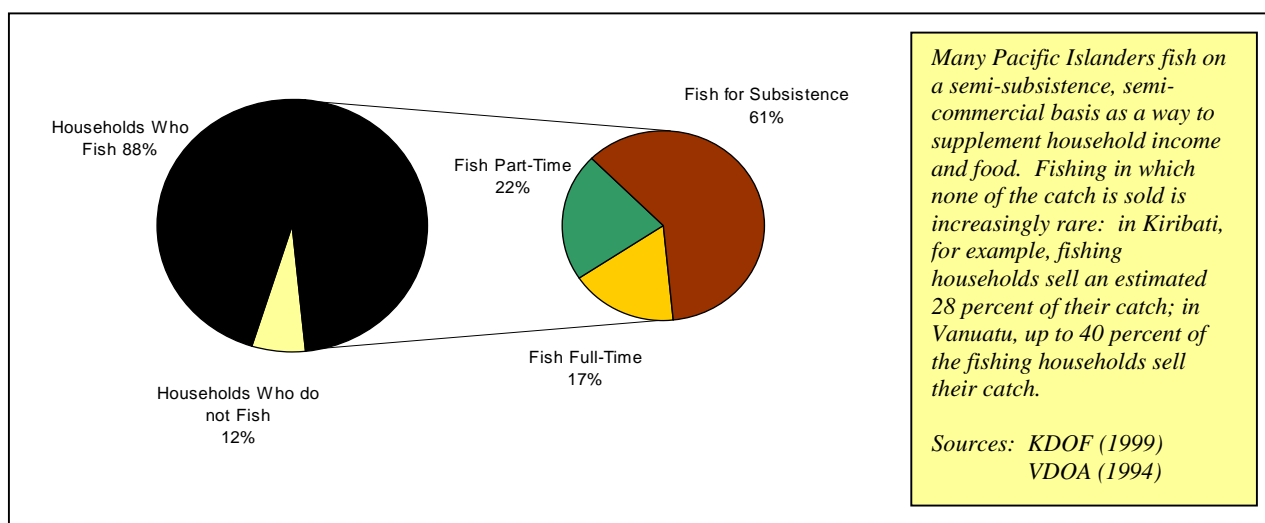
**Table 4. Exploitation of Coastal Materials in Pacific Island Countries**

Country	Coastal Mineral Potential	Is Coastal Mineral Extraction a Problem?	Are there Alternative Sources of Materials?	Is Coastal Stability a Critical Issue?
Cook Islands	*	***	Yes	***
FSM	*	**	Yes	**
Fiji	***	*	Yes	**
Kiribati	—	***	No	***
Marshall Islands	—	**	No	***
Niue	*	*	No	***
Palau	—	*	—	**
Samoa	*	***	Yes	**
Solomon Isl.	***	**	Yes	***
Tonga	*	***	Yes	**
Tuvalu	—	***	No	***
Vanuatu	**	**	Yes	***

— Not available \* Low \*\* Medium \*\*\* High

Source: Adapted from Howorth (1997).

**Figure 2. Fishing as an Occupation: The Case of Kiribati**



**Tourism.** Tourism, a US\$1 billion a year industry in the Pacific Islands region (table 5), is highly dependent on the quality of the coastal environment. In Palau, for example, tourism is based primarily on marine-based activities such as diving, sports fishing, and sightseeing in marine parks. Sports fishing is also significant in Christmas Island (Kiribati). Another important activity closely related to the coastal environment is yachting and cruise shipping. Passengers from cruise ships accounted for 58 percent of all tourist arrivals in Vanuatu in 1998 (WTO 2000).

**Culture and Recreation.** Aquatic sports, marine totems, taboos, and traditional rituals associated with the sea are closely intertwined with the socioeconomic fabric of the region. Among the region's most distinctive traits is the presence of customary marine tenure in many islands of the Pacific. Under these systems, coastal communities often treated the land and sea as a continuum, where community boundaries extended from the land to the edge of the reef or beyond. Local management rules governed the use of and access to coastal resources. Although weakened by modern forces, these traditional systems continue to operate in many areas of the Pacific (Vunisea 1996; Hviding and Ruddle 1991; Johannes 1978).

**Coastal Protection.** Coral reefs, mangrove forests, and other coastal habitats are essential to the survival of small islands (figure 3). Coral reefs act as wave breakers, preventing coastal erosion, and are the key source of sand for much of the Pacific beaches. Mangrove forests help stabilize coastal areas by acting as a buffer between the land and sea. They also prevent land inundation during storms. In Fiji the annual value of this coastal protection is estimated at US\$550 million for reefs and US\$60 million for mangroves (Sistro 1997; Spurgeon 1992).

**Table 5. Estimated Tourism Revenues and Arrivals In Selected Pacific Island Countries, 1998**

<i>Country or territory</i>	<i>Estimated receipts (US\$ million)</i>	<i>Estimated arrivals (thousands of people)</i>
Cook Islands	34	49
Fiji	266	371
French Polynesia	354	189
Kiribati	1	14
Marshall Islands	3	--
New Caledonia	110	104
Niue	1	2
Palau	--	64
Papua New Guinea	75	67
Samoa	38	78
Solomon Islands	13	13
Tonga	12	27
Tuvalu	<1	1
Vanuatu	52	52
<b>Total</b>	<b>959</b>	<b>1,031</b>

-- Not available.

Source: World Tourism Organization Database, February and June 2000

**Figure 3. Coral Reefs – Protecting Coastal Areas Against Storms**



## B. Trends Affecting Coastal Areas

A 1998 World Bank-sponsored coastal survey (see footnote 2) revealed a widespread perception among the 31 communities surveyed that coastal resources were declining. Only 10 percent of the responses perceived that fishing catch per unit of effort had improved over the past decade (figure 4). The main reasons cited for the perceived decline included overfishing, destructive practices such as the use of traditional poisons, more effective fishing technology, pollution, construction of causeways, siltation, and habitat degradation. Coastal resources were perceived to be declining even in isolated sites where population densities remain low.<sup>3</sup>

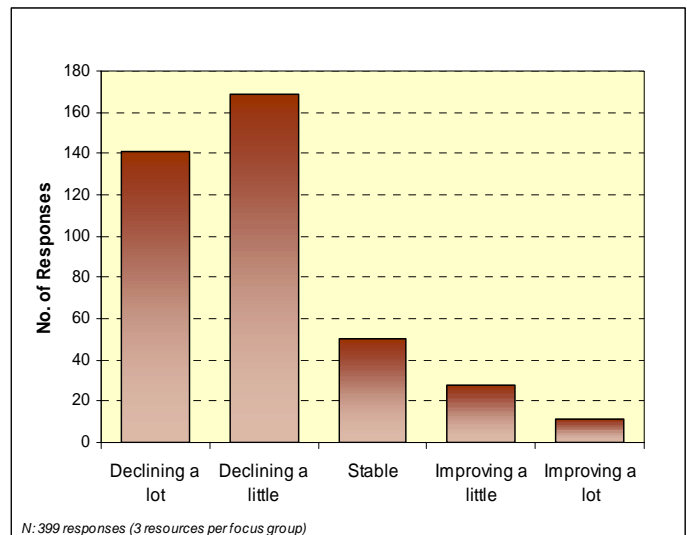
About half of the community responses to the coastal study perceived coastal habitats to be declining, due primarily to pollution, siltation, destructive fishing practices, development projects, and natural causes (such as cyclones). Coral reefs, coastal lagoons, and intertidal areas were perceived to have declined significantly more than mangroves. In Fiji 19 percent of the coral reefs are now believed to be under high stress, and each year some 90–300 tons of top soil per hectare are lost to erosion—much of it ending up in coastal waters (WRI 2000; Clarke and Morrison 1987; UNEP 1993).

With rapid urbanization the demand for construction materials is rising, leading to unsustainable extraction. In Tonga, for example, beach sand is reportedly removed at rates two to five times higher than the natural regeneration rate (Tappin 1993; Howorth 1997).

Water pollution is a well known problem in Micronesian towns. In Majuro (the Marshall Islands), the quality of coastal waters deteriorated steadily from 1988 to 1996 (Hicking and Mistry

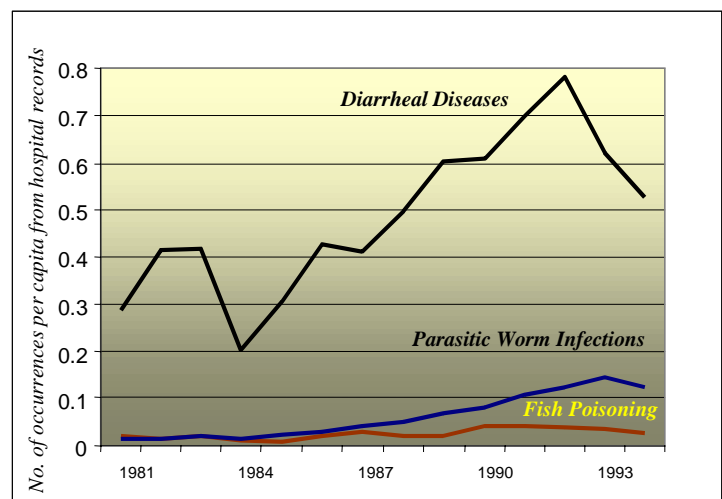
<sup>3</sup> Even though the study relied on the perceptions of coastal communities, they were found to be consistent across user groups at the same site (World Bank 2000a). Community perceptions could not be compared with ecological trends because of the lack of a baseline. However, site-specific ecological surveys indicate a decline in the productivity of coastal resources in Guam and some recovery in American Samoa (WPRFMC 1998). Trends in Kiribati are mixed, and could reflect recent technological improvements (KDOP 1999).

Figure 4. Community Perceptions of Trends in the Catch Productivity of Coastal Resources



Source: World Bank (2000a)

Figure 5. Incidence of Reported Waterborne Illnesses in Tarawa, Kiribati, 1981-94



Source: Abbott (1996)

1995). In the Tarawa Lagoon (Kiribati) all shellfish surveyed within 25 meters of the shore in the mid-1990s showed levels of fecal coliforms exceeding the standards for human consumption (BioSystems Analysis 1995). Water pollution has also been a major cause of a rise in the incidence of waterborne diseases (figure 5).

What is less known, perhaps, is the perceived impact of pollution on coastal sites (many of them rural) surveyed in Palau, the Solomon Islands and Tonga (figure 6). Overall, the communities surveyed by the coastal study perceived pollution to be the fastest rising threat to their coastal resources.

Damage to coastal areas is imposing substantial economic costs on Pacific Island countries. In Fiji the loss of coral reefs now under high stress could cause economic impacts of over US\$33 million a year. In the island of Upolu, Samoa, the losses in productivity of degraded coral reefs resulting from urban pollution amount to nearly US\$170 per hectare of reef per year (World Bank 1995b). The practice of harvesting *bêche-de-mer* and trochus until the resources are depleted — through “boom and bust” cycles — causes significant price fluctuation and hinders the development of processing industries. Coastal degradation is also resulting in infrastructure damages, outbreaks of ciguatera poisoning, and a rise in the islands’ exposure to extreme weather events.

Halting the degradation of coastal areas is desirable on ecological grounds, but it is first and foremost a sound economic decision: as the analysis of climate change indicates (Volume IV), improved coastal management is one of the most cost-effective ways to reduce the islands’ vulnerability in the future.

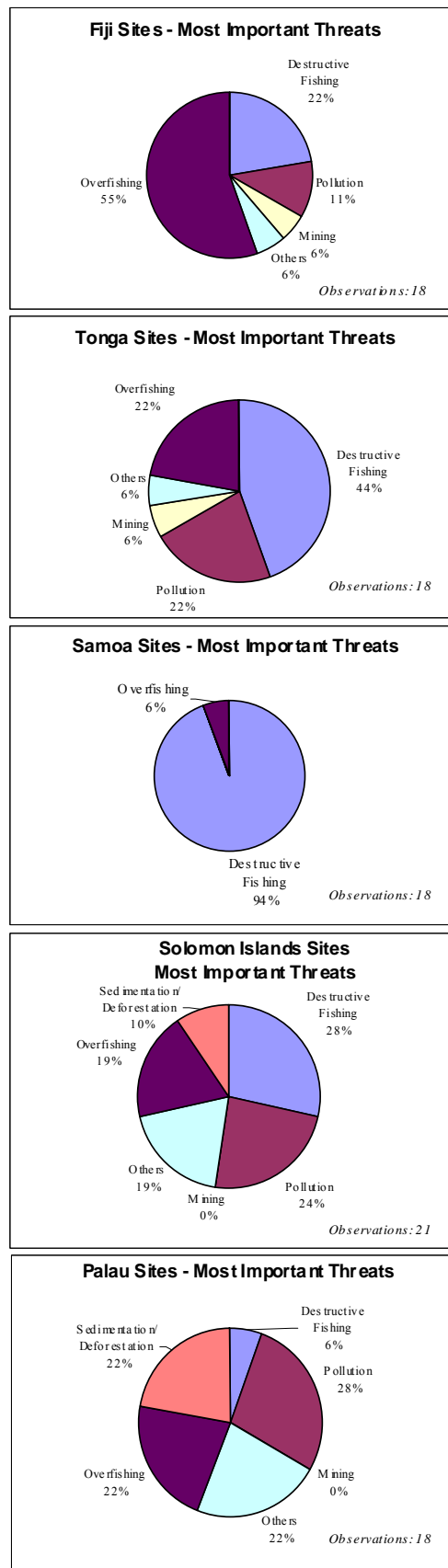
### C. Key Challenges and Opportunities

Coastal areas can be managed through a variety of interventions that improve the economic benefits accruing from their use. Management interventions can include closing reef or mangrove areas to allow for natural regeneration, minimizing or collecting waste, prohibiting destructive practices, and constructing coastal infrastructure in ways that minimize their environmental impact.

#### Helping Communities Manage the Coast

In a region with nearly 3,000 islands, managing coastal areas is a daunting task. Governments in the region have wisely recognized that, for the most part, they lack the staff or budget to

**Figure 6. Community Perceptions of Most Important Threats to Coastal Resources**



Source: World Bank (2000a).

manage these vast areas and will need to rely on local communities for much of the management interventions.

However, communities also need urgent help. Findings from the coastal study indicate that community-based management is insufficient to address the current threats to coastal areas. Help was perceived to be most needed in:

- Raising the communities' awareness of the need to restrict their own fishing efforts.
- Addressing threats that cannot be handled locally (such as pollution, poaching, logging, and major coastal infrastructure).
- Facilitating the application of customary laws (by incorporating them into by-laws, for example).
- Providing advice on technical aspects of resource management.
- Preventing abuses of power by local leaders.

### **Improving the Response of Government to Local Needs**

Pacific Island Governments in general do not view coastal management as a high priority. Findings from the coastal study indicate that only 23 percent of staff-time at national fisheries agencies is spent on coastal management. Among the 31 sites surveyed, 48 percent had never been visited by a government official to discuss coastal management issues. Distances alone could not explain this finding, as three of the sites that had never been visited were located close to the fisheries agencies' headquarters.

Some of the key impediments are institutional. While traditional Pacific societies were holistic, many modern governance systems are modeled on those of the former colonial powers, with weak central planning and well-defined sectoral agencies. These systems are ill suited to the integrated nature of the challenges facing small islands. Mining and infrastructure, for example, which have important impacts on coastal areas, fall outside the mandate of the agencies that have traditionally been involved in coastal management (fisheries and environment agencies). Fisheries or environmental programs

may also be constrained by mandate which prevent them from providing assistance to communities in areas such as tourism development.

Government staff are given few incentives to help communities manage their coastal areas. First, in contrast to infrastructure projects, the results of which are visible and easy to report, management assistance is typically process oriented, and the results are less concrete. Second, extension workers involved in coastal management are mostly junior-level staff who tend to be promoted to "more quantifiable" activities as soon as they acquire the knowledge that would have made them more effective at the community level. Third, finance ministries in some Pacific Island countries expect sectoral agencies to contribute to public revenues. For fisheries agencies, this encourages a focus on license fee collection and tuna fisheries development at the expense of much needed coastal management support.<sup>4</sup> Redeployment of license fee revenue in favor of development activities in other sectors also plays a role in the weak attention paid to coastal management.

Finally, many Pacific Island countries lack the capacity to respond rapidly to the requests of coastal communities. Donor-driven priorities, weak communication links, and strict sectoral mandates are often to blame, but governments also continue to support programs that may be of unproven value to coastal communities. Aquaculture, tuna fisheries and deep slope fisheries, for example, are commonly promoted as income-generating alternatives to coastal fisheries, yet feedback from the communities surveyed under the coastal study indicates that they have not been effective in relieving pressure on coastal resources (World Bank 2000a).

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<sup>4</sup> This bias is only likely to increase once the new regional fisheries Commission comes into effect (see Chapter III). The new Commission could absorb an increasing share of fisheries agencies expenditures and organizational priorities, further decreasing the attention given to coastal management (Bob Gillett 2000, personal communication).

## D. A Strategy for Coastal Areas: the Co-Management Approach

Coastal areas in the Pacific are facing urgent challenges, which neither governments nor communities can manage on their own. A collaborative partnership between coastal communities, governments and other external organizations—a “co-management” approach—offers the greatest opportunity for Pacific Island countries to manage their coastal areas, reduce vulnerability to extreme weather events, and protect the resources on which so many communities depend. This approach is also consistent with current thinking in the Pacific.

Depending on the location and culture, co-management can be largely community based or more reliant on the government (in town areas, for example). In some communities, the role of the government can be complemented by NGOs or other external partners.

In many rural areas of the Pacific, there are strong traditional decisionmaking processes that can play a vital role in co-management, greatly increasing local participation. Co-management requires working with these traditional institutions, increasing the effectiveness of local governments in meeting local needs, and involving national agencies where necessary. Such a decentralized process has the best chance of being responsive to local conditions and needs.

An effective co-management strategy should therefore:

- Draw on the strengths of each partner;
- Ensure effective two-way communication between coastal communities and their external partners; and
- Establish intersectoral planning and coordination among government agencies responsible for coastal areas.

### Box 1. Implementing Co-Management: The Samoa Fisheries Extension Program

The Samoa Fisheries Division launched the Fisheries Extension and Training Project in 1996, under assistance from AusAID. The project was largely demand driven: once the communities requested assistance, extension workers would help them develop Village Fisheries Management Plans. The plans, which took on average 10 weeks to develop, outlined the management rules proposed by the community and the assistance required from the Government. Provided that the proposed rules were compatible with national laws, the project also assisted the communities in making them legally binding through the issuance of by-laws. Once approved, the by-laws were disseminated via radio.

As of mid-1999, 61 villages had adopted management plans. Community management rules included:

Rules	Percentage of villages adopting
Fish sanctuaries (no-take zones)	92
Banning of dynamite and bleach	100
Banning of fish poisons	96
Banning the dumping of rubbish	75
Mesh size limits	73
Banning the clearing of mangroves	30
Banning the removal of sand	13

Satisfaction with the program, as assessed independently by the coastal study, is generally high: among the five countries surveyed, Samoan villages were the only ones that believed the condition of coastal resources would improve in the future. An internal review under the project also found that 86 percent of the villages were implementing management plans at or above average competency.

Despite these achievements, the program is facing several constraints: extension workers are demoralized by overwork, poor salaries, weak opportunities for promotion, and lack of recognition. Several staff have been sent to study abroad, and have not been replaced. Furthermore, communication between the units handling different aspects of the program (such as aquaculture) is weak. At the village level, the most significant problems have been with the aquaculture activities, disputes among villages, and poaching inside the sanctuaries. To keep up with the demand from communities, the program has proposed to “graduate” villages that are performing well, and to drop those that are unsatisfactory. It has also recommended that further attention be given to raising incentives and accountability for extension staff.

The above example illustrates the importance of addressing institutional, communication, enforcement, and conflict resolution issues early on in co-management programs.

Sources: Kallie (1999); Fa’asili (1997); King, Fa’asili and Taua (1998); World Bank (2000a).

## Drawing on the Strengths of Each Partner

Communities and their external partners should have clearly defined roles that maximize their comparative strengths. Monitoring compliance with management rules, for example, is best done by coastal communities, while handling urban pollution is an area in which government agencies can have a comparative advantage. A clear division of responsibilities helps achieve results and minimizes the costs of management.

The results of the coastal study (box 2) suggest the following roles for the institutions involved in coastal management:

**The Role of Communities.** Local communities, and particularly traditional leaders, should be

given the major responsibility for managing coastal areas outside towns. Their responsibilities might include:

- Adopting and enforcing local management rules, such as banning sand removal or prohibiting dynamite fishing.
- Managing threats to coastal areas that are within their control (such as local garbage).
- Restricting their own harvesting effort to allow resources to recover (by banning fishing in certain areas, for example).
- Controlling poaching by people from outside the community, in collaboration with the government.
- Mobilizing the community for joint action (such as clean-up efforts).

### Box 2. Where is External Assistance Most Needed? Voices from the Village

How can governments and external partners best help communities to manage coastal areas? What kind of assistance is most effective? The results of the 1998 survey of 31 communities reveal several lessons about what seems to work from the perspective of coastal communities:

- ❑ *The best partners are honest brokers.* The most valued external partners played the role of ‘honest brokers’, providing timely and sound management advice to communities upon request. These partnerships often provided little more than technical advice and awareness-building.
- ❑ *Communities need external help primarily in five areas:*
  - Catalyzing community action to restrict their own harvesting;
  - Addressing threats – such as pollution, dredging, and siltation – which cannot be handled by communities alone;
  - Harmonizing local management rules with national regulations, to facilitate their application;
  - Obtaining technical advice on demand; and
  - Preventing abuses of authority by local leaders.
- ❑ *Alternative income programs have not been effective.* For the most part, communities felt that alternative income generation programs involving aquaculture, tuna fisheries, or deep slope fisheries had not been successful in reducing pressure on coastal resources.
- ❑ *Communities need early results.* Communities tend to focus on short-term, tangible results. Creating marine sanctuaries, for example, appeared to play an important role in catalyzing community awareness of the benefits of coastal management.
- ❑ *Some management rules work better than others.* The following rules were perceived by communities as having the highest compliance:
  - *National rules adopted locally.* National regulations which were seen as relevant and were subsequently adopted by community leaders as local rules were perceived as having significantly better compliance than either purely national or purely local rules.
  - *Simple rules.* Simple rules, such as establishing protected areas (sanctuaries), closed seasons for harvesting, and rules restricting destructive practices were perceived as having significantly better compliance than rules such as size limits, bans on harvests, and restrictions on external fishers. The easier it is for communities to understand and comply with the rules, the more successful they are likely to become.
  - *Rules enforced by buyers or exporters,* such as the crocodile ban in the Solomon Islands, were perceived as being particularly effective.
- ❑ *Open access discourages community action.* Open access by outsiders to communities’ waters acts as a powerful disincentive for community management. With one exception, all of the 8 open access sites in the coastal survey lacked local management rules. By contrast, all of the 21 communities in restricted access sites had adopted local management rules. In the opinion of a villager “why should we restrict ourselves if these rules cannot be applied to others?”

Source: World Bank (2000a)

### ***The Role of Government Agencies.***

Government agencies such as Fisheries and Environmental Divisions should provide the enabling support to community-based management and handle threats that are beyond the communities' control. They should be responsible for:

- Providing a legal framework to support community user rights over coastal areas (preferably by establishing exclusive user rights) and recognize community management rules as by-laws.
- Reducing the harvesting of coastal resources through export or point-of-collection restrictions and limits on commercial harvesting licenses.
- Requiring environmental impact assessments for all new projects likely to affect the coast.
- Improving waste management in and around towns.
- Carrying out awareness activities aimed particularly at community leaders.
- Promoting environmental education in public schools.
- Ensuring accountability and transparency in the issuance of fishing licenses.
- Supporting collaborative enforcement with the communities, especially to address threats external to their sites.
- Facilitating consensus-building and conflict resolution among coastal communities for the management of larger areas of the coast.
- Ensuring adequate incentives and technical back-up for extension staff working at the community level.
- Using alternative income-generating activities cautiously. While the purpose of these activities may be laudable, extension staff and scientists are often not well positioned to provide sound business advice to coastal communities. Linking communities with private sector investors may be a more effective way to increase local incomes.

***The Role of Other External Partners.*** NGOs and other local groups (such as churches) can play a pivotal role in catalyzing community action. The coastal study revealed that the partners most appreciated by coastal communities:

- Maintain a long-term commitment to the partnership.
- Act primarily as a catalyst for community-driven decisions. Once information is provided and awareness built, decisions about resource use are made at the local level.
- Rely on existing village institutions and processes as much as possible.
- Produce tangible results early during the partnership.
- Support participatory monitoring, so that communities can see the results of management interventions.
- Promote solutions that have proved to be technically and financially sound.

***The Role of High-Level Policymakers.*** High-level policymakers in Financial and Economic Ministries have a key role to play in addressing the incentives that hinder coastal management. This role includes:

- Recognizing coastal management as an economic and social priority, and reflecting it in national development plans.
- Considering financial and institutional incentives to support intersectoral planning committees.
- Orienting donor assistance toward long-term programs that support coastal zone management.
- Creating incentives—such as opportunities for promotion and recognition—for public servants involved in co-management.
- Removing macroeconomic incentives that discourage government agencies from supporting coastal management. Requiring

fisheries agencies to be net revenue generators, for example, biases their activities toward offshore fisheries development. Public expenditures for coastal management should be protected from such tradeoffs, either by separating licensing and management functions (as done in the Federated States of Micronesia and New Caledonia) or by allowing the agencies to retain license revenues and use them in support of coastal management. This is currently done in the Marshall Islands, where license revenues are used to support a trust fund for coastal management.

***The Role of Donors.*** Donors can play an important role in coastal management by:

- Providing long-term assistance to flexible, intersectoral programs that encourage Pacific Island countries to develop their own solutions to coastal management, and recognizing that programs with a narrow sectoral focus are unlikely to meet the current challenges.
- Adopting a community-driven approach that facilitates local planning and implementation.
- Promoting applied research (such as socioeconomic or rapid ecological surveys), with immediate application at the local level.
- Conducting training programs and workshops primarily in-country, to prevent the loss of capacity and attention to coastal management that can result from attendance at frequent regional meetings.

### **Ensuring Effective Communication**

Establishing an effective two-way communication between communities and external partners is critical to the success of co-management. With government agencies often located far from coastal villages, it is essential that communication links be kept active. Only by institutionalizing the means by which communities convey requests for and receive

assistance can the government response become more demand based and effective.

Several lessons can be drawn from the coastal study survey. First, it takes a long time for communities to absorb and process information provided by external partners. Assistance needs to be provided on a long-term basis, and information needs to be conveyed in as many ways as possible (through radio, pamphlets, workshops, and other means). Second, external partners need to be able to respond rapidly to requests for assistance by communities. This requires not only reliable communication channels but also access to information which field workers may not possess. Third, the assistance needs to be able to handle the changing nature of the threats affecting coastal areas.

These lessons pose considerable challenges for Pacific Island countries. Budgetary and staff constraints prevent many government agencies from working in remote villages, and donor assistance is often restricted to particular sectors.

How then can Pacific Island countries best address these challenges? Several recent initiatives suggest three possible solutions:

***Find strength in numbers.*** Joint programs by different government agencies or between governments and NGOs increase the number of field staff assisting the communities, and help ensure that the assistance is multisectoral. The Samoa Visitors Bureau, for example, conducts periodic “road shows” from village to village, at which staff from various agencies—tourism, environment, health, and agriculture—offer advice to the communities. The road shows visit about 20 villages a year. Kiribati has also started sending multisectoral teams to survey its outer islands.

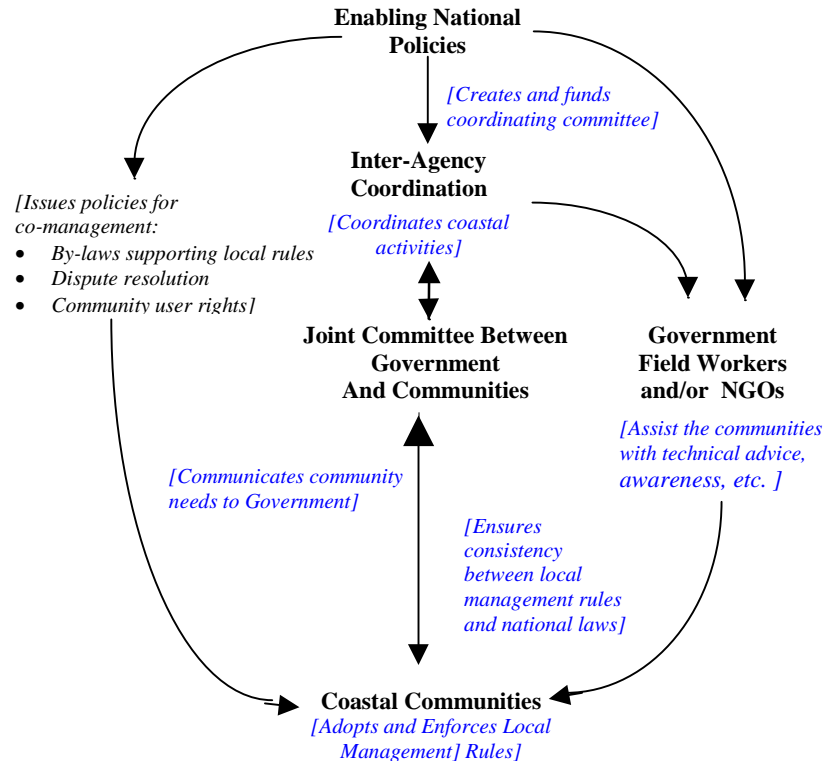
***Develop a network of experts.*** Some of the advice that coastal communities request is highly technical—how to prevent a particular seaweed disease, for example. Field workers need access to a network of specialists who can provide quick responses to these requests and keep them informed of the latest developments. The Secretariat of the Pacific Community could

play a major role in managing such a network by connecting field workers with regional experts through electronic mail.

**Strengthen local committees.** To the extent possible, there should be a single point of entry for communities seeking external assistance in coastal management. Some examples of local committees of this type are starting to emerge in the region. In the Marshall Islands, the Environmental Protection Agency is working with island governments—in which traditional leaders are represented—to develop coastal management plans. In the Federated States of Micronesia, joint committees made up of community representatives and state governments are starting to address the management of coastal resources. And in Samoa, fisheries extension workers conduct regular meetings with the village-level fisheries management advisory committees (box 1). Some committees—as in the district of Safata, Samoa—are using their increased lobbying power over government agencies to address wider development issues than those for which they were originally formed.

These local committees differ considerably from country to country, but share three major characteristics. First, they rely on local decision-making processes and institutions. Second, they tend to establish a direct communication link between communities and *local* (provincial or state) governments, which are typically more multi-sectoral than national agencies. Third, the committees were generally started through a donor-funded program—although in some cases their operation was later absorbed by state or national budgets.

**Figure 7. The Institutional Setting for Co-Management**



### Coordinating Activities across Sectors

Poor coordination and overlapping mandates are chronic problems for many Pacific Island governments. Sand mining licenses are issued with little consultation with environmental agencies, and coastal infrastructure is often built without assessing its environmental impact. For co-management to be successful, intersectoral coordination among government agencies responsible for coastal areas must be improved. Coordination could take place through an interagency coordination committee, or through a similar forum to that where communities, government and NGOs interact (the Joint Committees shown in figure 7).

Several Pacific Island countries have taken steps to improve intersectoral coordination. In Vanuatu, the managers of the Department of Economic and Social Development and the Department of Fisheries hold weekly meetings to discuss coordination. In Palau, a task force was created to draft the national tuna management plan. The task force, which met weekly, included representatives from environment, marine resources, foreign affairs, tourism, and labor departments, the Attorney General's office, NGOs, and the Association of Governors. In Samoa, the Director of Environment plans to create an interagency committee to address environmental management. One of the ideas proposed is that staff from non-environmental agencies, such as public works, be allowed to represent Samoa at regional environmental meetings. The hope is that this will help broaden national support for environmental management.

Many of these incipient efforts have been spurred by two recent regional initiatives: the Biodiversity Strategy Action Plan, coordinated by the South Pacific Regional Environmental Committee (SPREP), and the Tuna Management Plans, promoted by the Forum Fisheries Agency (FFA). The initial funds allocated to these committees provided the impetus for their

operation, and allowed them to start addressing coordination issues outside of the original mandate with which they were created.

This reliance on external funding is a major concern for these emerging initiatives. As funding runs out, some committees may cease to operate. It is essential that governments in the region recognize the importance of these processes and provide funding for their continued operation.

Co-management does not require a large allocation of public expenditures. The Samoa Fisheries Extension Program, for example, operates at an average annual budget of about US\$81,000 for on-going assistance to about 60 villages and extension of the program to 10 new villages per year (Legislative Assembly of Samoa 1999; Kallie 1999). In Kiribati the intersectoral marine and fisheries surveys cost an average of US\$2,300-\$5,000 per island (Johnny Kirata, personal communication, April 2000). In the Marshall Islands, the cost of the UNDP-funded coastal management plan for the Majuro atoll totaled US\$367,000 for four years of operation (UNDP 1999). Compared with the potential costs of coastal erosion or the loss of traditional fisheries, these investments are well justified.