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but the desire for better lives—materially, culturally, and spiritually—
is universal.*



TURNING NATURAL ASSETS INTO WEALTH

In *World Resources 2005* we have argued that environmental income is the wealth of the poor, with the potential to provide not just subsistence but a path out of poverty if the right governance conditions prevail. In many communities, this argument is borne out every day, in on-the-ground, village-level experience.

The five case studies in this chapter come from far-flung parts of the world—communities in different physical environments and with different histories and cultural values. In each case, a poor rural community shows us how it has learned to restore and manage its local ecosystems for greater production, and how it has turned these natural assets into higher household income. But the heart of these stories is how communities have tried to meet the challenge of democratic governance. These cases are testaments to the difficulty and rewards of pursuing community-based natural resource management that is inclusive of the poor. Finally, these studies remind us that each situation faced by the rural poor is unique, but that the desire for better lives—materially, culturally, and spiritually—is universal.

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NATURE IN LOCAL HANDS

The Case for Namibia's Conservancies

WHEN NAMIBIA GAINED INDEPENDENCE IN 1990, TEENAGER PASCOLENA FLORRY WAS herding goats in the country's dry, desolate northern savannah. Her job, unpaid and dangerous, was to protect her parents' livestock from preying jackals and leopards. She saw wildlife as the enemy, and many of the other indigenous inhabitants of Namibia's rural communal lands shared her view. Wildlife poaching was commonplace. Fifteen years later, 31-year-old Pascolena's life and outlook are very different. She has built a previously undreamed-of career in tourism and is the first black Namibian to be appointed manager of a guest lodge. Her village, and hundreds of others, have directly benefited from government efforts to devolve

wildlife management and tourism development on communal lands to conservancies run by indigenous peoples. "Now we see the wildlife as our way of creating jobs and opportunities as the tourism industry grows," she says. "The future is better with wildlife around, not only for jobs, but also for the environment" (Florry 2004).

Namibia's establishment of conservancies is among the most successful efforts by developing nations to decentralize natural resource management and simultaneously combat poverty. In fact, it is one of the largest-scale demonstrations of so-called "community-based natural resource management" (CBNRM) and the state-sanctioned empowerment of local communities. Most conservancies are run by elected committees of local people, to whom the government devolves user rights over wildlife within the conservancy boundaries. Technical assistance in managing the conservancy is provided by government officials and local and international nongovernmental organizations (NGOs). In late 2004, 31 conservancies were operating on 7.8 million hectares of desert, savannah, and woodlands occupied by 98,000 people. Fifty more were in development (WWF and Rossing Foundation 2004:iv).

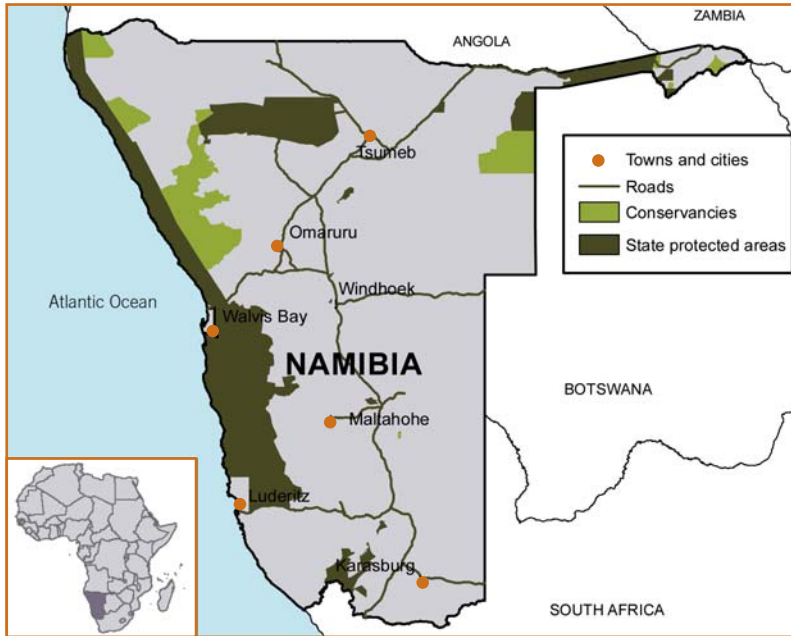
Still in their infancy, Namibia's conservancies have their critics and remain to date imperfect vehicles of local democracy and poverty alleviation. Their active membership can be limited,

for example, and wildlife user rights are vested in committees, not directly in village households. Yet they have already delivered clear benefits for both wildlife and people. Zebra, oryx, kudu, and springbok populations are rebounding in many locations, and cash, jobs, and game meat are flowing to communities. Less tangible but equally important gains include the strengthening of local institutions and governance, women's empowerment, and greater community cohesion.

A New Idea for Wildlife Management

Namibia is a strikingly beautiful country of desert dunes, woodland savannah, open plains, and river valleys. Its small but growing population of 1.8 million people is highly dependent on natural resources for food and livelihoods. Large areas, primarily in the wildlife-rich plains of the north, are communally managed by more than a dozen different ethnic tribes.

In the apartheid era, when Namibia was governed by South Africa, game animals were declared protected, state-owned assets—a policy that discouraged those who inhabited communal areas from joining in conservation efforts (WWF and Rossing Foundation 2004:29). By the early 1980s ecosystems were rapidly deteriorating in the north, with rampant poaching



of elephant ivory and rhino horn and severe over-use of drought-prone land. Populations of Namibia's world-renowned wildlife, including the desert elephant, endangered black rhino, zebra, lion, impala, and oryx, plummeted.

In the mid-1980s an innovative anti-poaching program developed by Namibian conservationist Garth Owen-Smith provided an early template for community-based conservation. He won the trust of traditional leaders in the Kunene region, who agreed to appoint local people as community game guards and work with local NGOs to promote an increased sense of stewardship over wildlife (Long 2001:6). Meanwhile, Namibia's Nature Conservation Department (now the Ministry of Environment and Tourism, or MET) had devolved wildlife user rights to white-owned freehold farms. Private farm owners were allowed to sustainably utilize animals for game meat, trophy hunting, and tourism (Weaver 2004).

Following independence, these two models formed the basis of government action to extend the same kinds of use rights that farm owners had enjoyed to those who lived on communal lands. The Nature Conservation Act of 1996 enabled the establishment of conservancies—legally gazetted areas within the state's communal lands—through Namibia's Community Based Natural Resource Management Programme. Within the communal areas the state devolved limited wildlife rights to conservancy committees. These included rights to the hunting, capture, culling, and sale of "hunnable game" (oryx, springbok, kudu, warthog, buffalo, and bushpig) and the right to apply to MET for permits to use quotas of protected game for trophy hunting (Long 2004:33).

To qualify, communities applying had to define the conservancy's boundary, elect a representative conservancy committee, negotiate a legal constitution, prove the committee's ability to manage funds, and produce an acceptable plan for equitable distribution of wildlife-related benefits (Long 2004:33).

Once approved, registered conservancies acquire the rights to a sustainable wildlife quota set by the ministry. The animals can either be sold to trophy hunting companies or hunted and consumed by the community. As legal entities, conservancies can also enter into contracts with private-sector tourism operators.

The first four conservancies were legally recognized in 1998. By October 2004, there were 31, with 31,000 registered members spread across six geographic regions. Conservancy committees had also set up 18 joint-venture agreements with private safari hunting and tour operators (WWF and Rossing Foundation 2004:iv)

This rapid expansion can be traced to a combination of factors. Government leadership and community enthusiasm were the prime ingredients. But an equally crucial factor was a strong commitment from support organizations. Collectively known as NACSO—the National Association of CBNRM Support

Organisations—these included the University of Namibia and 12 national NGOs. The biggest support NGO, Integrated Rural Development and Nature Conservation (IRDNC), works with 40 conservancies in the wildlife-rich northern regions of Kunene and Caprivi, and is codirected by Garth Owen-Smith and Dr. Margaret Jacobsohn.

"Local people decide themselves if they want to form a conservancy. No pressure is put on anyone," says Dr. Jacobsohn. "Our experience is that a small group of people hear about the opportunities conservancies offer—on the radio, from MET, from neighboring conservancies and so on—and become a 'task force,' driving their community towards conservancy formation" (Jacobsohn 2004).

IN BRIEF: CONSERVANCY BENEFITS FOR PEOPLE

- In 2004, total benefits flowing to conservancy communities, including employment income, cash from tourist fees and leases, and in-kind benefits like game meat, reached N\$14.1 million (US\$2.5 million).
- Conservancy-related activities, including tourism, have provided 547 full-time and 3,250 part-time jobs since 1998.
- Women's livelihoods and status have improved. Women fill almost 3,000 of the new part-time jobs, and more than half the full-time posts. They make up 50 percent of conservancy members, constitute 30 percent of conservancy committee members, and chair three conservancies.
- Seven of the program's 12 support NGOs are now black-led (compared with none in 1995).
- In 2003, conservancies and CBNRM support enterprises contributed an estimated N\$79 million (US\$9.6 million) to Namibia's Net National Income, and this contribution is expected to rise rapidly in the years ahead.

Source: WWF and Rossing Foundation 2004:v-vi

Some communities go it alone, while others seek help from ministry officials or a NACSO organization to hold public meetings, write a constitution, elect management committees, and consult households living within proposed conservancy borders. Not all resident adults need to sign up for a conservancy to be approved, but many community meetings are held in an effort to draw in all stakeholders. “At some point,” says Dr Jacobsohn, “MET officials or the support NGO, if there is one, try to verify on the ground that there is majority support for the conservancy” (Jacobsohn 2004). The entire process takes two to three years (WWF and Rossing Foundation 2004:30).

While the success of Namibia’s conservancies is dependent on local peoples’ enthusiasm and commitment, the movement has also been significantly bankrolled by international donors. By late 2004, the development agencies of the United States, the United Kingdom, Sweden, and the Netherlands, as well as the World Bank and the European Union, had spent N\$464 million on the effort to build a national community-based natural resource management program (WWF and Rossing Foundation 2004:17).

By 2004 this investment had begun to show strong economic results. Five of the longest-running conservancies—Torra, Uibasen, Nyae Nyae, Marienfluss, and Salambala—were financially self-sufficient, and four more are on track to become so in 2005 (WWF and Rossing Foundation 2004:v).

Conservancy Winners: Wildlife, Communities, Women

Wildlife Renaissance

Perhaps the most striking benefits of Namibia’s experiment in people-led natural resource management are to wildlife. Populations of elephant, zebra, oryx, and springbok have risen several fold in many conservancies as poaching and illegal hunting has fallen. Northwest Namibia now boasts the world’s largest free-roaming population of black rhino, while game in the large Nyae Nyae Conservancy have increased six-fold since 1995. In Caprivi’s eastern floodplains, seasonal migrations of game between Botswana and Namibia have resumed for the first time since the early 1970s (WWF and Rossing Foundation 2004:v).

Income and jobs from tourism, lucrative sport hunting of trophy animals, and community hunting quotas have combined to make wildlife more attractive to communities as a managed resource than as a poaching prospect. To attract wildlife, and reduce conflict with humans, improved management techniques have also included new water holes for elephants, protection of domestic and livestock water sources from elephants, and land-use zoning to separate designated wildlife habitat from village and cropping areas (Long 2001:9). In some areas, including the Nyae Nyae, Uukwaluudhi, and

TORRA CONSERVANCY: EQUATOR INITIATIVE 2004 AWARD WINNER

- Namibia’s best-known conservancy is wildlife-rich Torra, which borders the celebrated Skeleton Coast Park. Registered in 1998, it covers 352,000 hectares of plains and rugged mountains in southern Kunene.
- Benefits for the mixed community of Riemvasmakkers, Damaras, Herero, and Owambo, who live in the conservancy include cash payouts, jobs, game meat, and livestock protection measures such as new water points and electric fencing. Elderly residents have also received Christmas packages, including hats, scarves, socks, and blankets (Long 2001:16-17, Baker 2003:2).
- The conservancy currently earns N\$750,000 a year and has taken in enough revenue to cover its own running costs since 2000 (Long et al. 2004:19). In January 2003, Torra’s conservancy committee distributed N\$630 in cash (US\$73) to every conservancy member over 18. This amounted to approximately half of the average annual income in conservancy households (USAID 2005:3).
- Torra Conservancy has generated considerable income—about N\$1.5 million as of October 2003—from ecotourism, trophy hunting, and sales of live game. Ecotourism activities include Damaraland Camp, a luxury lodge staffed entirely by local tribespeople. Damaraland Camp is a joint venture between Torra’s conservancy committee and private tour operator Wilderness Safaris (Vaughan et al. 2004:2).
- In 2004 Torra Conservancy won the Equator Initiative Prize awarded by the United Nations Development Programme for outstanding community projects that reduce poverty through sustainable use of biodiversity.

Salambala Conservancies, game animals have also been successfully reintroduced (Barnes 2004:4).

According to Chris Weaver, director of the Windhoek-based WWF-LIFE conservancy program, which funds several NACSO groups, these gains indicate “a massive shift in the attitudes of communal area residents towards wildlife. The strong embracement of the conservancy movement demonstrates a willingness and desire to incorporate wildlife into rural livelihoods, as they are now viewed as an asset to livelihoods” (Weaver 2004).

Namibia’s conservancies have significantly altered the country’s land-use landscape—to the benefit of biodiversity. Eighteen registered conservancies sit alongside or between national parks or protected game reserves. This facilitates the safe, seasonal movement of wildlife between parks and communal lands and adds an extra 55,192 km² of compatible land use to Namibia’s protected area network of 114,080 km². Conservancies have also successfully adapted their traditional land-use pattern of subsistence activities—such as livestock grazing and dryland farming—to incorporate new tourism opportunities. Many, for example, have set aside large, dedicated wildlife areas for tourism and for sport or community hunting (WWF and Rossing Foundation 2004:iv).



Reducing Poverty, Empowering People

Benefits for human populations are also clear-cut, although they vary among conservancies. Over 95,000 Namibians have received benefits of some kind since 1998, according to the United States Agency for International Development (USAID), a funder and supporter of the conservancy effort (USAID 2005:1). These benefits include jobs, training, game meat, cash dividends, and social benefits such as school improvements or water supply maintenance funded by conservancy revenue (WWF and Rossing Foundation 2004:43).

In 2004 total income from the CBNRM program nationwide reached N\$14.1 million, up from N\$1.1 million in 1998. Of this, N\$7.25 million was distributed across communities in the form of cash dividends and social programs, with the rest earned by individual households through wages from conservancy-related jobs and enterprises. Tourist lodges, camps, guide services, and related businesses such as handicraft production employed 547 locals full-time and 3,250 part-time. In all, 18

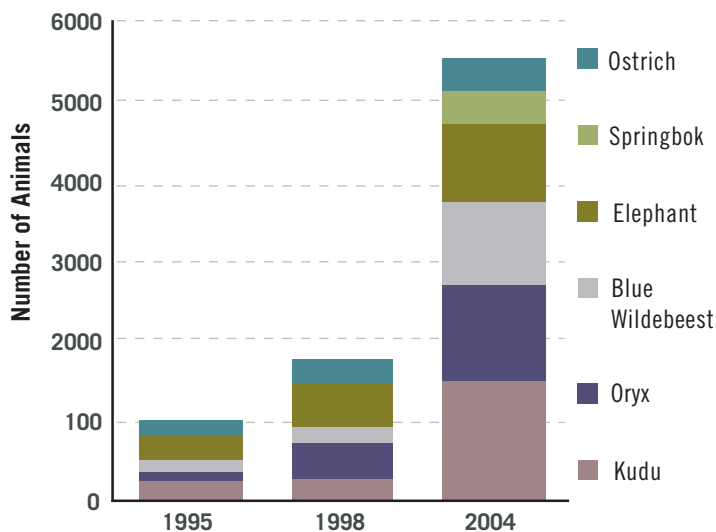
conservancies received substantial cash income, averaging N\$217,046 in 2004 (WWF and Rossing Foundation 2004:v,43).

Community hunting quotas provide another important direct benefit. Game meat distribution has proved highly popular with communities, providing both prized meat and a sense of community autonomy (Long 2001:9).

In each conservancy, once revenues are being generated (often within two years of registration), the membership and committee choose how to spend the conservancy's income and distribute benefits. Some opt for cash payouts to members or households. In January 2003, for example, Torra gave each adult conservancy member the equivalent of US\$73. Others fund services such as school classrooms, new water pumps, or diesel fuel for operating pumps (USAID 2005:3).

A 2002 World Bank study of 1192 households in Caprivi and Kunene found benefits spread equitably across conservancy members. In Kunene the researchers recorded a healthy 29 percent increase in per capita income due to the combined direct and indirect effects of community-based natural resource management, and that did not include non-financial benefits such as bush meat (Bandyopadhyay et al. 2004:16,13). These findings suggest Namibia's conservancies are starting to play a significant role in fighting rural poverty.

FIGURE 1 WILDLIFE RECOVERY IN NYAE NYAE CONSERVANCY



Source: Namibia Ministry of Environment and Tourism (aerial census)

Positive Gender Agenda

Conservancies are also having a major impact on women's empowerment and well-being. By 2004, women made up half of all conservancy members, and three in ten management committee members. They had also captured the majority of new jobs generated, boosting both their income and social status. At luxury Damaraland Camp in Torra Conservancy, for example, over 75 percent of employees are women (Florry 2004).

"These are local people who would never have found jobs anywhere else," says Pascolena Florry, whose own horizons expanded dramatically as she worked her way up from waitressing to camp manager. "The conservancy has given them training and skills and increased



their self esteem and sense of worth.” Before tourism developed, she recalls, opportunities for paid work were almost nonexistent. “I grew up in a small village. The goats were our only income and there was no one to protect them from wild animals, so that is what I used to do. Life is better now. My family has more money, we are able to do more things” (Florry 2004).

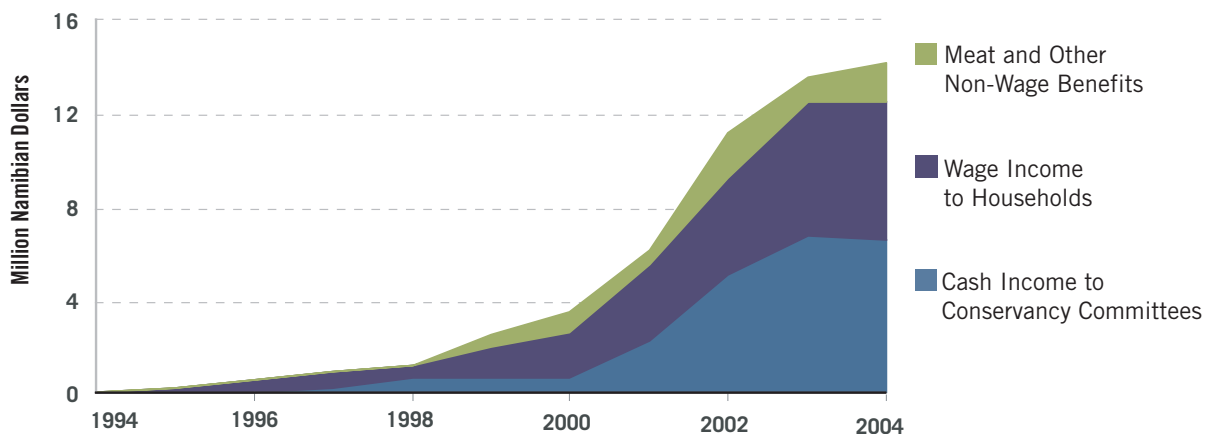
Empowerment

The shift in power to local communities, after decades of centralized power, has also produced intangible benefits. Foremost among these are a greater decision-making role for citizens, a deepened sense of community, and growing pride in wildlife recovery and conservancy success.

The process of managing a new democratic institution has empowered those taking part, and given them new skills. Officials from the NGOs and MET train and mentor newly elected committee members on priority setting, decision-making, and conflict mediation (USAID 2005:5). In high-membership conservancies such as Torra, village households are also very involved in decision-making. “People understand that this is an opportunity that was not there previously. They feel conservancies give them power over how to take care of the animals...and a chance for a better future,” says Paula Adams, Torra’s community liaison officer. “They attend our meetings and tell us they want to build more tourist camps. If something is happening that’s against the conservancy’s interests, they report it. For example, if a farm’s water pipes are damaged by elephants, they tell us, so we can go and fix it” (Adams 2004).

Citizens also come up with solutions and priorities that inform the Torra committee’s actions. When problem animals became an issue, with lions killing livestock, local farmers requested a new, secure breeding station rather than cash compensation. The conservancy is now building one. A 2002 household survey

FIGURE 2 CONSERVANCY BENEFITS, 1994-2004



Source: World Wildlife Fund and Rossing Foundation, 2004.

TABLE 1 CONSERVANCY INCOME BREAKDOWN, 2003

Sources of Cash and In-Kind Income to Conservancies and Their Members, By Percentage	
Community-based tourism enterprises and campsites	36%
Joint venture tourism	27%
Trophy hunting	17%
Thatching grass sales	7%
Crafts sales	4%
Game meat distribution	3%
Game donation	2%
Own-use game	1%
Live game sales	1%
Interest earned	1%
Miscellaneous	1%
	100 %

Source: Barnes 2004: 5

revealed that members “wanted to see a healthy community with healthy people,” says Adams. The conservancy responded by starting HIV/AIDS workshops and distributing leaflets and condoms.

Active members across Namibia’s conservancies also play a hands-on role in natural resource management. They collect and analyze wildlife population data, using a simple, standardized recording system, and conservancy committees apply the findings to management activities. This people-led monitoring has been so successful that it is now being introduced in national parks and protected areas in Zambia, Mozambique, and Botswana (WWF and Rossing Foundation 2004:vi).

Conservancy Failings

Despite their well-documented benefits, however, Namibia’s conservancies remain a work in progress. Three issues, in particular, are raising concerns within the government, donor, and NGO communities. The first is that the ad hoc manner in which some conservancies distribute their benefits does not always favor the poorest households. The second is that limited participation in conservancies is hampering genuine local governance and empowerment. The third is that the recovery of wildlife populations has increased the number of natural predators of the livestock upon which many conservancy households depend. A deeper, more structural problem is the limited nature of local rights, with conservancy residents denied full property or tenure rights. Despite periodic discussion of land reform, ownership of all communal lands is retained by the government, in a holdover from colonial times.

Limits to Poverty Alleviation

Every conservancy must produce a plan for equitably distributing benefits before it is registered by the government. In theory, the Ministry of Environment and Tourism could de-register a conservancy that violated this policy. But in practice, there is no blueprint for what constitutes “equitable” sharing of benefits, leaving conservancies to go their own way. Some specifically target poorer, more vulnerable households; others do not. Some spend revenue on social services such as school equipment or water supply maintenance, others on cash payouts. Some only distribute benefits to registered conservancy members, others to all households.

To promote self-governance, NACSO support organisations encourage communities to set their own priorities. Chris Weaver, WWF-LIFE program director, acknowledges this can create teething problems. “In some cases there has been a push-pull between wealthier households, who own livestock, and will have to give up grazing land for wildlife management, and poorer households who will benefit a lot more from conservancy-generated cash handouts than better-off households.” He insists, however, that communities must run their own affairs if conservancies are to succeed long-term. “We don’t prescribe. We believe the committees should make their own mistakes, learn from them, and adjust the next year” (Weaver 2004).

This laissez faire approach, however, was criticized by an international panel of social scientists that in March 2004 urged Namibia’s government to ensure benefits were targeted to the





poor. On the basis of an intensive three-year study covering eight conservancies, known as the WILD report, they recommended that the Ministry of Environment and Tourism:

- give conservancies strict guidelines on equitable distribution
- encourage them to target benefits to pre-identified groups of poor people
- help committees review whether their existing conservancy membership provided a fair basis for benefit distribution
- adopt a “pro-poor” national tourism policy, focusing on conservancy-based developments that “contribute directly to poverty reduction, enhanced livelihood security, and social empowerment” (Long 2004:xvii).

Limits to Local Governance

A second major challenge facing Namibia’s conservancies is their democratic deficit. Many local people do not register themselves as conservancy members or vote for committee members. Although typically a majority of in-boundary adults join up, the WILD report identified several conservancies with a minority membership. A 2002 survey of a thousand households in seven conservancies found that only 34 percent identified themselves as “conservancy participants” (Bandyopadhyay et al. 2004:15).

In addition, the 1996 legislation originating conservancies vests legal ownership rights over wildlife in management committees, not directly in the conservancy membership. Conservancy committees are elected by the membership and hence are clearly meant to be directly accountable to conservancy members, but there is no legal obligation for this enshrined at the national level (Long 2004:35).

Limited participation in a conservancy’s membership and activities can contribute to other problems, such as slow distri-

bution of cash and meat to resident families. Even flagship Torra Conservancy did not make any cash payouts to members until January 2003, three years after it became financially independent (Baker 2003:1).

In some conservancies there is also evidence that more highly educated community members disproportionately control management committees. Field researchers for the WILD project, working in eight conservancies in Caprivi and Kunene, also found that people employed in conservancy-based tourism tended to come from wealthier local families (Long 2004:17). On the other hand, the 2002 World Bank research team found no evidence that social elites were capturing a bigger slice of benefits than other community members. “In Caprivi there was some evidence that poor households benefited more than richer ones, whereas in Kunene we found that benefit distribution was poverty-neutral, with everybody benefiting equally,” said Kirk Hamilton, lead economist at the World Bank Environment Department (Hamilton 2004).

According to Margaret Jacobsohn, high-handed behavior by wealthier residents has mainly been a problem during conservancy development. “In one area, an elite group blocked a conservancy for two years until a locally constituted Dispute Resolution Committee helped resolve the situation. A conservancy has since been registered, with a democratically elected committee that represents the whole community.” While acknowledging that the conservancy movement is “a long way from perfect democracy,” Jacobsohn remains optimistic. “The technical support providers—NGOs and government—are constantly adjusting to ensure that as much power as possible is devolved to the local, household level. It’s an evolutionary process, improving year by year” (Jacobsohn 2004).

Some government officials have argued that every adult resident should automatically receive conservancy membership. But NACSO organizations have resisted, arguing that community-based management will only work if citizens accept

responsibilities as well as rights (Jacobsohn 2004). Nevertheless, expert criticism of the limits to community participation is growing. The 2004 WILD report, submitted to the Ministry of Environment and Tourism, argued that higher membership levels were essential to increase pressure on committees to act competently, distribute benefits efficiently and equitably, and take actions approved by a majority of residents.

While praising the conservancies' achievements, the WILD report bluntly concluded that "the extent to which rural people will continue to support conservancies... depends on them gaining a stronger voice in local decision-making. The requirement now is to shift attention to supporting local capacity to address improved participation, and, in so doing, develop a more inclusive approach to planning that specifically addresses issues of livelihood security and diversification at household level, particularly for poorer groups" (Long 2004:9, 12).

Sensitive to such criticisms, NACSO and the Ministry of Environment and Tourism have drawn up plans to strengthen participatory democracy across conservancies. Performance indicators, to help residents and support organisations measure committee performance and hold management committees to account, are also in the works. "Getting more involvement from the community membership and more transparency in how a conservancy operates will be a key focus over the next five years," asserts Chris Weaver. Practical proposals include delegating decision-making down to the village level instead of conservancy committees, increasing information flow by posting regular financial and other bulletins in public locations, and making annual committee meetings more transparent (Weaver 2004).

Wildlife-People Conflict

While tourism based on the attraction of Namibia's majestic wild animals has brought undisputed benefits, the recovery of wildlife populations is not without trade-offs. Livestock in Kunene, and crops in Caprivi, are still the main breadwinners for many conservancy households. Tension is growing in some areas as cattle, goats, and crops succumb in increasing numbers to predators or marauding elephants. In Caprivi, for example, average crop losses equal 20 percent of local households' average annual income. Research suggests that poorer families suffer the most, which undermines the anti-poverty efforts of conservancies. It also encourages illegal, low-level wildlife poaching for food, a problem especially prevalent among poorer households (Long 2004:xxi).

Although the Ministry of Environment and Tourism acknowledges rising human-wildlife conflicts, it has no policy on how institutions should deal with the problem. In 2003 IRDNC (a support NGO) took action by successfully piloting a compensation scheme in four Kunene and Caprivi conservancies for households that had lost livestock to predators. In 2005 the compensation schemes will be extended to cover elephant-induced crop damage in some conservancies (Jacobsohn 2004).



A related problem, likely to get more urgent as wildlife numbers rise, is lack of land tenure. Unlike white-owned freehold farms, conservancies cannot bar outsiders from bringing their animals to graze on communal lands within their boundaries, even though this causes pressure on resources used by local wildlife and livestock. In Torra, for example, the conservancy committee zoned land for wildlife and tourism use and developed internal rules to regulate grazing access on this land. But livestock farmers from outside the conservancy simply ignored these rules, and continued to assert their open access grazing rights (Long 2004:148). The conservancy's lack of full property rights prevents it from legally excluding them.

Practice Makes Perfect: Sustaining and Reforming Namibia's Conservancies

The very success of Namibia's community-based natural resource management program is producing enormous, some say unrealistic, expectations for the future. With an estimated 100,000 people actively supporting the registration of 40-50 new conservancies, one in every nine Namibians may soon live in a communal area conservancy (WWF and Rossing Foundation 2004:iv). Namibia's government is anxious to use this expanding network of citizen-led local governance institutions as a broad vehicle for rural development in a poor nation.

In 2001 new legislation made provision for community-run forests, managed by community bodies (including conservancies) with ownership rights over forest products. In 2003 new freshwater fisheries laws allowed community institutions, including conservancies, to assume management of local fisheries (WWF and Rossing Foundation 2004:13). The government is also encouraging conservancies to diversify into social programs, including HIV/AIDS awareness and prevention.

But some NGOs caution that conservancies should not take on responsibility for implementing government programs or move too far from their original conservation objectives. As Chris Weaver sees it, “Conservancies were developed as a conservation initiative with spin-off benefits for development. They are contributing significantly to national income, but they are not going to solve all the poverty or rural development problems of Namibia” (Weaver 2004).

Conservancies also remain far from self-sufficient, with most still dependent on donor support. Of the more than 40 established and fledgling conservancies that IRDNC assists, only two are self-financing, although a majority are expected to be independent or earning significant income by 2010. While joint-venture tourism and sport hunting offer the best revenue-generating opportunities, they still provide a minority of jobs in most conservancies. Experts see a strong need to diversify livelihood options, especially among poor families, to avoid over-reliance on tourist income (WWF and Rossing Foundation 2004:44-45).

At the political level, pressure is also growing on government ministers to institute land reforms that will increase the security and long-term viability of conservancies by granting tenure to residents of communal lands. The WILD report recommended to Namibia’s government that securing community tenure over conservancies was “a necessary step in strengthening conservancies’ rights and authority with respect to resource use and allocation.” Such rights were needed, the authors argued, to give conservancy committees legal grounds for excluding outside livestock herds which were depleting conservancy resources and revenues (Long 2004:157). New regional Communal Land Boards, to be established under the Communal Lands Act 2003, may provide



LEARNING FROM NAMIBIA'S CONSERVANCIES

Decentralization Can Bring Benefits. Devolving power over wildlife management to the local level can increase the local stake in good management, bringing benefits to both wildlife and local economies. The success of Namibia’s decentralization effort was aided by grounding it firmly in law—the 1996 Nature Conservation Act—and through the active promotion by government, donors, and NGOs.

Conservation Benefits Follow Livelihood Benefits. Conservancies gain broad support and community compliance when they demonstrate a connection with greater income. Benefits to wildlife, in the form of reduced poaching, follow quickly. A combination of short-term community benefits such as bush meat and cash payouts may be necessary as longer term development gains such as better infrastructure and a more diverse local economy slowly manifest.

Targeting the Poor Takes Work. Conservancies have a fairly good record in terms of the equity of benefits distribution. But many need help in more directly targeting benefits to the poor. Performance indicators and distribution guidelines for conservancy committees may help.

Tenure Remains a Challenge. Devolution of user rights to wildlife may not be enough to sustainably manage conservancies over the long term or to maximize poverty reduction. Granting conservancies fuller tenure rights would give them the ability to better control access to conservancy lands, more effectively manage grazing pressures, and reduce conflicts.

Direct Accountability Needed. Conservancies can capitalize on their proven record and increase their broadbased support by making local conservancy committees more fully accountable and working to give conservancy members a stronger voice in decisions. Increasing the proportion of local community members that identify themselves as conservancy members is one important element of long-term viability.

Mature Institutions Take Time. Building the technical and governing capacity of local institutions such as conservancy committees takes time and requires steady financial and technical support. Local NGOs specially constituted to play this support role can play a vital part in institution-building, and in helping to construct and execute a workable business model for conservancy enterprises.

a vehicle for land reform, as both conservancies and traditional authorities will appoint representatives alongside those of various government departments. The boards will be responsible for granting land-use leases, but their full responsibilities and the influence that conservancies may wield on them are yet to become clear (Long 2004:157).

To address all these challenges and expectations, the Ministry of Environment and Tourism, USAID, and WWF launched a new five-year plan in October 2004 that aims to make most conservancies self-sustaining, with a broader rural development role, by 2009. Chris Weaver summarizes the approach as “an expanded conservation strategy with add-on benefits for development.” Conservancies will be encouraged to expand beyond tourism and wildlife use into forestry, fisheries,



water management, and sustainable farming, and to use the income gained to invest in other enterprises such as small support businesses.

In six short years, Namibia's conservancies have developed from a hopeful experiment to the cornerstone of government plans to reform the management of the country's unique natural resource base. For local support NGOs, however, the central focus for the next five years will be on improving conservancy governance and participation.

On the front line in Kunene, Dr. Jacobsohn is clear that financial self-sufficiency alone will not guarantee long-term success for the conservancy movement. "Earning income is not the hardest part. It is learning to run a local institution effectively and efficiently that is the biggest challenge. We are requiring remote rural dwellers, the majority of whom are subsistence farmers, to manage not just wildlife, but also staff, an office, and a vehicle. We are asking them to stick to a constitution, be transparent, communicate with members—do everything that managing a democratic institution involves. These are the conditions towards which NGOs are aiming so that we are no longer required." 🍌





MORE WATER, MORE WEALTH In Darewadi Village

IN DROUGHT-PLAGUED MAHARASHTRA, GOOD WATER MANAGEMENT IS A MATTER OF LIFE and death. Small-scale farmers in the Indian state are dependent on infrequent rainfall to maintain their fields, livestock, and forest-based livelihoods. During the dry season, drinking water is so scarce that supplies are trucked into thousands of villages (D'Souza and Lobo 2004:2). In recent years, development initiatives in the region have focused on village-led watershed management activities, aimed at conserving natural resources and improving livelihoods. Among these is the Indo-German Watershed Development Program (IGWDP),

which has funded 145 projects in 24 districts, successfully mobilizing villagers to regenerate land through tree-planting and water and soil conservation (D'Souza and Lobo 2004:3).

One of the program's more dramatic success stories is Darewadi village, in Ahmednagar, Maharashtra's most drought-prone district. As recently as 1996, the main village and its twelve hamlets were on the verge of desertification. Scarce rainfall supported only 3-4 months of agricultural activity a year, forcing villagers to migrate in search of seasonal work for the rest of the year. Today, farm-based employment is available 9-10 months of the year, and agricultural wages have doubled. More crop varieties are now grown due to extensive new irrigation, and the value of cultivated land has quadrupled (WOTR 2002:4).

Before the watershed was regenerated, Darewadi's 921 residents depended on water deliveries from a tanker truck from April to July. Yet in summer 2004 the village was tanker-free, despite receiving only 350 mm of rain in 2003—100 mm less than its annual average (WOTR 2005).

Inhabitants have also gained in less tangible ways from the self-organization that has driven their village's revival. They have learned new skills and found new social cohesion. The Darewadi project and similar experiments are not perfect: the

role of women can be limited, and landless people may not share equally in the benefits. Nevertheless, Darewadi's undoubted success provides one encouraging model for people-led sustainable development in arid regions, where many of the world's poor live.

Pioneering People-Led Watershed Management

In the 1980's, the Indian government shifted its approach to watershed management in drought-afflicted rural areas. Traditional bureaucratic, top-down projects had often failed due to lack of consultation with or buy-in from local people. In an effort to increase success rates, the government began to encourage programs based on smaller, people-led projects. Among these was the Indo-German Watershed Development Program, launched in 1992.

Co-founded by Father Hermann Bacher, a Jesuit priest, the IGWDP is funded by the German government through the German Agency for Technical Cooperation and the German Bank for Reconstruction. It is implemented by an independent, state-wide NGO, the Watershed Organization Trust (WOTR), in

partnership with the Indian government’s National Bank for Agriculture and Rural Development (NABARD).

The program funds village-based, participatory watershed development projects, with communities chosen for their low rainfall, geographical position—generally within primary water catchment areas—and social composition. Villages where a few families dominate land ownership are disqualified on the grounds that such power imbalances would deter consensus on developing local land to the benefit of all. To qualify, villages must agree to temporary bans on tree-cutting and grazing on land designated for regeneration. They must also contribute free labor—a common rural practice known as *shramdan*—to cover at least 15-20 percent of project costs (D’Souza and Lobo 2004:4; Lobo and D’Souza 2003:9).

Capacity-building is the program’s first priority. In each community, a Village Watershed Committee of local residents is nominated, usually by the village assembly, to make and implement decisions. Villagers also work on a pilot project, learning water and soil conservation techniques, with WOTR or another local NGO providing training, technical organizational, and financial support. After 12 to 18 months, NABARD assumes project oversight, funding scaled-up watershed activities designed by and delivered through the village committee, again with local NGO support (Lobo and D’Souza 2003:6, 15).

By late 2004, the Indo-German Watershed Development Program had spent US\$21.9 million funding projects on 165,439 hectares of land, occupied by some 190,000 people (D’Souza and Lobo 2004:3). After 12 years of first-hand experience across Maharashtra, WOTR’s co-founder and executive director, Crispino Lobo, summarizes village-based watershed development as “a proven strategy for poverty reduction, augmentation of water resources, livelihood diversification, enhancing well-being, building social capital, and widening the decision-making and opportunity space for women” (D’Souza and Lobo 2004:2).

A Path Out of Poverty

Many of these benefits are apparent in Darewadi, a formerly impoverished and despairing community that now generates year-round employment for a majority of inhabitants.

Back in 1995, with farm work in short supply, Darewadi’s 131 households were losing many men to far-flung seasonal work as sugarcane cutters or building laborers. Those who remained often herded sheep, further depleting grazing lands and draining the low water table. The village and its satellite hamlets were surrounded by barren hills, and women walked miles to fetch water and fuelwood. When Father Bacher visited at that time, he concluded that if rejuvenation were possible in Darewadi, it would be possible in any watershed (WOTR 2002:1).

The Darewadi watershed covers 1,535 hectares. Two-thirds is privately owned; the rest is made up of common lands owned by the Maharashtra state government’s Forest Department



(WOTR 2002:1). WOTR’s first task was to overcome the mistrust of many villagers, especially sheep and goat farmers, including many poorer families, who feared that grazing bans on regenerating land would cut down the available fodder, harming their already fragile livelihoods. Through a series of village meetings, the NGO explained how the temporary bans would allow trees to grow, eventually yielding more fodder and more water for crops.

A compromise was eventually agreed in the village assembly, or *gram sabha*, whereby land closure would proceed in phases as the conservation and planting work progressed and any violators of the ban would pay a fine to the community. It was not an easy compromise to reach, but the villagers were encouraged by the prospect of increased income within a comparatively short period. In addition, most livestock owners are also farmers, and therefore not solely dependent on grazing for income. Another inducement to try the restoration plan came in the form of technical assistance from WOTR, which offered loans and training to livestock owners who wanted to switch from sheep and goats to high-yield milk cows (Lobo 2005c).

Once the villagers had accepted the restoration scheme, WOTR helped them take the necessary official steps to gain state permission and structure the project’s management. First they helped the community negotiate a Joint Forest Management agreement with the state Forest Department, legally granting local people the right to work on the state-owned common lands surrounding Darewadi and to own the agricultural produce grown on these lands (Lobo 2005c). Without attention to this question of land use and tenure on state forest lands, a regeneration plan covering the entire watershed would not have been possible, nor would it have been economically attractive enough to gain village support.



Next, the *gram sabha* nominated 24 people to the Village Watershed Committee, which became the registered project authority, legally responsible for managing funds and overseeing development activities. The watershed committee included representatives from all social groups—including landless people and seven women—and from every corner of the scattered community (WOTR 2002:2-3). This was essential, according to Lobo, to create an effective, trusted community institution that could rule by consensus. “What makes our participatory approach work...is involving all stakeholders in arriving at negotiated outcomes that are beneficial or acceptable to all”(Lobo 2005a).

Members of the Village Watershed Committee were assigned tasks by the village assembly. Responsibilities included monitoring grazing bans, organizing paid and voluntary laborers, supervising work and wages, maintaining records, and imposing fines on villagers who broke agreed project rules. Committee members were unpaid, trained by WOTR, and held

accountable for fulfilling their duties by the *gram sabha* (Lobo and D’Souza 2003:14-15). They also negotiated with local stakeholders, including the landless, on the specific areas of land to be set aside for phased grazing bans and regeneration. When conflicts arose, they were settled by the committee, sometimes assisted by Forest Department officials, with WOTR taking a back seat (Lobo 2005c).

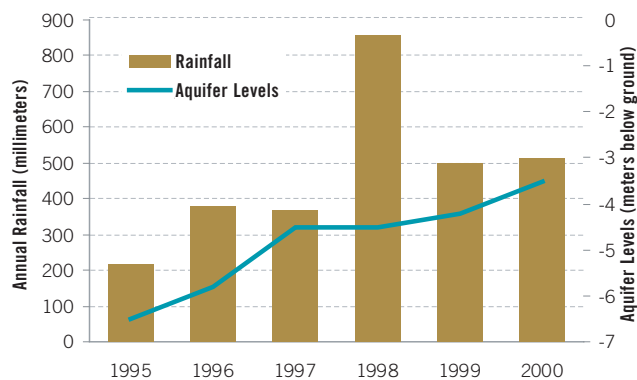
The Rewards of Regeneration

Five years of regeneration activities followed, including tree and grassland planting and sustainable crop cultivation. Soil and water conservation measures to nurture the regenerating land included the construction of simple water harvesting and irrigation systems such as hillside contour trenches and rainwater-harvesting dams.

The work was carried out by villagers themselves, following training by WOTR field staff in simple conservation-based agricultural practices and management techniques such as land measurement and record-keeping. Wherever possible, the NGO worked with landowning couples, to boost local women’s confidence and involvement in decision-making (D’Souza and Lobo 2004:5). Darewadi landowners were also mentored by farmers who had already successfully implemented watershed conservation measures in neighboring villages. Villagers donated 17 percent of total labor costs and earned wages for additional project-related work over and above their *shramdan* (WOTR 2002:2).

The Darewadi project’s costs were substantial, totaling 8.7 million rupees when the value of voluntary labor is factored in (WOTR 2002:2). By 2001 the results were apparent. Barren hills and common lands covering 395 hectares had been planted with trees and grasses, with a 65 percent survival rate (D’Souza and Lobo 2004:6). Land under irrigation increased from 197 to 342 hectares, with maize, wheat, and vegetables among successful new crops. Grass fodder for livestock increased 170 percent as a result of the soil and

FIGURE 1 ANNUAL RAINFALL AND AQUIFER LEVELS, DAREWADI WATERSHED, 1995-2000



Source: Watershed Organization Trust 2005.



TABLE 1 MORE WATER IN DAREWADI

Impact Indicator	Before Watershed Development, 1996	After Watershed Development, 2001	January 2005
Months requiring delivery of drinking water by tanker truck	February to June	Tanker free	Tanker free
Average depth of water table below ground level	6.5 m	3.5 m	3.1 m
Number of active wells	23	63	67
Electric motors for pumping water	6	52	65
Land under irrigation	197 ha	342 ha	381 ha

Source: Watershed Organization Trust 2005.

water conservation measures (WOTR 2005). (See Figure 1 and Tables 1 and 2.)

In response to the grazing bans, many poorer households had sold their sheep and goats. Since the restrictions were lifted in 2001, however, livestock numbers have rebounded. More plentiful fodder has also enabled villagers to raise more valuable hybrid cows with high milk production. Higher-yield crops, milk sales, increased wages, and more days of available work have resulted in a fivefold hike in the village’s agricultural income (see Figure 2). Signs of increased household wealth and well-being include the arrival of kitchen gardens and individual latrines, as well as televisions, bicycles, and motorcycles.

“Our village has changed totally,” says Ramaji B. Phad, a Darewadi sheep owner. “The hills are now covered with trees which we planted at the beginning. The water in wells and the ground water level have increased. The average income of the farmer has increased. People are now able to eat good food like wheat, rice, and dhal” (WOTR 2002:5).

Despite three years of drought since IGWDP funding ended in 2001, the project’s benefits are continuing, testifying to the effectiveness of the regeneration and the Village Watershed Committee. The local water table has continued to rise, as have supplies of livestock fodder and the volume of land under irrigation. The availability of agricultural work and wage levels have held steady. In early 2005, 11 villagers acquired telephones (Lobo 2005c).

The transition to self-sufficiency in 2001 was eased by the IGWDP returning to the community the cash equivalent of 50 percent of the value of the village’s voluntary labor. The community deposited the money in a maintenance fund for watershed management activities. Contributions from villagers and penalties charged for rule-breaking are also used to top up the fund, and WOTR continues to provide village businesses with microfinance support (Lobo 2005b).

Perhaps most important for the long term are the links that villagers have built up with local government officials. With a new sense of confidence based on their record of

achievement, they can now leverage these contacts to seek more development funding. “Before we would not talk in front of outsiders,” explains Chimaji Kondaji, deputy chairman of Darewadi’s Village Watershed Committee. “[Since the project] we get good cooperation from government departments, who we now approach with ease” (Lobo 2005b).

Improving Women’s Lot

The increased availability of wells, subsistence crops, and fodder has reduced women’s household labor significantly in Darewadi. Women are typically the chief providers of their families’ water, food, fodder, and fuel needs. Women also earned cash as project laborers and have benefited from drudgery-reducing assets made possible by increased incomes, such as kitchen gardens and household toilets (Lobo and D’Souza 2003:16).

However, as work on watershed activities is almost year-round, compared with the seasonal nature of farming duties, many women now work longer hours than before the project. According to Crispino Lobo, “women accept this load because it gives them additional income, which enables them to send their children to school.” Becoming breadwinners, he says, also “enhances their status at home.”

Empowering women, however, has proved more difficult than improving their material well-being. Faced with traditional rural attitudes about women’s subservient roles, the Watershed Organization Trust has taken a soft approach. While strongly urging village assemblies to elect women to Village Watershed Committees, they have not insisted on a 50:50 ratio (D’Souza and Lobo 2004:11). As a result, women generally number no more than one-third of Watershed Committee members in IGWDP projects (Lobo 2005a).

To encourage greater self-confidence and independence, WOTR also trains village women in record-keeping and organizational skills, and encourages them to form savings and credit groups. Darewadi village and its surrounding hamlets

TABLE 2 DAREWADI WATERSHED RESTORATION BENEFITS

Benefit	Before Watershed Development, 1996	After Watershed Development, 2001	January 2005
Cropped area:			
■ Kharif	490 ha	616 ha	620 ha
■ Rabi (winter)	310 ha	417 ha	425 ha
■ Rabi (summer)	0 ha	38 ha	40 ha
Main crops grown	Bajra (pearl millet)	Bajra, onion, tomato, wheat, jowar (sorghum), maize, vegetables	Bajra, onion, tomato, wheat, jowar, maize, vegetables
Waste land	167 ha	17 ha	15 ha
Livestock:			
■ Crossbred cows	14	113	97
■ Indigenous cows	170	101	85
■ Sheep	1017	434	610
■ Goats	306	132	215
Summer milk production	Insignificant	788 liter/day	550 liter/day
Fodder availability	1054 tons/year	2848 tons/year	3265 tons/year
Agricultural employment	3-4 months/year	9-10 months/year	9-10 months/year
Agricultural wage rate	Rs. 20-30/day	Rs. 40-50/day	Rs. 40-50/day
Value of cropped land	15,000 Rs/acre	65,000 Rs/acre	65,000 Rs/acre
Value of waste land	4,000 Rs/acre	18,000 Rs/acre	20,000 Rs/acre
Biogas units	0	2	2
Gas cylinders	0	32	32
Smokeless chulhas (stoves)	0	54	54
Kitchen gardens	0	30	30
Individual latrines	0	50	50
Televisions	3	76	76
Bicycles	2	122	122
Motorcycles	0	42	45
Tractors	0	2	1

Source: WOTR 2005

now boast eleven such groups as well as an umbrella women's organization, the Samyukta Mahila Samiti (WOTR 2002:3). The women give each other small loans to support basic needs. Bigger loans—for example, to launch Darewadi's women-run dairy—are available through microfinance arranged by WOTR (Lobo and D'Souza 2003:20).

Mixed Blessings for the Poorest

A community's poorest families often receive limited benefits from watershed development, despite their greater need. The landless are unable to take advantage of improved soil and water conditions to plant more crops and vegetables. Those who own only a few sheep or goats may suffer disproportionately from grazing bans imposed on common lands. At the other end of the social scale, by the WOTR's own admission,

farmers with the most land have benefited disproportionately in Darewadi and other IGWDP project villages from new consumer items such as televisions, radios, motorcycles, and cooking utensils (D’Souza and Lobo 2004:10).

On the positive side, work on watershed projects can provide sustained wages for poor villagers with no livestock or crops. Families that earn enough to save can then lease, or even buy, small plots of arable land and pull themselves one rung up the economic ladder (Lobo 2005a).

In Darewadi, new agricultural work opportunities and the doubling of hourly wages for such labor have proven a big boon for poor families (Lobo 2005c). (See Table 1.) In the mid-1990s, two-thirds of households migrated each year in search of livelihoods. Today, people who had moved away are returning. In fact, additional farm laborers are now being drawn from nearby villages to work the new acres of cultivable land (D’Souza and Lobo 2004:11).

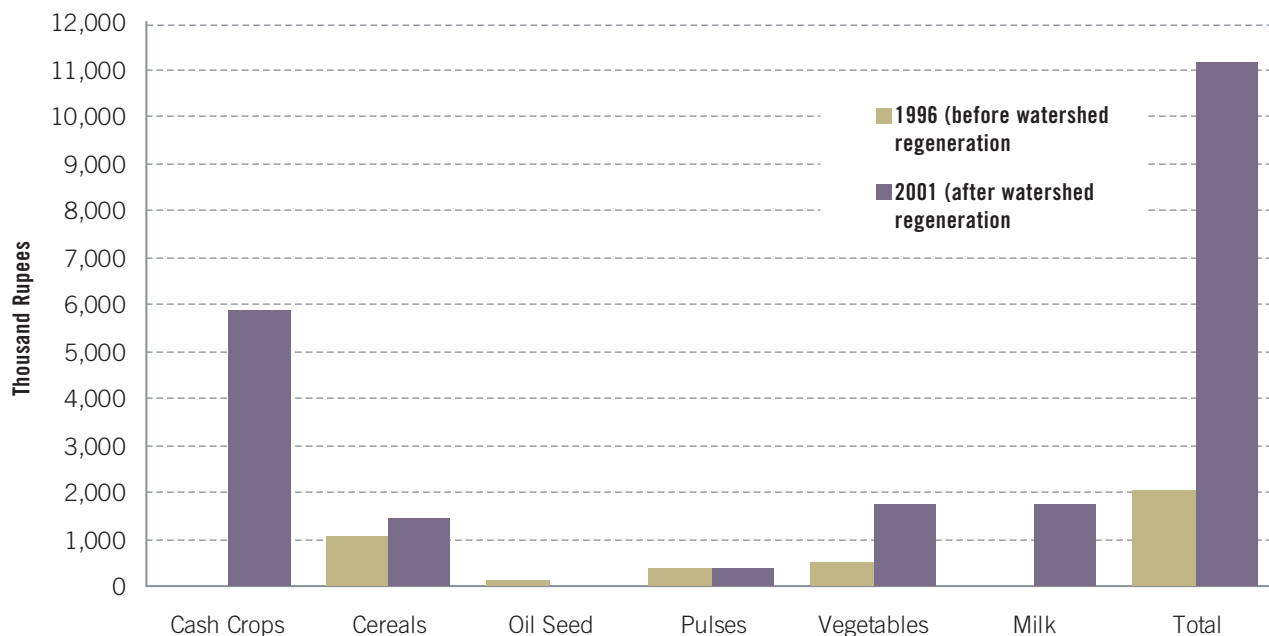
In another positive sign for poorer families, sheep and goat ownership has increased since 2001 as villagers benefit from the removal of grazing bans and increased fodder supplies (Lobo 2005c). “People do not have to go outside looking for work now and do not have to starve,” says Mrs. Zumbarbai M. Borade, a landless Darewadi resident. “The poor have benefited a lot from this project” (WOTR 2002:6).

The Challenge of Equity

Nevertheless, Darewadi provides a microcosm of the difficulties facing Indian authorities and NGOs in trying to ensure



FIGURE 2 AGRICULTURAL INCOME, DAREWADI VILLAGE



Source: Watershed Organization Trust 2005.

that the benefits of development are equally shared. The issue of equity—particularly between landowners and the landless—is perhaps the trickiest problem facing the IGWP and other efforts like it, as they expand their activities across rural India’s drylands.

Dr. John Kerr, of the Department of Community, Agriculture, Recreation and Resource Studies at Michigan State University, led a research team that explored the impact of Indian watershed development projects run by IGWDP and other agencies in the Indian states of Maharashtra and Andhra Pradesh. Published in 2002, their report concluded that “by their nature, area development programs offer benefits to landowners, with landless people benefiting indirectly, either through peripheral program activities or trickle-down effects. In fact, watershed projects can actually make women and landless people worse off by restricting their access to resources that contribute to their livelihoods” (Kerr et al. 2002:xi).

The report, based on surveys conducted before Darewadi began its regeneration program, praised IGWDP projects for combating soil erosion and raising water levels, and for their participatory philosophy. “I was really impressed by the IGWDP’s approach of consensus-based decision making,” recalled Kerr. “Other programs typically require a two-thirds majority and this makes it easy to gang up on poor minorities. The IGWDP works to avoid this” (Kerr 2005). Nevertheless, his report noted that some villagers interviewed had complained of reduced access to common lands for fuel and fodder (Kerr et al. 2002:75).

For his part, Lobo acknowledges that in rural India “the poorest normally do not benefit (at least relative to the better off farmers) from watershed development programs where land holdings are greatly skewed, where social and power relationships are greatly inequitable and discriminatory, and where their concerns, interests, and involvement are ignored in project implementation.” Such circumstances, he emphasizes, do not apply to Darewadi (Lobo 2005b).

Addressing these tricky questions of equity and land distribution will require actions on both a local and national scale. Recognizing the benefits of people-led rural development, the Indian Ministries of Agriculture and Rural Development established common guidelines in 2000 for village-based development that would promote equitable distribution of benefits and allow implementing organizations such as NGOs a year to build capacity among local citizens to manage projects themselves (Kerr et al. 2002:80-81).



LEARNING FROM DAREWADI’S WATERSHED REGENERATION

Restoration Can Revitalize Watersheds and Communities. Village-based restoration projects can be an effective route to restoring vital watershed functions and increasing the productivity of local ecosystems. In turn, this can increase farm income and make available more fodder and forest products that directly benefit village livelihoods and build the local economy.

Consensus-Building Is Key to Community Effort. To be effective, watershed restoration requires participation from a wide array of families from across the social spectrum. The Darewadi experience shows that generating consensus among these social groups is not only possible, but also the most practical way to avoid conflicts and promote fairness. If decision-making is based on simple majority (or supermajority) rule, it can easily end up marginalizing the concerns of the poor.

Nongovernmental Organizations Provide Crucial Support. NGOs such as the Watershed Organisation Trust can play both a catalytic and capacity-building role in participatory watershed restoration programs. Experience shows that watershed programs without such an NGO partner do not stand the same chance of success. In Darewadi, WOTR’s intervention helped empower, organize, and educate the community, and provided technical help and financial instruments such as microcredit programs to help the community turn increased environmental income into financial strength.

Unequal Access to Land Blocks Equal Distribution of Benefits. The most lucrative benefits of watershed restoration—such as greater access to irrigation—generally accrue to landowners. The landless may also benefit substantially through greater access to wage income and subsistence products from restored common lands, but these benefits tend to be secondary or indirect benefits. Mechanisms such as saving clubs that increase the ability of the poor to lease or purchase private agricultural land, or directly access the products of common lands, can help correct this imbalance of assets. Development of such support services must be a central feature of watershed project design if aiding the poorest is a serious goal.

Forging Links with Government Brings Future Benefits. Perhaps one of the most valuable long-term benefits of Darewadi’s watershed management program is the ties it has formed between the community and the local political system and development agencies. Villagers feel they have a new visibility and credibility with state officials, which means that they stand a better chance in the future of benefiting from state-funded economic development programs.

To date, the impact of these broad guidelines has not been measured and analyzed (Lobo 2005b). Yet only if effective means can be found to implement them on the ground—tailored to the particular needs and social circumstances of each region—will the experience of Darewadi’s citizens be enjoyed on a wider scale. 🌿



REGENERATING WOODLANDS

Tanzania's HASHI Project

UNTIL RECENTLY, THE SHINYANGA REGION JUST SOUTH OF LAKE VICTORIA WAS nick-named the Desert of Tanzania. Its once-abundant woodland had been stripped away over decades, first to eradicate the disease-carrying tsetse fly, then to create cropland and make space for a growing population (Monela et al. 2004:14). Now the acacia and miombo trees are returning, courtesy of the HASHI project, a major restoration effort based on the traditional practice of restoring vegetation in protected enclosures or *ngitili*.

The region-wide HASHI project, whose success was recognized by the UN Development Programme with an Equator Initiative prize in 2002, is run and mainly funded by the Tanzanian government. But its striking success stems from the rich ecological knowledge and strong traditional institutions of the agro-pastoralist Sukuma people who live in the region.

By 2004, 18 years into the project, at least 350,000 hectares of *ngitili* (the Sukuma term for enclosures) had been restored or created in 833 villages, encompassing a population of 2.8 million (Barrow and Mlengi 2004:1; Barrow 2005b). Benefits of the restoration include higher household incomes, better diets, and greater livelihood security for families in the region. Nature has benefited too, with a big increase in tree, shrub, grass, and herb varieties, as well as bird and mammal species (Monela et al 2004:3-4). Table 1 summarizes these wide-ranging benefits. It is drawn from an in-depth study of HASHI's impacts on local livelihoods commissioned by the Tanzanian government and the World Conservation Union (IUCN).

People, Trees, and Livelihoods: A Short History of the HASHI Project

Shinyanga is one of Tanzania's poorest regions, its low hills and plains characterized by long dry summers with only 700 mm of

rainfall a year on average. As its woods were cleared from the 1920s onward, land and soil became over-used and degraded, causing a sharp decline in the natural goods on which the Sukuma people had depended for centuries. Women spent more time collecting formerly plentiful fuel wood; grasses to feed livestock became scarcer, as did traditionally harvested wild fruit and medicinal plants.

The region's ecological problems were compounded by a booming human population and by the Sukuma's extensive land-use needs. Nine in ten of Shinyanga's households live by small-scale farming, with families dependent on cropland and livestock pasture for both subsistence farming and cash crops such as cotton, tobacco, and rice (Monela et al. 2004:21-22). Since cattle are highly valued as a liquid asset, many households also kept livestock herds too large for their land to sustain, and burning of woodland to create pasture was common practice.

By the 1970s Shinyanga was under severe ecological strain, its people feeling the consequences in the form of falling incomes and lost livelihoods (Monela et al. 2004:12-13). Early attempts at reforestation launched by Tanzania's government, the World Bank, and other agencies largely failed to stem the loss of indigenous woodland and its impact on communities. Top-down, bureaucratic management of projects meant that villagers had little involvement or stake in the success of these efforts. During the 1970s, the socialist government of President Julius Nyerere also adopted laws that increased communal ownership of rural

land and encouraged people to live in discrete villages where services could be better provided—a process called “villagization.” Individual *ngitili* enclosures, which many villagers had carefully sustained for food, fodder, fuelwood, and medicines, were no longer encouraged. Indeed, many *ngitili* were destroyed during the period, as the villagization process undermined traditional institutions and practices (Monela et al. 2004:102).

In 1986, Tanzania’s government shifted tactics dramatically and launched the people-centered, community-based Shinyanga Soil Conservation Programme, known simply as HASHI (from the Swahili “Hifadhi Ardhi Shinyanga”). The impetus came from President Nyerere himself, who declared Shinyanga the “Desert of Tanzania” after touring the region. By 1987, HASHI was operational and by 1989 it had attracted additional, long-term support from the Norwegian Development Assistance Agency.

The Revival of *Ngitili*

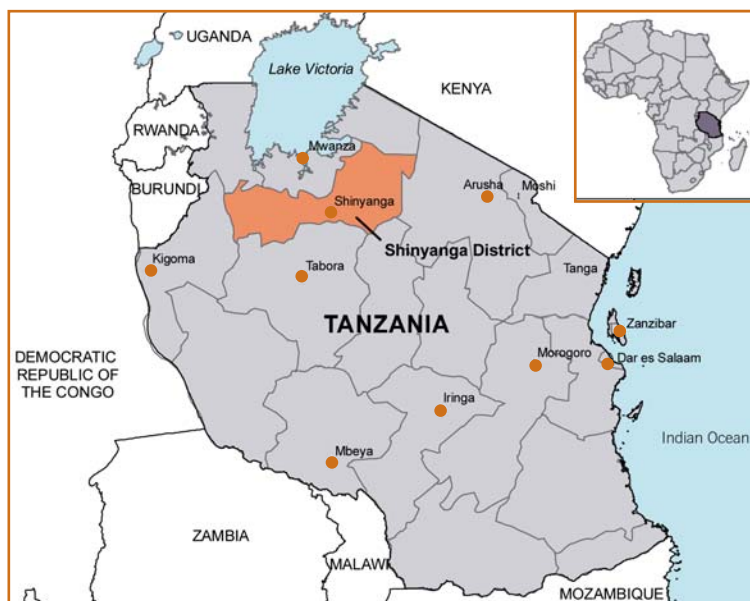
The project’s innovative efforts to improve rural livelihoods are based on reviving “*ngitili*,” an indigenous natural resource management system (Barrow and Mlengi 2004:1). Traditionally, *ngitili* were used to provide forage for livestock—especially oxen—at the end of the dry season when villagers plough their land. Vegetation and trees are nurtured on fallow lands during the wet season so that livestock fodder supplies are available for dry months.

There are two types of *ngitili*: enclosures owned by individuals or families, and communal enclosures owned and managed in common. Both were originally developed by the Sukuma in response to acute animal feed shortages caused by droughts, the loss of grazing land to crops, and declining land productivity (Barrow and Mlengi 2003:6).

The HASHI project’s approach to *ngitili* revival was to work with local people, first to identify areas requiring urgent land restoration, and then to restore them according to customary practice. Field officers, employed by the Division of Forestry and Beekeeping in the Ministry of Natural Resources and Tourism, worked closely with both district government staff and village government authorities—the lowest accountable bodies in Tanzania’s government (Barrow 2005b).

Technical guidance and information was also provided by the Nairobi-based International Center for Research in Agro-Forestry (ICRAF), which had researched *ngitili* restoration. ICRAF studies documented appropriate vegetation and management practices, and noted the important role played by traditional knowledge and local institutions in successful land management (Barrow 2005c).

In many villages, HASHI field officers used residual natural seed and root stock to restore *ngitili* enclosures. In others, active



tree planting (first of exotic species, later of the indigenous tree species preferred by local people) was carried out, especially around homesteads. Some of the restored *ngitili* dated back to pre-villagization days. Others were newly created by farmers and villages. In addition to restoring *ngitili*, villagers were encouraged to plant trees around homesteads (particularly fruit and shade trees), field boundaries, and farm perimeters. This helped improve soil fertility and provide firewood, and had the side benefit of helping farmers to stake out and formalize their land rights within villages (Barrow 2005c).

A range of tools were used to educate and empower villagers. These included video, theater, newsletters, and workshops to demonstrate firsthand the links between soil conservation, forest restoration, and livelihood security. Participatory rural appraisal methods helped villagers to identify local natural resource problems and agree on solutions (Kaale et al. 2003:13-14). Farmers and villagers received training in how to get the most out of their *ngitili*. For example, they learned which indigenous species were best suited to enrich farms soils or create dense boundary plantings.

Armed with this powerful combination of traditional and scientific knowledge, villages across Shinyanga gradually revitalized the institution of *ngitili* and broadened its use from simple soil and fodder conservation to production of a wide range of woodland goods and services. Products such as timber, fodder, fuelwood, medicinal herbs, wild fruits, honey, and edible insects enhanced livelihoods and provided a vital safety net during dry seasons and droughts (Barrow and Mlengi 2003:1).

In the early years, restoration efforts proceeded gradually as cautious farmers and communities assessed the benefits and rights which *ngitili* regeneration produced. By the early 1990s, with the project’s effectiveness beyond doubt, restoration efforts spread rapidly through the region. In 1986, about 600 hectares

of documented *ngitili* enclosures existed in Shinyanga. A survey of 172 sample villages in the late 1990s revealed 18,607 *ngitili* (284 communal, the rest owned by households) covering roughly 78,122 hectares (Kaale et al. 2003:8, Barrow and Mlengi 2004:1). Extrapolating from these figures, project managers estimate that more than 350,000 hectares of land in Shinyanga were in use as *ngitili*, with nine in ten inhabitants of Shinyanga’s 833 villages enjoying access to *ngitili* goods and services (Barrow 2005b).

Wendelen Mlengi, longtime manager of the HASHI project (recently renamed the Natural Forest Resources and Agroforestry Center) has closely observed its success. The enthusiasm and commitment with which communities have embraced *ngitili* restoration demonstrates, she says, how “a traditional natural resource management system can [be adapted to] meet contemporary needs” (Barrow and Mlengi 2003:10).

Making It Work: Traditional and Local Institutions

HASHI’s empowering approach was unusual among 1980s rural development programs, but critical to its success. Promoting *ngitili* as the vehicle for land restoration increased local people’s ownership over natural resources and their capacity and will to manage them. Likewise, allowing traditional Sukuma institutions and village governments to oversee restoration efforts helped to ensure their region-wide success. While elected village governments officially manage communal *ngitili*, and also decide disputes regarding individually owned *ngitili*, in practice traditional institutions have played an equally important role in most villages (Kaale et al. 2003:14-16; Monela et al. 2004:98).

For example, while each village sets its own rules on *ngitili* restoration and management, most use traditional community guards known as Sungusungu and community assemblies known as Dagashida to enforce them. The Dagashida is led by the Council of Elders which decides what sanctions to impose on individuals caught breaking *ngitili* management rules, for example by grazing livestock on land set aside for regeneration (Monela et al. 2004:98-99).

HASHI field officers have worked to build the capacity and effectiveness of both official and traditional governance institutions. Elected village governments, for example, are increasingly using their powers

to approve by-laws that legally enshrine the conservation of local *ngitili*. Such by-laws, once ratified at the district level, are recognized as legitimate by the national government (Barrow and Mlengi 2003:9, Barrow 2005c).

A 2003 study funded by the World Conservation Union concluded that this twin-track approach had paid off. “Traditional groupings, such as Dagashida and Sungusungu have complemented, rather than conflicted with village government. The blending of the traditional and modern has clearly been an important factor in the success of the restoration” (Kaale et al. 2003:21).

Despite popular support, however, decisions over where to situate *ngitili* and what rules should govern them are not always democratic. While many communities establish communal enclosures through the village assembly—in which every registered adult can vote—others are chosen arbitrarily by village governments without public consultation (Monela et al. 2004:8). “There is no single way of establishing *ngitili* and some are more democratic than others,” explains Professor Gerald Monela of the Department of Forest Economics at Tanzania’s Sokoine University of Agriculture. In general, he says, devolution of decision-making to village institutions has clearly increased local responsibility for natural resource management and promoted the success of *ngitili* conservation in Shinyanga (Monela 2005).

TABLE 1 IMPROVING LIVELIHOODS THROUGH *NGITILI*: KEY FINDINGS

Economic value of restored <i>ngitili</i>	US\$14.00 per person, per month	
National average rural consumption	US\$8.50 per person, per month	
Average annual value of 16 major natural resource products harvested from <i>ngitili</i> (Bukombe district)	Per household	US\$1,190 per year
	Per village	US\$700,000 per year
	Per district	US\$89.6 million per year
Costs of wildlife damage as a result of forest restoration	US\$63 per family per year	
Species of trees, shrubs, and climbers found in restored <i>ngitili</i> .	152	
Other flora found	Up to 30 different families of grass and herbs	
Bird and mammal species recorded	145 bird species and 13 mammals	
Reduction in time spent in collecting natural resources	Collection time reduced by:	
	Fuelwood	2-6 hours per day
	Poles	1-5 hours per harvest
	Thatch	1-6 hours per harvest
	Water	1-2 hours per day
	Fodder	3-6 hours per harvest
Percentage of households in seven districts across Shinyanga using <i>ngitili</i> products	To diversify diet	22%
	To provide animal fodder and forage	21%
	To collect medicinal products	14%
	To collect fuelwood	61%
	To pay for children’s education	36%

Source: Monela et al. 2004:3-4, 53, 61, 67-69



This success has not been lost on Tanzania's other regions, two of which, Mwanza and Tabora, are now adapting and replicating HASHI's empowerment methods (Barrow and Mlenga 2004:2).

Paying Dividends to People

Of the more than 350,000 hectares of land now occupied by restored or newly established *ngitili*, roughly half is owned by groups and half by individuals. Communal enclosures average 164 hectares in size, while individual plots average 2.3 hectares (Kaale et al. 2003:9; Barrow and Mlenga 2004:1).

While the impressive speed of *ngitili*-based reforestation has been apparent for several years, its impact on people's livelihoods and income has only recently been quantified. A major study by a ten-person task force, launched by the Tanzanian government and IUCN in 2004 and directed by Prof. Monela, combined detailed field research among 240 households in 12 villages with market surveys and other data analysis to quantify the HASHI project's benefits (Monela 2005).

The task force estimated the cash value of benefits from *ngitili* in Shinyanga at US\$14 per person per month—significantly higher than the average monthly spending per person in rural Tanzania, of US\$8.50 (Monela et al 2004:6). Of the 16 natural products commonly harvested from *ngitili*, fuelwood, timber, and medicinal plants were found to be of greatest economic value to households. Other valuable outputs included fodder, thatch-grass for roofing, and wild foods such as bush meat, fruit, vegetables, and honey (Monela et al. 2004:54-56). (See Table 2.)

In surveyed villages, up to 64 percent of households reported that they were better off due to the benefits derived from *ngitili*. The task force, headed by Professor Monela, concluded that *ngitili* restoration “demonstrates the importance of tree-based natural resources to the economies of local people” and offers “a significant income source to supplement agriculture to diversify livelihoods in Shinyanga region” (Monela et al. 2004:7,16).

The study also documented the ripple effect of these economic benefits in people's lives. Maintaining *ngitili* has enabled some villagers—mainly through sales of timber and other wood products—to pay school fees, purchase new farm equipment, and hire agricultural labor. Income generated by communal *ngitili* has been used to build classrooms, village offices, and healthcare centers. One farmer, ‘Jim’ of Seseko



village, reported how he had been able to send his son to secondary school and his daughter to university in Dar es Salaam. “My *ngitili* assists me ...I fatten my cattle there and therefore they fetch a good price. Then I use the money to educate my children” (Monela et al. 2004:91).

The new abundance of fruits, vegetables, and edible insects has also improved local health, while easy access to thatched grass has improved housing. Raised water tables due to soil conservation have increased water supplies within villages.

The study also confirms that villagers, particularly women, are saving considerable time by no longer having to walk long distances for fuelwood, fodder, and thatch. (See Table 1.) This frees men and women to concentrate on other income-generating activities while also fostering improved child care and school attendance (Monela et al 2004:108). “I now only spend 20 minutes collecting fuel wood. In the past I spent 2-4 hours,” reported one Sukuma woman who harvests branches from the family *ngitili* (Barrow and Mlenga 2004:2).

According to Edmund Barrow, Coordinator of Forest and Dryland Conservation and Social Policy at IUCN's Eastern Africa office, the task force findings “demonstrate that natural resource assets are significantly more important in terms of livelihood security and economic benefits than is generally assumed.” There are useful lessons to be drawn, he argues, both by Tanzania's government and other comparable countries. “At a time when conservation is increasingly being asked to justify itself in the context of the Millennium Development Goals, the HASHI experience offers detailed insights into the reasons for considering biodiversity conservation as a key component of livelihood security and poverty reduction” (Barrow 2005b; Barrow and Mlenga 2004:1).

The Conservation Dividend

Not only are the restored woodlands important economic assets but, as Table 1 highlights, they are also fostering richer habitats and the recovery of a variety of species. The task force found 152 species of trees, shrubs, and climbers in restored *ngitili*, where recently scrubby wasteland had stood. Small- and medium-sized mammals such as hyenas, wild pigs, deer, hare, and rabbits are also returning, and the task force recorded 145 bird species that had become locally rare or extinct (Monela et al. 2004:3-5).

The returning wildlife has also created problems, with some villages suffering considerable crop damage. Growing hyena populations, for example, are taking a toll on livestock. However, the costs of wildlife damage, which average US\$63 per family per year, are greatly outweighed by the economic gains from *ngitili* in most villages (Monela et al. 2004:58-61, 67; Barrow 2005c).

Unequal Distribution of Benefits

Not everyone is benefiting equally from *ngitili* restoration, however. Land use patterns in the region are strongly influenced by Sukuma traditions, with women controlling low-income crops while men control higher-earning livestock and cash crops. The task force found this culture persisting with *ngitili* restoration, with married women rarely owning individual *ngitili* or having a meaningful say in their management (Monela et al 2004: 92). On the other hand, all women have access to communal *ngitili*, a right and resource which has helped them acquire essential household needs such as fuelwood, thatch, and food, and to save time on chores. “Women are better off as a result of *ngitili* revival, despite patriarchal systems, due to their increased access to forest products,” argues Professor Monela, the task force chairman (Monela 2005).

Better-off households are also capturing a bigger slice of benefits from reforestation measures than poorer families. The task force reported that differences in land and cattle ownership were the most obvious indicators regarding the scale of benefits reaped, and noted that well-off people were buying additional land from poorer households, thus exacerbating local inequity (Monela et al. 2004:92-93). At the other end of the scale, the poorest households cannot afford individual *ngitili*, although they are entitled to harvest products from communal enclosures, sometimes for a fee.

One impoverished woman, from Mwamnemha village, explained her predicament to a task force researcher: “I do not have a *ngitili* because I do not have money, nor cattle to allow me to buy land. I therefore purchase some of my needs from *ngitili*. If I want to purchase grass for thatching I have to pay 200 shillings [US\$ 0.20] per bundle. If I want land for cultivation, I have to rent a piece for 12,000 shillings per acre. I am sometimes given these products free of charge, but this is very rare” (Monela et al. 2004:92).

Despite such problems, there have also been improvements for the poorest. The task force found that *ngitili* were being “used as one of the strategies through which some communities indirectly cushion the vulnerability of households classified as poor...those of the elderly, widows, and households with no assets.” Most communities surveyed included families with no cattle as those in need of help, even if they had some land. The task force reported that each village they visited either lent oxen to plough the fields of cattle-less households, or allowed these households free use of products from communal *ngitili*. In the village of Seseko, poor households

TABLE 2 MONEY GROWS ON TREES: VALUE OF *NGITILI* PRODUCTS USED BY HOUSEHOLDS IN BUKOMBE DISTRICT, SHINYANGA, 2004

<i>Ngitili</i> Product	Percent of Households Using Product in Surveyed Villages	Average Household Value, Per Year (Domestic Use and Sales), in US dollars
Timber	59	71.74
Fuel woods	64	13.09
Poles	29	2.87
Withies	36	8.97
Water	21	34.04
Honey	14	2.39
Bush meat	7	0.72
Edible insects	36	0.48
Mushrooms	36	2.87
Medicinal plants	7	10.76
Thatching materials	36	2.15
Fodder	7	1.15
Vegetables	29	2.15
Fruits	43	2.87
Carpentry	14	1,021.60
Pottery	7	12.91
Total Economic Value, Per Household, Per Year		\$1,190.77

Source: Monela et al. 2004:61 Table 3.17



WIGELEKEKO VILLAGE: A HASHI SUCCESS STORY

Wigelekeko village in the Maswa District of Shinyanga personifies the success of *ngitili*-based conservation efforts. By the mid-1980s, overgrazing and land clearance for cotton fields had resulted in dry-season shortages of wood products, fodder, and water for the 408 households.

With HASHI guidance, the village set aside 157 hectares of degraded land. To enhance regeneration, grazing and tree-cutting was banned in the communal *ngitili* for five years, and villagers grazed their cattle only in individually owned *ngitili*. When the ban ended, the communal enclosure was carpeted with thriving trees and shrubs.

The village government and HASHI field officers then devised a simple management system including controlled collection of firewood through tree pruning, and limited dry-season grazing. Farmers were allowed to grow food crops in small patches, but with strict soil conservation measures. Protection of the communal *ngitili* was carried out through Sungusungu and communally agreed village by-laws.

In 1997 the villagers decided to expand the enclosure by 20 ha in order to build a small reservoir to store water for domestic and livestock use. Each household contributed US\$4 to build the dam, which was completed in 1998. A year later, the reservoir was providing water continuously, with the value of its domestic water supply estimated at US\$26,500 a year. Water for livestock contributes even more value—an estimated US\$92,500 per year for sustaining about 1900 cattle. In 2000 fishing was introduced in the reservoir, further contributing to local livelihood security.

A Wigelekeko water users group now manages the dam and, with the village assembly's approval, sells excess water to outsiders. In 2001 such sales raised US\$250 for community development. To reduce demand on the community *ngitili*, two-thirds of villagers have also planted trees on their farms, averaging 100 saplings per hectare.

Source: Kaale et al. 2003:18

were required to reciprocate by feeding the neighbors who plowed their fields (Monela et al. 2004:95).

Acknowledging the benefits gap between richer and poorer households, the task force warned that additional strategies would be required to prevent social conflicts from erupting and to ensure the long-term sustainability of *ngitili*. In particular, its report concludes, local institutions should make every effort to “enable people to hold on to land resources so that they can maintain *ngitili* and enjoy its products” (Monela et al. 2004:110).

A Fragile Future?

The HASHI project is clearly a success story, drawing attention far beyond Shinyanga's borders. Yet several demographic and land-use trends threaten the continued expansion of *ngitili* as a cornerstone of natural resource management in Tanzania. These include (Monela et al. 2004:103-4,107):

- Scarcity of land and insecurity of tenure;
- Rapidly growing human and livestock populations, which are driving a surge in demand for resources from the still-recovering landscape;
- Damage to livestock and crops caused by growing wildlife populations; in some areas, this threatens to outweigh the benefits gained from *ngitili*;
- Growing, unregulated sales of individually owned *ngitili*.

The government-commissioned task force identified population increase as a particular concern, pointing out that so far “there are not clear indications that the restoration [of *ngitili*] is sustainable” (Monela et al. 2004:107). Shinyanga's population rose from 1.77 million in 1988 to 2.8 million in 2002, and continues to grow by 2.9 percent a year (Monela et al. 2004: 21). As a result, fathers are increasingly dividing their *ngitili* plots between sons, reducing the size and productivity of the plots. Farmers in

LEARNING FROM TANZANIA'S *NGITILI* REGENERATION

Modern and Traditional Institutions Can Be Compatible.

Traditional institutions can act as effective vehicles for reducing poverty through environmental regeneration. In Shinyanga, these institutions meshed successfully with the more modern institutions of the popularly elected village councils. Both are necessary for the continued success of *ngitili* restoration.

Local Knowledge Helps Decentralization Succeed. Devolving responsibility for land management to local communities and institutions is often more effective than imposing centralized, top-down solutions. Local or indigenous knowledge of natural resources and traditional institutions and practices can be an invaluable resource, lending crucial site-specific information for management, and improving community buy-in and compliance with management rules. Only when the HASHI project embraced a more participatory and empowering strategy did *ngitili* restoration begin to spread quickly.

Restored Ecosystems Generate Substantial Benefits. Regenerating local ecosystems can deliver significant improvements in livelihood security to rural families dependent on natural resources. *Ngitili* benefits, both subsistence products and cash income, have yielded an increase in family assets and nutrition, as well as generating income for public benefits such as classrooms and health clinics. In this way *ngitili* restoration has contributed directly to achievement of the Millennium Development Goals, improving household incomes, education, and health, while restoring biodiversity and ecosystem integrity.

Inequitable Distribution of Benefits Hurts the Poor. Inequitable power relations between men and women and rich and poor can slant the benefits of *ngitili* restoration away from those who most need them. Without active intervention, the greater productivity that *ngitili* restoration brings will benefit those with more land and assets such as livestock, simply perpetuating existing inequities and wasting some of the potential of *ngitili* for poverty reduction.

Insecure Tenure Discourages Regeneration. Insecurity of tenure can restrain the willingness of both communities and individuals to undertake *ngitili* restoration and to sustainably manage these enclosures. Clearly acknowledging in national law the secure tenure of both private and communal *ngitili* will help insure the future of the HASHI success.

Maswa district, for example, reported in 2004 that the shrinking size of their individually owned *ngitili* had forced them to graze only the neediest animals during the critical dry season.

In addition, there are no constraints on landowners wishing to sell their individually owned *ngitili*, although, because of the village land title system, it is very difficult to sell private land to someone from outside your community. New owners are free to fell the trees and develop the land as they see fit.

The somewhat ambiguous tenure situation of *ngitili* is also a significant concern. Despite popular enthusiasm, the establishment of new *ngitili* is often limited by tenure insecurity—or the

perception of insecurity. Although *ngitili* are formally recorded and registered by village governments, their tenure status remains unclear under Tanzanian law. Villages commonly hold a village title deed to all the land within village borders, while households receive a subsidiary title to their privately owned farmland with the village assembly's approval. The remaining land is designated as communal village land, under the management of the village government (Barrow 2005c, d).

These communal lands can be used for communal *ngitili*, but it is not always clear what basis the designation of a village *ngitili* has in law, and therefore what property rights pertain. For example, village governments and assemblies are sometimes wary of officially designating *ngitili* as “protected areas,” because they fear the state may appropriate these lands and manage them as public lands at the district or national levels (Barrow 2005d).

Tenure issues can interfere with establishing *ngitili* on private land as well. Private landowners who don't have secure rights to their land are sometimes reluctant to establish or expand *ngitili* for fear of triggering disputes within the community. In some cases, concerted efforts by villagers and local government institutions have overcome tenure problems, with boundary surveys made in order to obtain legally watertight communal and individual land title deeds (Kaale et al. 2003:16). Nevertheless, as pressure on land grows due to rising human and livestock populations, land tenure disputes, trespassing on *ngitili*, and conflicts over grazing rights are all likely to increase.

Designating in law the specific ownership and use-rights that pertain to communal *ngitili* within the overall system of village-owned land could help address the tenure problem, according to Edmund Barrow. Formally recognizing individual and family-owned *ngitili* under Tanzanian law as a separate land management category would also help. Closing these loopholes would help ensure that *ngitili* continue to play a significant and expanding role in villagers' livelihood strategies and income (Barrow 2005c).

Despite these challenges, the multiple benefits of forest restoration are increasingly recognized by Tanzania's government. Since the HASHI project began, new legislation—including the National Land Policy of 1997, the Land Act of 1999, and Village Act of 1999—has supported the formal establishment of *ngitili* and has begun to address the thorny issue of land tenure (Kaale et al. 2003:16). In 1998 Tanzania revised its forest policy, which now emphasizes participatory management of and decentralized control over woodlands, and strongly supports *ngitili*.

Enriching the Benefits Stream

According to Professor Monela's task force, the Tanzanian government can take several additional steps to improve the economic benefits from *ngitili* and thus their anti-poverty impact (Monela et al. 2004:10). These include:

■ Support Better *Ngitili* Management

The state can provide technical help and targeted research specifically aimed at raising *ngitili* productivity. For example, it could help improve fodder productivity by introducing more nutritive and productive tree, shrub, and grass species. And it can research the best methods and timing of cutting and pruning *ngitili* trees to maximize production.

■ Monitor *Ngitili* Trends and Facilitate Lesson-Sharing

The state is in a unique position to offer certain kinds of support that require a national rather than local perspective. For example, using satellite imagery the state could track nationwide changes in land use and biodiversity related to *ngitili* restoration to help HASHI officials understand the macroscale impact of their activities and better target their aid. The state can also mount a national effort to document *ngitili*-related benefits and innovations, helping communities to share their successes and learn from others through public education campaigns and knowledge networks.

■ Expand Markets for *Ngitili* Products

Increasing the income stream from *ngitilis* will help sustain Shinyanga's land-use renaissance by making *ngitilis* even more essential to local livelihoods. One of the most effective ways to do this is to expand the markets for *ngitili* products. The state

can help by supporting small-scale processing plants to diversify and add value to *ngitili* products (by making timber into furniture, for example); by removing burdensome regulations and other barriers to *ngitili* expansion and the establishment of local enterprises based on *ngitili* products; and by helping households access local and regional markets for their *ngitili* products by providing relevant and timely market information.

How Tanzania's government responds to these and other challenges facing the *ngitili* restoration movement, remains to be seen. What is not in dispute is a strong national commitment to consolidate the successes of *ngitili* restoration and the benefits it has brought in Shinyanga, and to replicate these, wherever possible, across Tanzania's drylands —

This case study was authored by Polly Ghazi, with the collaboration and guidance of Edmund Barrow, Prof. Gerald Monela, and Wendelen Mlengi. Polly Ghazi is a freelance journalist based in London. Edmund Barrow is the coordinator of Forest and Dryland Conservation and Social Policy at the Eastern Africa regional office of The World Conservation Union (IUCN) in Nairobi, Kenya. Prof. Monela is in the Department of Forest Economics at Sokoine University of Agriculture, Morogoro, Tanzania. Wendelen Mlengi is the manager of the Natural Forest Resources and Agroforestry Center, Shinyanga, Tanzania.





BEARING WITNESS

Empowering Indonesian Communities To Fight Illegal Logging

Sustainable livelihoods begin with the ability to exercise control over the natural resources on which one depends. For many forest-dependent people, illegal logging short-circuits this control, robbing them of traditional forest uses and income. But some communities in Indonesia have found a way to fight back to preserve their forest livelihoods. With training in the use of video cameras and film-editing techniques, they have begun to document illegal logging incidents, using the footage to gain media coverage and to lobby for action against corrupt forest practices.

The video training, provided by a pair of environmental NGOs (nongovernmental organizations), has created a network of empowered citizens based in illegal logging hotspots in 15 regions across the archipelago—including Sumatra, Java, Kalimantan, Sulawesi, and West Papua. Some have already put their newfound skills to impressive and effective use, with media and public airings of their films forcing the closure of illegal operations and promoting alternative livelihoods such as bamboo cultivation and fish farming (see examples below).

“One of the propaganda arguments put out by logging companies is that there are no alternative livelihoods for forest communities,” says Arbi Valentinus of Telapak, an Indonesian NGO that shares responsibility for the video training program. “In fact it is illegal logging that is disturbing and destroying traditional livelihoods such as mixed crop farming and cultivating rattan, honey, bamboo and herbs used in traditional medicines. Better enforcement against illegal logging helps to secure local livelihoods, reduce corruption, and break communities’ dependency on the timber barons” (Valentinus 2004)

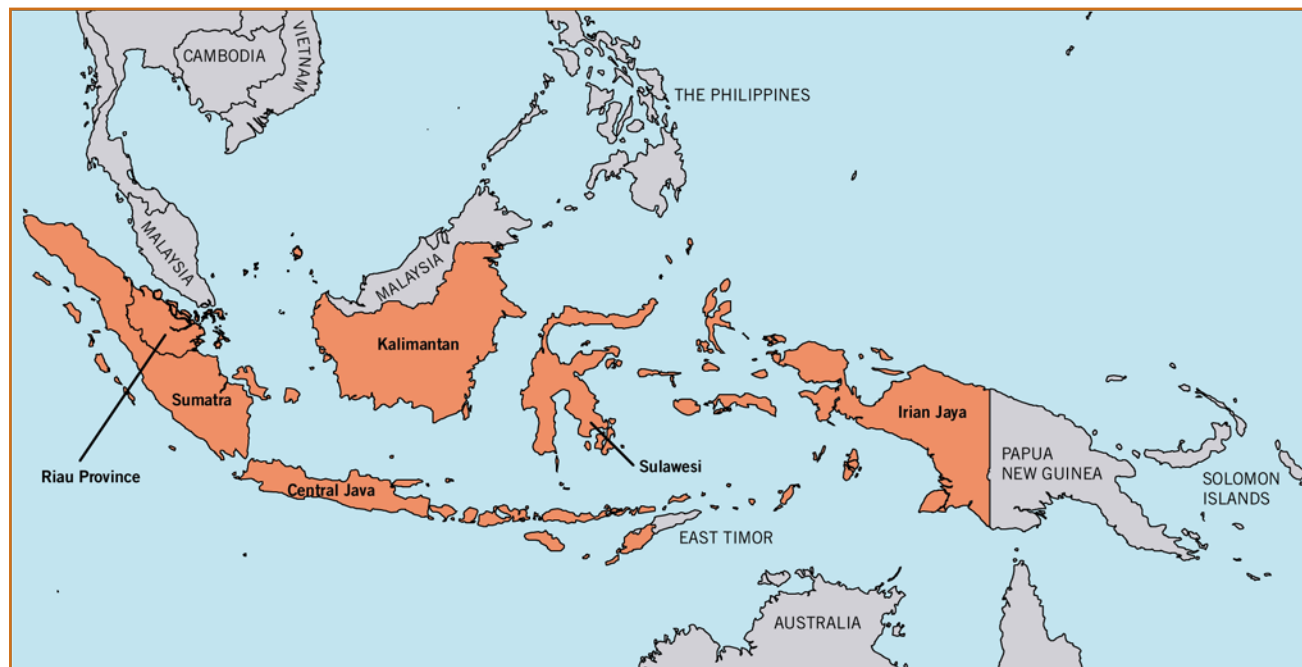
Combating the Rise of Illegal Logging

More than 50 million people inhabit Indonesia’s rainforests, many pursuing traditional livelihoods including small-plot farming, bamboo harvesting, and fruit and honey collection. In addition to income, forests typically provide a variety of subsis-

tence foods, materials, and spiritual and social values. In recent decades, these forests have been increasingly plundered for valuable hardwood that is smuggled overseas, often with the complicity of corrupt officials. Much of this illegal timber finds its way to China, Malaysia, and Singapore on its way to supply Western furniture markets (Schroeder-Wildberg and Carius 2003:24-33; EIA/Telapak 2002:12-15).

Since the fall of former Indonesian President Suharto in 1997, illegal logging and its impact on poor rural forest-dwellers has become a major issue for Indonesia’s government, its Western trading partners, and its evolving civil society and media. In part, this reflects the fact that nongovernmental organizations and journalists are now able to comment critically on government policy with less fear of repression. While bureaucratic corruption remains widespread, the Indonesian government at all levels has become more responsive to public scrutiny and civil-society pressure (Anderson and Hidayat 2004:12).

Against this backdrop, two prominent NGOs—the Environmental Investigation Agency (EIA), based in the United Kingdom and the United States, and Telapak, based in Indonesia—began an innovative program to train community-based NGOs to document and disseminate evidence of criminal logging activity in their forests. The project was funded by the UK Department for International Development (DfID) under its Multi Stakeholder Forestry Program, which funds efforts to increase poor forest-dwellers’ influence on forest policymaking.



The project was based on the premise that the timber industry offers only short-term benefits to a small minority of Indonesians, and that forest loss means that livelihood alternatives for forest dwellers are dwindling fast, especially for the rural poor (MFP 2000:5; Anderson and Hidayat 2004:12). “Every year, two million hectares of forest disappear, eroding the livelihoods of as many as one million people,” says David Brown, a forest economist with DfID. “Meanwhile, only 200,000 people are employed in that segment of the Indonesian log felling and processing industry that operates illegally. Slowing down Indonesia’s illegal logging industry will make the forest-linked livelihoods of Indonesians more secure” (Brown 2004).

During the four-and-a-half-year project (2000-2004), Telapak and EIA trained over 300 civil-society representatives from 70 NGO and community groups. Participants were trained in basic camera and video skills, and 13 sets of surveillance and documentation equipment were distributed nationwide as a communal resource. In addition, nine local NGOs were trained in advanced film editing and given computers and software editing facilities. They now serve as regional resource centers for community activists working to fight deforestation and promote sustainable alternative livelihoods. In 2004 some of these regional NGO partners organized their own media training sessions to expand the video network and pass on their video skills to other communities. Total cost of the project was about US\$2.3 million.

In setting up the video training, inclusiveness and diversity among the trainees were important guiding principles. Participants represented human rights and women’s groups as well as local and regional NGOs working specifically on forestry issues. In each region, attendees were chosen by a local NGO, which in turn was chosen by Telapak. “The groups we trained ranged from informal community groups with a local dignitary as their head to

organized NGOs with 15 staff,” explained Dave Currey, EIA director. “We tried to be as inclusive as possible, to encourage those taking part to see illegal logging from a wide social and economic perspective and to encourage networking between civil society groups operating in the same communities. Corruption and intimidation in Indonesia’s forests, for example, affects the whole of community life, so you can’t discuss illegal logging without talking about human rights, the judicial system, and local governance. We were not prescriptive in how participants used their training. They knew the local conditions and decided themselves how to best use the skills they learned” (Currey 2004).

Praised for Effectiveness

Independent consultants who evaluated the video training project at its completion in 2004 judged it a success. They found





that NGOs and community groups had used their videos and photographs “to inform and influence local and provincial decision-makers,” while campaigns these groups had triggered with their work had “helped stop the destruction of forests on which poor people depend” (Anderson and Hidayat 2004:10). Specifically, their publicity and advocacy efforts had helped protect rural communities against illegal logging in Sorong (West Papua), Makassar (South Sulawesi), North Sumatra, Nangroe, Aceh Darussalam, South Kalimantan, Central Kalimantan, Bengkulu, Lampung, Jambi, and Central Java.

The success of the project reached beyond just prevention of illegal encroachment and logging. It also helped support calls for granting communities more management authority over local forests. The independent evaluators found that photos and videos, including interviews with villagers, had helped persuade authorities in several provinces of the rights and management abilities of local communities, and aided local groups in their efforts to secure more favorable forest tenure and management rights (Anderson and Hidayat 2004:13).

The trainees themselves seemed satisfied with their accomplishments. In a questionnaire, 11 of 13 activists trained by EIA and Telapak reported that their subsequent campaigns “had had a direct impact at the village level.” One of the benefits was greater activism and solidarity within and among communities around the issue of forest use. In several cases, a group of villages had agreed to work together to protect their local forest from illegal logging.

ILLEGAL LOGGING, LOST LIVELIHOODS

- Indonesia suffers the world’s largest annual loss of forest cover. Ministry of Forestry officials estimate that more than 43 million hectares have been degraded, with an average annual deforestation rate of 2.8 million hectares from 1998 to 2002 (Kaban 2005).
- An estimated 70 percent of Indonesia’s timber exports are illegal, costing the country US\$3.7 billion a year in lost revenue (Saparjadi 2003).
- Middlemen capture most of the profit from illegal logging. Members of illegal logging gangs, often poor forest-dwellers, receive a mere \$2.20 per m³ of wood. Timber brokers receive \$160 per m³. But Singapore-based exporters of sawn Indonesian hardwood charge US\$800 per m³ to ship to Western markets (EIA/Telapak 2002:28).

“A film tells a story better than a printed campaign, it reaches more people,” commented Rama Astraatmaja, of Java-based ARuPA, one of the biggest NGOs to receive the video training. “Many homes in Indonesian villages these days have video recorders. Our films tell villagers stories about people with similar situations from other villages. This is something they do not usually see from TV which creates a solidarity feeling among them. Showing film [about illegal logging or non-timber livelihoods] always sparks a discussion. They start to talk about what they have seen, and they...see that the problem is real, and it needs a real solution” (Astraatmaja 2004).

Awareness-raising and campaigning by partner NGOs also reaped success on a larger scale. Nine NGOs reported “a direct impact at district level”—for example, through the introduction of new local government regulations to protect forest areas and limit access to logging companies. Seven reported success at the provincial level, with achievements including the creation by provincial governments of special teams to combat illegal logging. The independent evaluation also identified specific links between EIA/Telapak’s empowerment of local communities and efforts to achieve more sustainable nationwide forestry policies, with information on illegal logging feeding into the development of a national forest strategy (Anderson and Hidayat 2004:24).

Unintended Consequences?

While the video vigilance enabled by the project has clearly been effective, activism against illegal logging may also have some unintended consequences. For example, some Indonesian civil society groups are worried that the government, pressed to make some response to illegal logging, may target small-scale community-based loggers, as opposed to larger operations with deeper political and business ties. Some of these small-scale operators claim indigenous rights to forest resources, but their harvest is still considered illegal. For this reason, the wider discussion about illegal logging at a national level has incorporated debate about indigenous rights and tenure (Anderson and Hidayat 2004:3; Astraatmaja 2005; Currey 2005).

In addition, while by far the biggest slice of income from illegal logging is taken by middlemen and timber traders, many poor villagers working on illegal logging crews have benefited from the income it brings. Although the work is often dangerous, it may be more economically attractive than other more sustainable activities—at least for the short time that marketable trees

are still available. In 2000, as many as 300 illegal sawmills were estimated to be active in Central Kalimantan alone, giving some idea of the size of the temporary logging economy in that region (Casson 2000:16). In the midst of a logging boom, the web of people drawing income from the logging effort—which includes a variety of jobs from felling, to transport, to milling—may reach well into rural communities (McCarthy 2002:876). Working against illegal logging, then, may cut income for some.

On the other hand, Dave Currey of the Environmental Investigation Agency maintains that any loss of income from shutting down illegal logging pales by comparison to the loss of livelihoods that such illegal operations cause over the longer term. The bigger picture issue, he says, “is that illegal logging is causing widespread poverty—as the DfID Multi-Stakeholder Program explicitly recognizes” (Currey 2004).

The Fruits of Vigilance

Examples of successful forest protection efforts by Indonesian community groups and NGOs, assisted by EIA/Telapak surveillance training and equipment, include:

CENTRAL JAVA

LOCAL VIDEO SURVEILLANCE GROUP: ARuPA

Made up of 14 former forestry students turned environmental activists, ARuPA now acts as a resource hub for forest-based activists across Central Java and has itself trained members of 20 NGOs to document environmental crime and mismanagement.

Using the skills gained through EIA/Telapak training, ARuPA's members documented illegal logging in Java's teak forests by Perhutani, a government-owned forestry company. Their films also featured villagers' complaints about Perhutani's disregard for

forest dwellers' rights and were shown to local civil society groups and decision-makers. In 2002, ARuPA's efforts contributed to the revoking of Perhutani's Forest Stewardship Council (FSC) certification by Smartwood, an international timber assessor, which impacted the company's market among Western furniture buyers. Subsequent attempts by the company to regain certification and lost business have failed (Astraatmaja 2004).

ARuPA also uses film to highlight successful examples of alternative, decentralized, sustainable forest-based livelihoods, including community-based forestry management and a Javan community's initiative to plant bamboo after local pine plantations had been clear-cut. “Bamboo forest protects communities from flooding, landslides, and drought—environmental services that could not be provided by the pine forest,” says ARuPA spokesman Rama Astraatmaja. After negotiating an informal agreement with the local timber company official, villagers planted bamboo, preserving water supplies for their rice fields and contributing to the village economy by selling bamboo poles.

CENTRAL KALIMANTAN

LOCAL VIDEO SURVEILLANCE GROUP: DAUN

Daun, a regional NGO, campaigns against deforestation in wildlife-rich Tanjung Puting National Park, whose endangered species include clouded leopards, sun bears, and orangutans. Daun's members have used their media training to build public awareness of the destructive impact of illegal logging by showing photographic and video evidence to communities, and then explaining the connection with lost livelihoods. One film distributed among riverside communities living on the park's fringes documented how a local village had successfully developed small-scale fish farming as a sustainable alternative to illegal logging operations.





ILLEGAL LOGGING, LOST LIVELIHOODS

- **The Power of Public Disclosure.** Public disclosure is a powerful tool to motivate action at the local and national scales. Video is a relatively easy route to public exposure, attracting media attention at modest cost and with modest training.
- **An Educational Tool for Alternative Livelihoods.** Video documentation does not have to concentrate on infractions only, but can bring positive messages of alternative livelihood options.
- **A Tool for Community Empowerment.** Use of video or other media tools can empower communities through access to information, which in turn promotes public dialog, shared values, and community activism.
- **Civil Society Groups are Key.** Local community groups are often ideally placed to undertake video surveillance and to deploy the footage locally and to media. Diversity among these groups helps create a more effective network.
- **National and International NGOs are Important Catalysts.** Larger NGOs are well-placed for capacity-building: administering video and media training, and helping to establish a national network for village-level logging surveillance.
- **Adverse Consequences for the Poor.** Targeting illegal logging may benefit forest livelihoods in the long term, but may impose short-term hardships on some community members, particularly the poor, who are dependent on this employment. Supporting communities in the development of income alternatives is important to counterbalance short-term income loss.

SOUTH KALIMANTAN

LOCAL VIDEO SURVEILLANCE GROUP: LPMA

LPMA has produced educational videos both documenting the destructive impact of illegal logging in protected forest in the Meratus area of South Kalimantan, and promoting honey collecting as an alternative way of generating income. The films have been shown to forest communities and to local politicians with the aim (not yet realized) of generating financial support to expand commercial honey collecting.

SUMATRA

LOCAL VIDEO SURVEILLANCE GROUP: ULAYAT

Ulayat, a Sumatran environmental group, documented illegal logging in Bukit Barisan Selatan National Park by Semaku Jaya Sakti, a company owned by the district government. After its compelling visual evidence prompted provincial and national media stories, the park manager sued the logging company, and its director was forced to resign. Ulayat's campaigning also resulted in the Kaur district government creating a forest regulation enabling action against illegal logging.

RIAU

LOCAL VIDEO SURVEILLANCE GROUP: HAKIKI

Hakiki, a regional NGO, documented and publicized evidence that Diamond Raya Timber, a logging concession holder in Riau Province, Sumatra, was logging outside its approved harvesting area. Hakiki then worked with the Riau provincial government to establish the Community Anti-Illegal Logging Network, whose members include provincial authorities, law enforcement officials, NGOs, and three district governments. 🍯



VILLAGE BY VILLAGE

Recovering Fiji's Coastal Fisheries

IN THE EARLY 1990s, RESIDENTS OF UCUNIVANUA VILLAGE, ON THE EASTERN COAST OF Fiji's largest island, realized that the marine resources they depended on were becoming scarce. Village elders remembered when a woman could collect several bags of large *kaikoso* clams—a food staple and important source of income—in just a few hours. By the 1990s, however, a woman could spend all day on the mudflats and come home with only half a bag of small clams. The decline of Ucunivanua's marine heritage reflects a larger pattern of depletion repeated throughout the Fiji islands. A combination of greater

commercial fishing and larger local subsistence harvests have left most of Fiji's coastal waters overfished, sometimes heavily so. Rural Fijians, who constitute half of Fiji's population of nearly 900,000, have been hurt. Most of these villagers still lead a traditional subsistence-based livelihood, communally drawing on local marine resources for at least part of their daily protein and income. In the past, the abundance of the marine catch meant a moderate level of affluence and food security. With that abundance gone, the pressure on village economies has mounted, leaving 30-35 percent of rural households in Fiji below the official poverty line.

But Fijians are fighting back, village by village, linked by a network of communities that carefully regulate the use of their coastal waters, slowly restoring their productivity. Although these *locally managed marine areas* (LMMAs) are an innovation of the last decade, they call on a rich tradition of village management of ocean resources. In this new incarnation, traditional local conservation practices are blended with modern methods of monitoring and energized by the full participation of members of the community, who design and implement the marine management plans. The goal is to bolster local incomes and traditions by replenishing local waters—a grassroots approach to rural development.

Ucunivanua was the site of the first locally managed marine area in Fiji, and its results have been dramatic. Since local management began seven years ago, the *kaikoso* clam has once again become abundant, and village incomes have risen significantly. The Ucunivanua project set aside the usual mind-set that only experts know best and that development occurs only when planned by governments. Instead, it let the ultimate choices—the decisions that determine a project's success or failure—rest with the people most dependent on the resources for their livelihoods. The success in Ucunivanua has led to the adoption of LMMAs throughout Fiji, Asia, and the Pacific region (Aalbersberg 2003; Aalbersberg and Tawake 2005; Gell and Tawake 2002; Tawake and Aalbersberg 2002; Tawake et al. 2001).

Locally Managed Marine Areas (LMMAs)

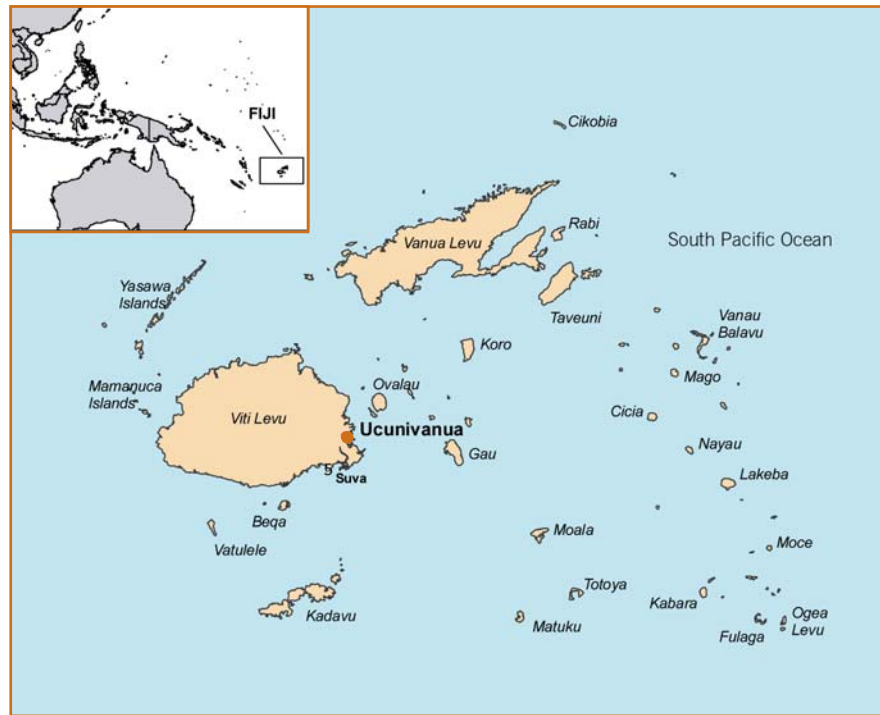
Pacific island communities have long practiced traditional methods of preserving their valuable food sources, such as imposing seasonal bans and temporary no-take areas. These methods have been based on a system of community marine tenure—the right to own or control an inshore area—that has been informally recognized by villagers and local chiefs. Fiji's

long-established system of local marine tenure consists of *qoliqolis*, or traditional fishing grounds that are under the control of the communities adjacent to them. *Qoliqolis* have some legal recognition and are officially referred to as “customary fishing rights areas.” They are accurately mapped, delineated, and bound by survey lines, with records maintained by the Native Fisheries Commission. There are 385 marine and 25 freshwater *qoliqolis* in Fiji. The resources from these provide livelihoods for approximately 300,000 people living in coastal villages.

Traditionally, management of *qoliqolis* included temporary closures of these fishing zones, limitations on the number of fishers or the amount of fish they could harvest, restrictions on using certain fishing practices, and the imposition of a *tabu*, or prohibition, on fishing for certain species. In addition, sacred fishing grounds were recognized by communities, and temporary moratoria on fishing were sometimes imposed as part of traditional ceremonies. For example, a 100-day *tabu* on using certain fishing areas was often declared as a token of respect when a high chief died. When the *tabu* ended, villagers harvested fish again and held a large feast to end the mourning period.

Today, many communities maintain such customary practices, with varying levels of compliance. Chiefs are applying this customary *tabu* concept to more practical ends—to protect spawning or overexploited areas and to increase fish stocks—with mounting interest and success. They are linking their traditional practices with modern techniques—assessing fish stocks, measuring potential no-take zones, monitoring the *tabu* area—to establish locally managed marine areas.

Communities set aside at least part of an LMMA as a restricted area, typically 10-15 percent of the village’s fishing waters, in order to allow habitat and resources to recover from fishing pressure. The location and size of the *tabu* area is determined by members of the community, depending on how much they feel they can close and still meet their needs. The community may also choose a spot that is easy to police, and not necessarily a rich fishing area. Technical experts may offer their advice to the community on optimal placement of the *tabu* area, but ultimately the community itself has the final say about location. Thus an LMMA is significantly different from a marine reserve or *marine protected area*. In a marine protected area, a central body, often a national government, makes all decisions, often from afar and with little or no local input.



Ucuivanua: One Village’s Experiment

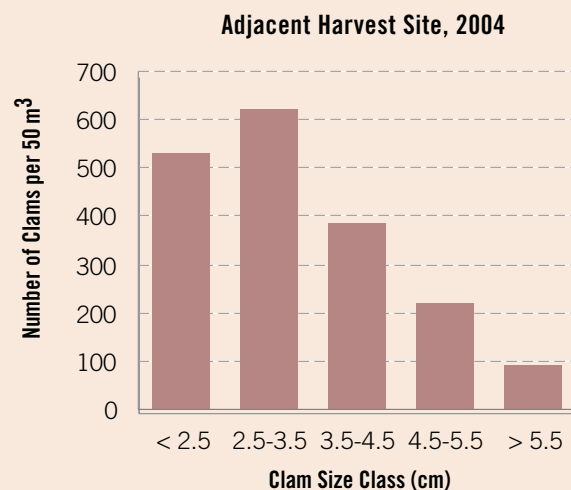
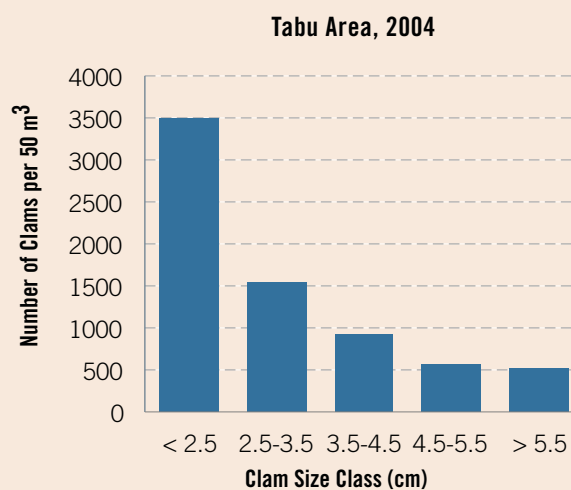
The *kaikoso* (*Anadara antiquate*) a clam found in shallow mudflats and seagrass beds, is the clan totem of the people of Ucuivanua—the community’s symbolic animal. It is also a food staple and primary source of income, along with agricultural crops and other marine resources such as octopus. To preserve the *kaikoso*, residents of Ucuivanua began working in the 1990s with the University of the South Pacific (USP) in Suva, Fiji (Tawake et al. 2001). This collaboration began when the son of the high chief of Verata, the district in which Ucuivanua is located, studied land management at USP and asked his teachers there to help address some of the problems in his village.

At the end of two years of workshops and training in environmental education and community planning, the community decided to set up a 24-hectare *tabu* area on the mudflat and seagrass bed directly in front of the Ucuivanua village as an experiment. The hope was that as the clam population recovered in the *tabu* area, more clam larvae would settle in adjacent fishing areas as well, eventually leading to increased clam harvests in these areas—something called a seeding effect.

The village chose a group of 20 men and women to be on the *tabu* area management team. From the outset of the planning process, advisors from USP had requested that the team include equal numbers of adult men, women, and youth—an unusual step in traditional Fijian culture. The *tabu* area management team staked out the boundaries of the proposed protected area. The team then worked with the paramount chief and elders of the village to hold a traditional ceremony declaring the area *tabu* for three years.

FIGURE 1 TRENDS IN CLAM SIZE AND ABUNDANCE, UCUNIVANUA, FIJI

Size Class (cm)	NUMBER OF CLAMS (PER 50 M ³)			
	Tabu Area		Adjacent Harvest Site	
	1997	2004	1997	2004
< 2.5	0	3502	1	532
2.5–3.5	5	1546	7	622
3.5–4.5	12	935	14	385
4.5–5.5	13	570	9	221
> 5.5	8	530	1	91



Source: Aalbersberg and Tawake 2005

Here is where modern technique fused with traditional village values. The scientific experts from USP taught team members the skills of monitoring and the basic ideas of sampling and statistics. The team learned how to lay line transects and to sample the clam population at 10-meter inter-

vals along the 500-meter transect line, then record their results and analyze them with simple statistics. Using these skills, the team established a baseline of clam populations in the *tabu* area and in adjacent sites down current. Those baseline calculations were then to be used for comparison with the results of the annual monitoring to follow. In effect, the community learned how to conduct a scientific experiment to see if a locally managed marine area strategy would lead to increased resource yields and better conservation.

Monitoring data gathered by the team in 1997 and 2004 indicate the dimensions of the experiment’s success. The number of clams increased dramatically in both the *tabu* and adjacent harvest areas. (See Figure 1.) At the start of the project, it was extremely rare to find a clam bigger than 5 cm in diameter. Today, the Ucuivanua community routinely finds clams in the *tabu* area that are over 8 cm in size. Because of its success, the Ucuivanua *tabu* area, which was initially intended to be closed to fishing and collection for just three years, has been extended indefinitely (Tawake and Aalbersberg 2003).

Expanding the LMMA Benefit

The district chief early on in the process had asked that the project include the entire district and not just Ucuivanua. After only one year of local monitoring and reporting at district meetings, the clear benefits of the LMMA strategy at Ucuivanua became apparent to other villages in the Verata district, and they began setting up *tabu* areas. Sawa villagers, for example, imposed a *tabu* on a mangrove island. By counting the “active” holes in the mangroves, they found that the numbers of the mangrove lobster *Thalassina anomala* increased by roughly 250 percent annually, with a spillover effect of roughly 120 percent outside the *tabu* area.

As these results were reported in the local media, villages throughout Fiji facing declines in their inshore fishery approached USP for help in setting up locally managed marine areas in their *qoliqoli*. In Nacamaki village on the island of Gau, one year after creating a *tabu* area the community harvested approximately eight tons of their food totem, the rabbitfish, in one week. This bounty was enough to provide a feast for the entire island—20 villages in three districts, totaling roughly 6,000 people.

While this catch coincided with the high season for rabbitfish, Nacamaki had not seen such abundance in a long time. A 68-year old woman recalled that the last time she saw so many rabbitfish was when she gave birth to her second son 47 years earlier. A testimonial from the Nacamaki village chief illustrates the enthusiasm for LMMA work that has spread throughout Fiji: “The LMMA work that these young guys from USP are doing has changed the attitude of my people to conserve and sustainably manage our resources for our kids. In recognizing this change, our ancestors have released the blessing to us by reviving this tradition.”



National and International Collaboration

A concurrent step for advocates of LMMAs—both the technical experts and traditional practitioners—was to work together, first within Fiji and then across Asia and the Pacific, to spread the principles and techniques of locally managed conservation of marine resources.

The Fiji LMMA Network (FLMMA)

The residents and researchers in Ucuivanua were not the only ones in Fiji exploring local solutions to diminishing marine resources in the 1990s. In Cuvu district on the Coral Coast, along a southern stretch of Viti Levu (Fiji's largest island), community members were working with the Foundation for the Peoples of the South Pacific (now Partners in Community Development Fiji) on techniques for setting aside and restoring degraded coral reefs. And in Ono, in the island group of Kadavu, villagers were working with the World Wildlife Fund's South Pacific Programme to find ways to protect and manage blue holes (large deep holes in the middle of a reef). Each of these projects was testing variations of the basic LMMA strategy to see if it could contribute to conservation and local livelihoods under differing conditions.

Team members from these three projects—Ucuivanua, Cuvu, and Ono—joined in 2001 to form the Fiji LMMA

Network (FLMMA), to serve as a forum in which communities with LMMA projects could share methods and results. With the help of the respective project teams, the community members in the network presented the results of their monitoring to fishery policy makers of the Fijian government. While surprised at first to be given scientific findings by villagers, the government representatives grew excited about the idea of adopting Fijian customs to the management of marine resources. The national government has formally adopted the LMMA approach and has designated a division of the Fisheries Department to promote inshore conservation and to work with FLMMA. With FLMMA's assistance, the Fisheries Department has been tasked to conduct resource assessments of all of Fiji's *qoliqolis* and to help develop management plans.

The participatory model used by FLMMA has had additional effects at a national level. The Ministry of Fijian Affairs uses FLMMA's participatory approach for its Community Capacity Building project, which identifies and develops action plans to deal with village problems. Fifteen Fisheries Department extension officers were trained in the network's participatory techniques during a community workshop in June 2002. Members of five government agencies (Fisheries, Fijian Affairs, Environment, Tourism, and the Native Land Trust Board) have formally joined the network to date. Local primary and secondary schools are encouraged to create displays related to LMMA work and even take part in monitoring exercises.

Under current law the Fijian government holds title to the *qoliqolis*, as it does all marine waters. Now, as a direct result of FLMMA's work with local communities, there has been growing pressure for the government to return legal ownership of the country's inshore fishing areas (410 *qoliqolis* in total, equaling roughly 31,000 square kilometers of coastal

waters) to their traditional owners—local chiefs. Legislation to do so is now being considered by Fiji's parliament. If the law is enacted, the high chief of an area would hold legal title on behalf of the community, but management decisions would be based on the views of community elders and the needs of the resource users.

Locally, villages have reported that their LMMA experience has given them a greater sense of cohesion and a sharpened ability to identify and address other community problems. Ucunivanua, for example, has raised funds to address two problems they had talked about for years: bringing electricity to the village and working with the central government to build a sea-wall to protect their sacred burial ground. In addition, having a successful resource-management plan enables communities to better negotiate with industry and government. For example, when a Coral Coast hotel asked permission of the *qoliqoli* owners to build a jetty, the community used the opportunity to ask the hotel, in turn, to improve its sewage treatment, since improved reef water quality was a major goal in the village's coastal management plan.

Because some parts of Fiji are days of boat travel away from the capital of Suva, efforts to decentralize operations and extend LMMA work to these remote areas were initiated in 2004. This is being done through the establishment and training of *Qoliqoli* Management Support Teams, composed of provincial government workers, overseas volunteers, and community members trained in LMMA techniques. Community workshops are conducted jointly with experienced LMMA members until the local team is able to work on its own.

THE FIJI LMMA NETWORK IN ACTION

Typically, a Locally Managed Marine Area evolves along a well-tested trajectory, with the following steps:

- Community discussions on goals and expectations
- Two-day action-planning workshop
- Community/district adoption of management plan
- Three-day biological monitoring workshop for projects with newly adopted management plan that can include a no-take zone or restrictions on gears and fishing methods
- Monitoring in each community within three months of management plan adoption
- Training in socioeconomic monitoring (usually once biological monitoring is well in place)
- Actual socioeconomic monitoring in sites where training has taken place
- Support visits to each site at least every six months
- Country- or region-wide meetings to discuss how project teams can work together and how adaptive management can be done at the national level



This approach has worked well in Kadavu, Fiji's fourth largest island with 33 *qoliqolis*. During 2004 the *Qoliqoli* Management Support Team under the leadership of the Roko (governor) was able to set up LMMAs in most of the 30 *qoliqolis* that did not have one. The Fisheries Department has indicated a keen interest in formalizing this model for all provinces in Fiji, with hopes that the process will be well on its way by the end of 2005.

To date, nearly 60 LMMAs involving 125 communities with *tabu* areas have been declared in Fiji, covering about 20 percent of the country's inshore fishery. They may designate reefs only or include grass areas and mangroves as well. It is important to keep in mind that the primary reason for these closures is to recover the subsistence and artisanal value of the fishery rather than to restore marine biodiversity, although that is certainly an important side benefit. In their initial planning for an LMMA, communities invariably express the need to generate greater local income, and see a restored fishery as one of the best ways to achieve this. Government also understands that the recovery of the fishery can improve village life and perhaps reduce urban migration.

Beyond Fiji: The LMMA Network

The locally managed marine area approach spread within Fiji and other nations in the Asia-Pacific region through the creation of the LMMA Network, which now has members in Indonesia, Papua New Guinea, Solomon Islands, the Philippines, Palau, and Pohnpei. The network provides a forum for project teams from these nations to share their experiences as they try to determine the right conditions for LMMAs to work.

The network is guided by a group of country LMMA leaders who manage on behalf of local project leaders. The country leaders meet periodically and often include local project representatives. They also arrange inter-country visits,

such as a 1999 meeting of local representatives from the West Papuan island of Biak, the Solomon Islands, and Fiji. Every three years there is a network-wide gathering that includes community members from each site.

The Process

Once a community in Fiji makes its interest in local marine management known, FLMMA and various partner organizations determine which will be the lead agency, and discussions are held with the community to ensure that the goals of all parties are clear and in harmony. Sometimes the initial planning and education process takes up to a year.

FLMMA teams then offer assistance in three types of workshops: action planning, biological monitoring, and socio-economic monitoring. The action-planning workshops are adapted from Participatory Learning and Action (PLA) methods and include sessions on mapping the village, understanding historical trends, and analyzing who the local stakeholders are. These sessions serve the dual purpose of exploring resource-management issues and instilling community members with the confidence that they have the capacity to solve their own problems. The workshops then focus on biological and socioeconomic factors such as identification of resource use, threats to local resources, and the root causes of these threats. Finally, the community develops a community action plan, designating what will be done and by whom.

While the establishment of a *tabu* area is usually a central part of a LMMA, the action plan also contains ways to address other issues faced by the community, such as lack of income sources, poor awareness of environmental issues, pollution, and sometimes declining community cohesiveness. Socio-economic monitoring tests whether these broader problems are being addressed.

There is also ongoing assistance to communities to help them carry out their plans and meet new needs that might arise, such as marking protected area boundaries, publishing LMMA rules, and training fish wardens to protect against poaching.

A key element of success has been the teamwork approach that unites traditional values and modern science. Village workshops are facilitated by government representatives, NGOs, experienced outside community members, and the local university. Questions often arise regarding fisheries regulations, traditional fishing rights, marine biology, pollution, and experiences in other communities. Having a mixed team not only ensures that proper attention is given to each of these issues, but also develops trust and transfers skills among facilitators.

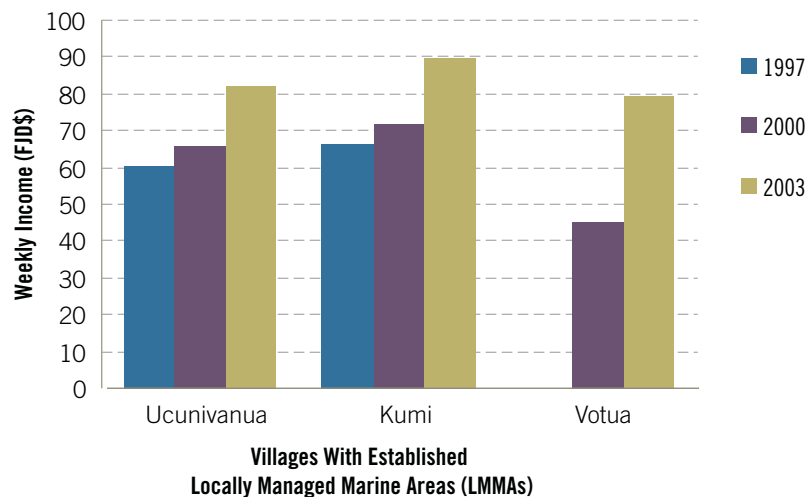
Sustainability and Costs

The estimated cost for the initial suite of community workshops is about \$3,000 per site in the first year, \$1,000 in the second year, and \$500 per year thereafter. The FLMMA has established 71 sites at a cost of approximately \$400,000 in outside funding. Many of the costs of FLMMA's work, including workshops, monitoring equipment, and buoys for marking off *tabu* areas, have been met with funding channeled through local NGOs supported by the U.S.-based Packard and MacArthur Foundations.

Most community management plans also include an income-generating aspect. As part of the conservation initiative in Verata, a bioprospecting arrangement was set up with a pharmaceutical company in which the community was paid licensing fees for samples of medicinal plants and marine invertebrates collected in their district. Efforts have been made to ensure that best practice in bioprospecting as outlined by the Convention on Biological Diversity was followed. These activities earned \$30,000, which the community put toward a trust fund to sustain their local fisheries work.

At another site, a hotel pays \$2 to a community trust fund for each scuba diver that utilizes the village's protected area. This provides an income of roughly \$1,000 per year. Another village is "planting" artificial live rock in its *tabu* area to sell to exporters for the aquarium trade after marine life has colonized it. A company makes the artificial live-rock substrate, brings it to the village, and assists in placing it on the reef. Local people need only scrape the rock clean of algae occasionally. Within a year the company harvests the rock with local help. The potential return to the community is \$4,000 a year. These sums are not large, but are sufficient to maintain LMMA work once it is established.

FIGURE 2 HOUSEHOLD INCOME FROM SALES OF MARINE PRODUCTS, FIJI



Source: Aalbersberg and Tawake 2005

LEARNING FROM FIJI'S LOCAL MARINE MANAGEMENT

Small-Scale Projects Can Influence National and International Policy. The success of the early projects at Ucuivanua, Cuvu, and Ono was persuasive. The Fijian government subsequently adopted the LMMA methodology in the national Fisheries Department, while other government departments have applied the program's participatory management techniques. Through the LMMA network, the benefits of local marine management have spread throughout the Pacific region—a demonstration of how community-based ecosystem management can be scaled up for greater poverty reduction.

Success in Marine Conservation Can Promote Broad Economic Growth. As well as conserving marine resources for village consumption, the LMMAs at Ucuivanua and other villages have generated income through commercial sales, bioprospecting, and tourism, demonstrating that ecosystem management can be the first step to broadening the sources of wealth in a rural community. In addition to gaining economic benefits, the villagers participating in local marine management have learned management skills that they have applied to other problems facing the village.

Traditional Management Methods Can Be Fused With Modern Expertise. At Ucuivanua, marine specialists from the University of the South Pacific worked with villagers, and within village traditions, to teach the skills needed for siting a *tabu* area, measuring it, monitoring it, and assessing its recovery. Experts provided the how-to skills, but villagers had the final word on what should be done within the framework of their goals and values.

Traditional Social Norms Can Impede Genuine Participation. For generations, Fijian culture has excluded women and young people from central roles in decision-making, which is traditionally dominated by male elders. Thus, despite a concerted effort to involve the entire village, not all community members participate equally in the Ucuivanua LMMA. A locally managed marine area may have to operate within traditional norms to gain acceptance yet promote participatory equality in ways that challenge those traditional values.

Success Can Bring New Problems. The very success of local marine management—the restoration of fish stocks—has attracted outside fishers to LMMA sites and brought new threats to village resources. The capacity to monitor and protect a *tabu* area requires new capacities from village members, who must take on enforcement duties as fish wardens, battling encroachment through both public education and legal means.

In addition, communities are able to charge more for the annual fishing licenses they sell to outsiders. One of the initial LMMA actions in Verata in 1997 was to put a moratorium on issuing such licenses, of which 60 costing \$500 each had been given the previous year. In 2003 chiefs agreed to sell a single license for \$30,000. Customary practice allows *qoliqoli* owners to permit outsiders to enter for a specific purpose such as fishing or live-rock harvest. Although issued by the Fisheries

Department, the license must be signed by the local chief (Veitayaki, Aalbersberg, and Tawake 2003).

A successful LMMA is, in effect, an alternative income source. The increase in fishery resources not only improves nutrition but also raises household income from market sales. (See Figure 2.) Marine resources, on average, make up more than 50 percent of the household income for these villages, and raise these households far above the median income level of F\$4000 a year in Fiji.

FLMMA has been recognized with two international awards for its work: the United Nations 2002 Equator Initiative Award for \$30,000, and the 2004 Whitley People and Environment Award of £30,000. The funds from these awards were established as trust funds administered by FLMMA to sustain its work. Today FLMMA is a registered charitable trust in Fiji.

Challenges

As successful as many of the LMMAs in Fiji have been in increasing fishery resources, improving habitat, generating income, and promoting community cohesion, there are still problems. Ironically, one is a direct result of the LMMA success: due to higher numbers of fish and other desirable species, outside fishers are drawn to the site to harvest. In addition, non-Fijians continue to fish in the *tabu* areas, as they are either unaware of the *tabu* or do not respect it. In response, FLMMA has supported the training of community members as fish wardens, granting them legal power to apprehend offenders.

A deeper challenge involves working within the social framework in Fiji. Traditional culture does not usually allow for women to be a part of decision-making. This has proven to be a disadvantage, for in Fiji women are often the ones most involved in collecting inshore marine resources and have unique knowledge about them.

In Verata, for example, only the women knew how to locate and accurately count the *kaikoso*. Although women typically collect seafood for the community, the men make the decisions regarding the management of such activities. Continued success of the LMMA movement will require addressing this incongruity. A gender program has recently been introduced in which meetings discussing the progress of the action plan are also held with a local women's group. It is also difficult for young people to participate in decision-making under the traditional societal norms, as they may not have a say among the meeting of elders.

The Way Forward

In response to the challenge of poaching in *tabu* areas, communities are taking a variety of actions, including installing buoys and signs to mark boundaries and having fish wardens trained by the Fisheries Department. Most communities locate their *tabu* areas in plain sight of the village, but others with more distant areas need boats and trained fish wardens empowered to arrest



outsiders coming into their village waters. Usually a boat with a fish warden and other community members will simply approach an encroaching boat and tell it to leave. On occasion, they have apprehended people and confiscated boat and gear.

Another option to protect against encroachment is to gazette protected areas, legally delineating them as no-fishing zones. This would allow police to patrol the area and make arrests. To date, only two of the FLMMA-inspired *tabu* areas have chosen the gazetting route. FLMMA has had meetings with the national government to clarify the steps in the gazetting process and has written this up in the local language.

The Fiji LMMA approach has broadened beyond just helping villages establish *tabu* areas and protect them from outsiders. Its participatory techniques and co-management methods are proving to be effective in improving local governance in general and the delivery of government services. In order to maintain the momentum of this work, FLMMA is continually identifying and addressing needs as they arise and conducting participatory workshops to help local communities to address new challenges.

As FLMMA emphasizes the need to involve all sectors of the community in a project, the inequitable representation of gender and youth needs to be further explored. Efforts are underway to find the best methods for mainstreaming women and youth into projects without violating traditional societal norms. In some communities, youths are encouraged to monitor the LMMAs or develop plays with environmental themes for presentation on special village occasions or at workshops. Women may be involved in waste management, such as composting or monitoring of the marine areas in which they

glean or fish. Holding separate women's meetings has inspired women to participate and discuss issues in a way that they would not when men are present. Having the voices of women heard at the decision-making level of coastal management, however, continues to be a challenge.

LMMA implementation in Fiji has led to increased resources and a corresponding reduction of poverty in rural communities that depend on marine resources. Equally important, the LMMA process has improved community solidarity as well as regional and national policy. The challenge now is to sustain the LMMA movement and decentralize it as it spreads throughout Fiji and other parts of the Pacific . 🍷

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