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USAID ISSUE BRIEF

TENURE, GOVERNANCE, AND NATURAL RESOURCE MANAGEMENT

CONTRIBUTIONS TO USAID DEVELOPMENT OBJECTIVES

INTRODUCTION

Both statutory and customary tenure systems are under stress in the face of global demographic growth, growing food scarcity, and environmental degradation of land, fisheries, and forest resources—compounded by the forces of global climate change. When resource tenure and property rights are insecure, the potential for

BOX A. USAID CORE DEVELOPMENT OBJECTIVES

- Increase food security.
- Promote global health and strong health systems.
- Reduce climate change impacts and promote low emissions growth.
- Promote sustainable, broad-based economic growth.
- Expand and sustain stable, prosperous, and democratic states.
- Provide humanitarian assistance and support disaster mitigation.
- Prevent and respond to crises, conflict, and instability.

sustainable resource management is undermined. However, as this issue brief illustrates, when the rules and institutions governing the use, transfer, and ownership of resources are secure, then the foundations are in place for sustainable resource management. The empirical evidence presented in this review of the causal relations between tenure security and sound resource management complements the principles and best practices for responsible governance of natural resources as articulated in recent international and USAID guidelines. In May 2012, the intergovernmental Committee on World Food Security endorsed the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security* (FAO, 2012). Consistent with the Millennium Development Goals, these voluntary guidelines articulate the principles and practices that can improve governance of tenure and sustainable use of land and other natural resources within the overarching goal of fostering food security—a core USAID objective articulated in the *USAID Policy Framework 2011-2015* (see Box A).

Building upon these voluntary guidelines, this issue brief explores the interface between tenure, governance, and resource management and ways in which USAID can incorporate good tenure governance into natural resource management policies and programs. In looking at the linkages between tenure security and the resource assets of forests, arid and semi-arid grasslands, wildlife, and freshwater and marine resources, this brief shows how formal recognition and protection of legitimate rights to the natural resource base are critically important incentives for conservation and sustainable use, management, and governance of resources.

FORESTS

The Food and Agriculture Organization (FAO) estimates that over 80 percent of the world's forests are publicly owned with the remaining held by local communities and municipalities (FAO, 2010, p. xxv). Mexico and Papua New Guinea are important exceptions because local communities and indigenous groups own the vast majority of the forests. FAO data also show that the overall rate of deforestation remains alarmingly high: approximately

5.2 million hectares per year were lost (an area about the size of Costa Rica) between 2001 and 2010, with most public forests suffering from large-scale illegal logging and other extractive activities (FAO, 2011, p. 3). Primary forests are under severe threat from rising global demand for timber and other forest resources. In the face of threats of forest loss, many countries are taking measures to improve governance of their remaining forest assets. In some cases, national polices favor decentralized forest governance by devolving management responsibilities to regional and local governments. Other countries promote co-management of forests between government and local communities. Some African and Asian countries take a more radical approach by simply devolving authority for forest management to indigenous user groups. Devolution to user groups themselves may be reducing illegal extraction while improving forest conditions and conservation of biodiversity, but numerous challenges remain (White and Martin, 2002). This section discusses how the principles of the voluntary guidelines concerned with securing legitimate rights to forests through devolution can help improve resource management and generate livelihood benefits for rural communities.

In **Mexico**, communities (*ejidos*) own 60 to 70 percent of the forests (Bray, 2010, p. 3). *Ejid*os enjoy inalienable rights to their communal forests, but may choose to transfer common land title to commercial or civil corporations for economic ventures (Resource and Rights Initiative, 2012, p. 4). There are no restrictions on subsistence use, and *ejidos* may develop forestry enterprises to generate income. Communities are required to submit federally approved 10-year forest management plans before commercializing timber production. According to the 2002 Revenue Law, communities are not taxed if engaged in extractive industry, but they are charged 50 percent of profits when producing finished products (Forster et al., 2004, p. 37). Since these reforms, many *ejidos* have developed community forest enterprises. As a result of greater security over commercial forest rights, hundreds of *ejidos* have organized themselves into forest companies with their own processing capacity. Some *ejidos* invest timber profits to establish sawmills, furniture factories, spring water bottling plants, and pine resin distilleries. Several *ejidos* are choosing to engage in production of certified timber to ensure sustainability (Rainforest Alliance, 2011).

Devolution of resource management authority to local communities may be leading to improved forest conditions (see Box B). In Oaxaca, research shows that—despite the high deforestation rates of recent decades—the pine-oak forests of the Sierra Norte region, dominated by community forestry enterprises, exhibited a 3.3 percent expansion of forest cover over a 20-year period (Gomez-Mendoza and Arriaga, 2007, p. 1554). Some communities are voluntarily conserving large tracts of their community forests. In addition, well-run enterprises contribute substantially to employment generation, and profits from forest enterprises are invested in schools, clinics, water systems, electricity, and social services such as free medical care and pension programs. Furthermore, these enterprises build social capital within and between communities, and promote peace in areas of high conflict and violence; this in turn helps to stem the tide of rural out-migration from these villages (Bray and Merino-Perez, 2002). Challenges remain, however, as income disparities within the communities become an ever-growing reality. At times, deforestation does expand within *ejidos* due to poor planning and inadequate regulation of extractive activities. Deforestation can also expand because *ejidos* have the right to sell forested lands once they are converted to agriculture or pasture lands (USAID, 2012, p. 10). The sell-off of forested lands occurs particularly when profits from timber harvests are low.

BOX B. COMMUNITY FORESTRY ENTERPRISES IN MEXICO

In Mexico, successful community forestry enterprises are showing positive natural resource impacts and are contributing to local development. A national study of 733 municipalities in eight states found that municipalities with higher percentages of community forests reduce the gross and net rates of deforestation, and increase the rate of forest recovery (Bray, 2010, p. 3). Other regional and national-level studies show that communities with forestry enterprises perform similarly to protected areas with respect to forest cover, and that long-inhabited extractive communities perform as well as uninhabited strict protected areas under low colonization pressure (Bray et al., 2008). Through a comparison of land use and land cover change maps derived from satellite images, researchers studying deforestation in 19 community forests and 11 protected areas in Mexico and Guatemala found that deforestation rates were higher in protected areas than in community forests between 1988 and 2005, although the differences were not significant (Bray et al., 2008).

BOX C. PERFORMANCE OF WOMEN CFUGS IN NEPAL

There are more than 1,000 CFUGs comprised exclusively of women. These women-only CFUGs manage more than 44,000 hectares of community forests. Research shows that despite receiving much smaller and more degraded forest areas, all-women CFUGs are outperforming other CFUGs, showing better forest regeneration and improved canopy cover. This is attributable to women's contributions to improved forest protection, compliance to guidelines, and development of stricter rules despite personal hardships. Additional contributing factors are the increased opportunities for women to use their knowledge of plant species and methods of product extraction, as well as the likelihood of greater cooperation among women (Agarwal, 2009, p. 2792).

In **Nepal**, forest management has devolved to user groups through the community forestry initiative. Community forestry user groups (CFUGs) can use and manage forest resources, but the state retains ownership over the land. Communities have the right to sell some non-timber forest products (NTFPs), but in several areas, they do not have rights to sell timber or other high-value resources. As of April 2012, about 17,700 CFUGs had been formed nationwide (over 1,000 exclusively by women [see Box C]), governing nearly 30 percent of Nepal's total forest area, and engaging 38 percent of all households in Nepal (Kanel, 2012, p. 7). CFUGs are involved in local value-added processing and marketing of multiple forest products. These include community-based wood depots and sawmills, small furniture workshops, large numbers of handicraft producers (which in the Kathmandu Valley alone produce in excess of US \$1.0 million per year), medicinal and aromatic plant producers estimated to produce US \$8.6 million per year, and numerous other small paper, resin, and dye producers (Asia Network for Sustainable Agriculture and Bioresources, 2009, pp. 22-23). Recently, under the Forest Stewardship Council (FSC) certification scheme, 21 community forests of the Dolakha and Bhajhang districts have certified about 14,086 hectares (Kanel, 2006, p. 31).

While comprehensive and detailed ecological research is limited, Landsat imagery and field studies show improved governance of community forests and improved livelihoods. In particular, in the Kabhre and Sindhupalchok districts of central Nepal, research shows that shrub and grass lands have been converted into productive forests, and forest area increased from 7,677 to 9,678 hectares (37.5 percent) between 1978 and 1992 (Kanel, 2006, p. 30). In a mountain watershed of Kabhre district, a study showed reduction in the number of forest patches from 395 to 175, and an increase in net forest area by 794 hectares between 1976 and 2000 (Gautam et al., 2003, p. 93). Another analysis of five community forests over a 10-year period (1993–2003) found that tree and sapling density increased. Similarly, a four-year study conducted in four districts of the Koshi Hills engaged in community forestry shows a 20 percent decline in grazing in community forests compared to that within public forests, a 29 percent increase in basal area, and 51 percent increase in number of tree stems (Kanel, 2006, p. 30). Devolution of forest rights has also had numerous other livelihood and development benefits. Communities are meeting many subsistence needs for timber, firewood, and fodder for livestock; generating income through NTFP enterprises; providing employment; strengthening social capital; and enhancing their leadership capacity as CFUG members take on positions in various political and civil society organizations. However, continuing government restrictions against selling high-value forest products have prevented communities from engaging in income-generating opportunities as in the case of the Mexican *ejidos*.

The success of community forestry in Nepal is well recognized, but evidence of exclusion of poor households from the benefits of the scheme has been noted repeatedly. As a result of the critique, government revised the Forest Act in 1993 to allow for a leasehold forestry provision, allocating land to households below the poverty line. Leaseholders are granted long-term exclusive use rights to degraded forestlands under a 40-year lease free of charge; these leases can be renewed for an additional 40 years. All benefits from forest enterprises go directly to the leaseholders. As of August 2011, about 6,700 leasehold forest groups had been formed, covering an area of 62,745 hectares (USAID, 2012, p. 45). Unlike community forests, leasehold forest groups do not have rights over existing forests, but they do have rights over the forest or agricultural products they produce. Evaluation of leasehold forestry is showing mixed results. Some have experienced increases in ground cover, species diversity, and tree density; in others, overgrazing has diminished forest cover. Many leasehold groups are experiencing an improvement in their economic status and food security due to free access to fuel wood, fodder, and other products derived from forests. However, enforcement remains a major challenge, as many leasehold forests are

located on lands historically considered as open access community spaces. Poor households are finding it difficult to exclude external users, a problem exacerbated by the leaseholders' lower social status (USAID, 2012, p. 45).

Continuing Challenges

Despite these successes, the statutory requirements of forest devolution impose overly demanding rules on forest user groups involved in preparing management plans, monitoring forest health, or setting up the organizational framework of the management committee. Community forestry groups confront high costs and delays in obtaining approval from government for permits. Government policies and administrative practices continue to give preference to large-scale producers and processors, establish market rules that burden small-scale producers (such as various requirements for legal permits, high taxes on extraction, and value-added forest products), or set prices that undervalue forest resources. Unfortunately, local communities lack access to technical and financial support needed to establish forest enterprises.

SEMI-ARID AND ARID GRASSLANDS

The world's drylands occupy 40 percent of the entire land area (Global Dryland Initiative [GDI], 2003a, p. 2), and 100-200 million people make their living on these arid and semi-arid regions through pastoralism (the practice of extensive grazing on drylands for livestock production). Customary land tenure systems operate in many dryland areas, and communal tenure is a common feature with overall authority for land vested in traditional leaders. Resource rights are generally identified with group membership (e.g., clan or tribe). Many pastoralist groups move seasonally from home areas to dry season territories while accessing buffer zones bordering competing groups (GDI, 2003a). Carefully negotiated rules ensure access to seasonal rivers, wooded areas, and dry season grazing areas reserved for times of drought. Areas utilized by pastoral communities tend to change with the seasons and over the years, depending on climatological variations and the nature of negotiations between competing communities. Control over livestock water points like seasonal ponds, wells, and boreholes is a prime determinant of access to semi-arid and arid pastures. Ownership of water sources is usually vested in the collective rather than in individual households. Today, approximately 10 to 20 percent of drylands are degraded due to conversion to other land uses such as agriculture. With climate change and an increasing frequency of droughts, the vast expanses of dry lands will continue to grow. Some countries are strengthening customary tenure and systems of governance by granting individual (Botswana) or collective leaseholds to rangelands (Mongolia, some Sahelian West African countries), granting individual ownership to rangelands (Tunisia), and allocating collective ownership rights (Kenya). These initiatives illustrate how the voluntary guideline principles of recognizing and safeguarding legitimate rights to resources help improve pasture management and reduce poverty, food insecurity, vulnerability, and conflict.

In **Mongolia**, the government has initiated leasing of pastures and hayfields ("possession certificates") to recognize customary tenure. Leases are given out to herder groups, rather than to individuals. District governors are responsible for allocating winter-spring pastures to herder groups, based on proposals received from lower administration levels. The district-level representative assembly can set herd size limits for winter pastures, and can set and impose grazing fees (FAO, 2007, p. 9). Local governments are now able to set and enforce the rules governing seasonal movements of livestock and reduce unsanctioned or out-of-season grazing. With long-term group contracts, possession certificates, and co-management arrangements, governance of pastures has improved. Studies by the FAO suggest that these tenure arrangements are protecting grazing lands against overstocking and the underlying free-for-all competition for grasslands—factors contributing to the degradation of pastures (FAO, 2007, p. 10). Moreover, the leasing arrangements have provided herders with incentives to settle in underused and unused pastures. Granting of 15 to 60 year possession rights over winter

BOX D. ECONOMIC CONTRIBUTIONS OF PASTORALISTS

Dryland pastoral livelihoods make a major contribution to national economies, and in most cases, provide higher per hectare economic returns than farming or ranching in similar conditions (GDI, 2003b, p. 9). For example, in Mongolia, pastoral livestock are responsible for one-third of GDP and are the second largest source of export earnings (32 percent) after minerals (41 percent) (GDI, 2003b, p. 9). Pastoralists have driven trade in livestock and related products for centuries. New research shows that the informal livestock economy in the horn of Africa alone amounts to around \$1 billion a year (Catley et al., 2012, p. 7). Despite this, policymakers have marginalized pastoralist communities in favor of sedentary populations.

BOX E. PASTURE CO-MANAGEMENT IN MONGOLIA

A 10-year study conducted on one pasture co-management initiative in the Gobi Desert region showed significant difference between co-managed and neighboring pastures. The overall green season for co-managed sites was 15.4 percent greater than in other sites, had 15.2 percent more plant biomass, and plants grew 14 percent more during the drought years. The peak growth of grass in the community-managed areas was 14.8 percent greater, plant growth was denser, and there was more forage available for livestock and wildlife. Socioeconomically, co-management groups were better off than other herder groups in their districts, with 12 percent greater median annual income, a more diversified range of income-generating activities, and better access to credit (Leisher et al., 2012, p. 4).

and spring shelters, vegetable plots, and hayfields has encouraged herder groups to implement simple and efficient pasture management measures such as pasture rotation, restoration of abandoned crop fields, involvement in participatory pasture monitoring and research, and establishment of sustainable financing mechanisms to pasture improvement.

Mongolia pasture reforms are showing many benefits (see Box E). In some cases, growth in income was higher among middle- and low-income households. The government scheme has helped improve women's participation in governance and income-generating activities. Additionally, the development of herder group microcredit and diversification of revenue sources through processing livestock products or other activities (vegetable gardening, ecotourism) allowed women to accrue significant profit and diversify their food supply (FAO, 2007).

In **West Africa**, several governments over the past two decades have created legal frameworks to recognize and protect pastoralists' rights of access to natural resources: Niger in its Rural Code (1993), Burkina Faso (2002), Guinea (1995), Mauritania (2000), and Mali (2001) (Cotula et al.,

2004, p. 25). These codes and laws on pastoralism recognize mobility as the key strategy for pastoralist resource management. Mali's Pastoralist Charter protects grazing lands and cattle corridors from agricultural encroachment and secures herders' access to strategic seasonal resources. Pastoralist laws also enable and regulate multiple and sequential use of resources by different stakeholders (e.g., herders' access to cultivated fields after harvest), and define the role that pastoralists can play in local conflict resolution. Some problems remain, however. Pastoralist laws have not been accompanied by implementing regulations (Mali), nor have the necessary governance institutions been put in place (Niger). The legislation on pastoralism is linked to policies and administrative structures favoring decentralization. Because communes—often dominated by the interests of sedentary populations—have the responsibility for natural resource management, pastoralists are sometimes excluded from decision-making on land uses. The new pastoralist codes still fail to protect the flexible, collective property regimes of customary rangeland management practices. The concept of “productive land use” continues to emphasize agricultural land uses to the detriment of rangelands, despite the fact that pastoralist livelihoods generate six times more revenue than agriculture practiced in the same ecological zones. Nevertheless, some innovations are promising. For instance, in many Sahelian West African countries, “local conventions” and “land charters” consist of community-based agreements validated by local authorities on the management of shared natural resources. These conventions take into account interests of pastoralist communities (Cotula et al., 2004, p. 26). However, how effective these agreements are in practice remains unclear. Empirical research is needed on the impact of these conventions on rangelands in arid and semi-arid West Africa.

Continuing Challenges

Pastoralism continues to be viewed as archaic, ecologically unsustainable, and of little economic value. Negative perceptions are deepened as pastoralists are linked to images of drought, famine, and conflict (Catley et al., 2012, p. 7). Yet, research shows that pastoralism in dryland areas is more economically profitable than farming or ranching. Pastoralism can contribute ecological benefits like maintaining species diversity, maintaining ecosystem structures, and reducing impact of disasters such as fires, drought, and flooding through active management of vegetation. Pastoralists tend to have built-in capacities to adapt to climate change, based on long histories of adaptation to erratic weather patterns (Secretariat of the Convention on Biological Diversity, 2010, p. 10). If pastoralists' contributions to local livelihoods and regional and national economies were better known,

perhaps tenure reform strengthening the rights of these people would be better accepted by policy and legislation.

WILDLIFE

In most countries, ownership over wildlife is vested in the state. The state may grant rights to hunt and cull wildlife through permits or licensing schemes; however, government often retains control over the revenue streams. States commonly protect wildlife and wildlife habitat by designating protected areas on public lands or through community-based natural resource management (CBNRM) schemes with responsibilities of governance shared with resident communities. Despite these government measures to protect wildlife and associated ecosystems, species exploitation and habitat destruction continue. Today, nearly 20,000 species of plants and animals worldwide face extinction—including 13 percent of birds, 25 percent of mammals, and 41 percent of amphibians—largely due to shrinking habitats, but also to poaching and illegal trade of wildlife (Global Wildlife Conservation, 2012). Over the past two decades, Botswana, Namibia, Zambia, and Zimbabwe have devolved control and management of wildlife to local communities, including benefits derived from it, to reduce incentive for poaching. In South Africa, privately managed wildlife reserves abutting national parks have played an important part in creating buffer zones around these protected areas. Devolution of wildlife management to communities and private enterprises are generating enormous benefits to local communities and businesses. Community-based wildlife programs have benefitted significantly from USAID support through the Living in a Finite Environment (LIFE) and CBNRM programs in Namibia and Botswana, respectively.

In **Namibia**, the 1996 revisions in wildlife policy and legislation gave rural communities ownership over certain species of wildlife, exclusive use rights to other species, and exclusive concessionary rights over tourism (Jones, 2007). Communities organized as conservancies can retain 100 percent of income from contracts with the private sector for trophy hunting and photographic tourism. To participate in the program, conservancies must be legally constituted with a defined membership and a management committee formed to develop a strategy for wildlife management and equitable distribution of benefits. Management committees write game management plans and establish mechanisms to resolve disputes among the members.

Devolution has led to a marked reduction in poaching, while the introduction of local wildlife management practices (e.g., development and maintenance of water points and wildlife production zones, reintroduction of game to facilitate faster recovery rates, reduced cattle grazing areas) has contributed to the recovery of populations of some species. For example, there has been a doubling of mountain zebra, near doubling of gemsbok, and sharp increases in oryx and springbox in northwest Namibia (Namibian Association of CBNRM Support Organisations, 2011, p. 11). Populations of rare species (notably black rhino) more than doubled in these conservancies; elephant numbers increased from 13,000 in 1996 to 20,000 in 2005 (Carrington, 2012). The conservancies have led to the creation of thousands of jobs in the tourism industry. Today, the country's 74 conservancies are earning more than US \$4.8 million (Carrington, 2012). Some conservancies use funds to create water points for game or install water points for community use. Other conservancies have invested in schools and programs to support vulnerable families such as those affected by HIV/AIDS. Women fill more than half of the jobs generated by conservancy businesses. Yet, problems remain. While conservancies have exclusive rights to manage wildlife and set up tourism ventures on their land, they have no right to exclude those engaged in livestock grazing and other economic activities. Lacking exclusionary powers, conservancies are encountering difficulties in managing wildlife and associated habitats. Furthermore, governance of conservancies are split between traditional authorities concerned about using the land for subsistence purposes, and the communal land boards (a co-management entity) managing land for uses by external economic interests. Inevitably, conflicts erupt over competing land use demands (Jones, 2007, p. 25).

In **Botswana**, community trusts are set up to lease land from land boards for community-designated controlled wildlife viewing and trophy hunting areas. Land is leased for an initial 15-year period, which includes limited rights of wildlife management; communities do not have exclusive control over all land uses. However, as in Namibia, fiscal devolution allows communities to retain 100 percent of income from trophy hunting and game viewing (Jones, 2007, p. 27). Some community trusts have developed joint venture agreements with safari and tourism enterprises. They accrue financial benefits by subleasing hunting areas, selling meat and wildlife quotas to venture partners, and participating in tourism enterprises.

As a result, some species are more abundant. In particular, elephant populations in Botswana doubled between 1994 and 2006 (Vision 2016 Council, 2010, p. 8). However, population dynamics of other wildlife vary dramatically across species. Many other species, though not increasing, have maintained their numbers, but several species have also shown declines in numbers. Rural communities are beginning to realize a significant income from wildlife, tourism, and commercialization of secondary forest products. Several community trusts in the Okavango Delta are generating US \$2 million annually from a variety of ventures. Employment generated by community trusts and tourism companies has more than doubled in some areas. Communities are beginning to develop their own businesses and are engaged actively in all elements of resource management. However, use rights to community-designated controlled hunting areas are derived from policy; they are not entrenched in law. Community control is therefore insecure and of limited duration (Jones, 2007, p. 28). Longer-term leases over land would go a long way toward creating the right incentives for management.

Continuing Challenges

The devolution of wildlife management to local communities, coupled with trophy hunting and ecotourism, has yielded many benefits ranging from increase in wildlife numbers, to expanding habitats and significant economic growth. Not only has devolved wildlife management worked on private lands, but also on communal lands with people of initially limited business skills. However, lack of control over the full range of resource assets on the land limits the ability of local communities to manage habitats for multiple uses. Secure and longer-term land and governance rights may help communities manage these areas more effectively. While the causal linkages between devolution and improved resource management appear quite strong, there is still a need for more rigorous monitoring of trends in wildlife and habitat.

FRESHWATER, MARINE, AND WETLAND RESOURCES

In most countries of the world, marine and freshwater resources are considered state property and under the management of various governmental bodies. In most developing countries, local communities possess rights to use, but not own, water for irrigation and home consumption, often free of charge. However, this practice is changing. User fees are increasingly applied for the provision of potable water and for small-scale irrigation. Commercial water use typically requires a permit and the payment of water fees. Many countries follow the same rules for fisheries (Bruns et al., 2005). As is now so well reported, major water crises are cropping up around the world due to the scarcity of freshwater. The diversion of water for industry, damming and diversion of rivers, draining of wetlands, and climate change-induced droughts are inciting water-related conflicts. Groundwater—90 percent of the world’s readily available freshwater—is being depleted rapidly; this in turn is contributing to increasing water prices, rising cost of irrigation, rising food prices, and reduced access to potable water and sanitation (Brown, 2005). Furthermore, half of the world’s wetlands have disappeared over the last century. Nearly 80 percent of the world’s fish stocks are overexploited or have collapsed due to poor governance and the de facto open access of marine fisheries (World Business Council for Sustainable Development, 2006, p. 8). Subsistence and small-scale fisher folk are losing ground due to growing competition from commercial vessels; this in turn has implications for food security and poverty alleviation.

National governments are now engaging in a variety of legislative and institutional reforms to improve governance of freshwater, marine, and fisheries resources. These reforms include community-based or co-management of watersheds, integrated water resources management between various sectors, and recently, more privatization of freshwater resources. Yet, governments work within structures like the Law of the Seas and other international conventions governing access to coastal fisheries. Co-management and customary marine tenure arrangements are particularly advanced in several of the Pacific Island states. New studies suggest that these initiatives can help sustain much of world’s declining fisheries (Gutierrez et al., 2012). This section presents three case studies that show how respect for customary tenure and the rights of local communities can help improve fisheries management and food security for local communities.

In the **Philippines**, the Apo Island Marine Reserve, an early community-based marine protected area, is a classic example of a highly successful community-based coral reef fishery and marine biodiversity conservation initiative operating under the policy and legal framework of the Local Government Code of 1991 and the Fisheries Code of 1998. On the southeast side of Apo Island, the communities established “no-take” marine reserves where all forms of fishing are prohibited; these reserves were designated by municipal ordinance (Alcala et al., 2005, p. 1). A system of collaborative management of the reserve was put in place involving an organized fisher community,

local government, and an academic institution as facilitator and adviser. The Apo fishing community retained its rights to fish outside of the reserve. The community developed rules to reduce fishing pressures, such as using gear restrictions to reduce damage to coral and non-target species of fish (see Box F for a similar USAID program).

Research conducted since the beginning of the initiative has provided some of the most compelling evidence available for community-managed fisheries. Research shows that the biomass of target fish (four families accounting for 75.6 percent of the fisheries yield at Apo) increased inside the no-take reserves 4.5 times over 18 years of no-take protection (Alcala et al. 2005: 106). The biomass of large predatory fish and highly favored targets of reef fisheries increased 17.3 times during this period. The results suggest that marine reserves can help enhance local fishery yields in the long term, enhancing the living standard of the island community. The overall benefits have generated strong local support for no-take reserves. Following Apo's lead, more than 400 other villages have started community or co-managed marine sanctuaries in the Philippines (Worldwatch Institute, 2005).

In the **Pacific**, customary marine tenure exists in some form on most islands. In some cases, customary tenure systems are recognized in national law, while in others their recognition is informal. Island states such as Vanuatu combine statutory and customary tenure regimes in marine fisheries. Under customary marine tenure, local communities are able to claim exclusive rights to fishing areas, and have the right to regulate activities and exclude outsiders from these areas. Most traditional management involves the implementation of taboos. Traditional knowledge regarding seasonality of fish is typically used to determine taboos and enforce community fishing practices. If taboos are violated, the village court (though not legally recognized) imposes sanctions. Infractions at the community level are dealt with in the "custom courts" that emphasize consensus and compromise, avoiding a win/lose situation. National fisheries regulations are also adopted and enforced by traditional leaders, provided the regulations support the community's management objectives. Legislation allowing devolved management of fisheries has created a strong partnership between government and communities.

The case of voluntary village-based trochus management in Vanuatu is particularly instructive. Trochus is a large marine snail, and the country's largest commercial export. In a survey conducted by the fisheries department, trochus stocks were found to be rapidly declining. The fisheries department advised villages on the benefits of regular multiple year closures of trochus fisheries, followed by brief lifting of fishing bans. Communities are left to decide whether or not to act on this advice. A 1993 study revealed that many villages followed the technical advice of the government fisheries department and found the new management scheme so profitable that other villages soon afterward followed the experiment (Johannes and Hickey, 2004, p. 4). To the surprise of observers, many villages decided to protect other marine animals as well, and banned or restricted harmful fishing practices such as night spearfishing and the use of gillnets. One village even set up a marine protected area, stocking it with giant clams. By 2001, community-based marine resource management measures had more than doubled (Johannes and Hickey, 2004, p. 16), supporting the finding that customary marine tenure (the right of villagers to control activities on their traditional fishing grounds and to exclude outsiders) provides an essential tool for near-shore marine resource management in Vanuatu. Challenges remain, nevertheless, as enforcement is not always effective, particularly when it involves outsiders not bound by local rules who poach on a community's marine resources. Legal recognition of traditional management systems and customary law can empower traditional authority and help enforce rules. Further, the task of enforcement can be delegated to communities under formal legal frameworks (e.g., fisheries wardens appointed by communities)—supporting rather than undermining traditional authority.

In **Bangladesh**, inland fisheries and wetlands have been gradually encroached upon and the remaining wetlands are overused. The wetland fisheries are in decline due to short-term leasing of public water bodies—the *jalmohals* (typically permanent water bodies leased out by the state)—by the government to maximize revenue

BOX F. USAID/PHILIPPINES FISH PROGRAM

The USAID/Philippines Fisheries Improved for Sustainable Harvest (FISH) program combined community-based access rights with the use of fishery reserves and gear restrictions to produce dramatic results. When compared with the 2004 baseline information, the fisheries biomass increased 13 percent for the four marine ecosystems. Stocks of multiple fisheries and species improved in each region, reversing a long-term decline (USAID, 2013).

(Thompson, 2006, p. 5). To address this issue, the Government of Bangladesh and USAID developed the Management of Aquatic Ecosystems through Community Husbandry (MACH) program to strengthen access of local communities to wetland fisheries, and hence alleviate poverty and improve wetland management. With field operations in more than 110 fishing villages, the program regulated access to wetlands through short-term leases. Within the three wetlands covering 21,000 acres, 16 resource management organizations were given lease rights over a distinct area of one of the wetlands, thus securing rights over the resource.

Through these efforts, villages improved fisheries productivity in the three degraded wetlands, resulting in increased fish catch as well as improved food security, incomes, and nutrition for 184,000 of the poorest citizens. Fish catches in project villages rose by 140 percent, consumption increased by 52 percent, and average daily household incomes increased by 33 percent (Angell, 2008). Due to the restoration of wetland habitats and fish stocks, the communities earned US \$4.7 million more from local fisheries sales in 2004 than in 1999. Due to its success, the program was scaled up by securing lease rights and promoting co-management of additional wetlands.

Continuing Challenges

Co-management initiatives have been successful, but they reveal the difficulty of attributing roles, rights, and responsibilities, especially where the groups involved have highly divergent interests. Many co-management efforts rely on outside agents to facilitate collective action, but sustaining that action has proved difficult. Devolution can be an effective means to grant local users greater control, provided that real authority is indeed transferred to local communities and that adequate safeguards are established. Reforms in legal frameworks governing water increasingly take the route of privatizing the resource and devolving management control to local entities. While these efforts try to take into account equity issues, privatization of potable water and water used for irrigation and industrial purposes is increasing the cost of water as state subsidies are removed (Bruns et al., 2005). For those poor who have few means to purchase water, their health and welfare are at risk.

EMERGING TENURE AND PROPERTY RIGHTS PRINCIPLES FOR SUSTAINABLE RESOURCE GOVERNANCE

As is clear from the cases presented in this issue brief, property rights and security of tenure do influence individual and community decisions to use and conserve resources. As tenure arrangements are culturally derived and place-specific, policymakers and development practitioners need to take the necessary time to understand local contexts before designing program and project interventions. Thoughtful incorporation of the principles of the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security* into program design can help reduce conflict over land and natural resources, empower the rural poor, prevent the vulnerable from falling into poverty, ensure food security, secure livelihoods, contribute to economic growth, and contribute to cost-effective natural resource governance. Key points to keep in mind:

- **Recognize and clarify legitimate property rights including customary rights** through appropriate legal and policy reform.
- **Secure and formalize customary and other legitimate property rights** where possible through proper mapping, registration, and field-level demarcation; and engage a broad spectrum of stakeholders, especially women and vulnerable populations in formalization initiatives to ensure rights are protected for all groups.
- **Provide incentives for sustainable management to user groups** by securing long-term land and resource rights. With firm rights, encourage sound resource stewardship.
- **Harmonize land and resource rights** to remove any conflicting clauses in statutory law that prevent sustainable governance of natural resources or lead to conflict.
- **Respect historical rights to resources.** Support recognition of historical rights to resources provided that these contribute to sound resource management as determined by international treaties and conventions as well as currently understood practices. Within international and national statutory frameworks, provide fair compensation and restitution for resources expropriated from local communities for other land uses.

- **Devolve resource governance to local communities within institutional structures of multi-level coordination.** Strengthen local institutions of governance where these are respected at the local level but recognize needs for coordination at multiple scales for fugitive resources like migratory species of fish and wildlife. Recognize role of international conventions (RAMSAR, Law of the Seas, transboundary conventions) as mechanisms facilitating resource governance between decentralized entities. Strengthen dispute resolution and enforcement systems within structures of devolved resource governance regimes.
- **Institute transparent and accountable co-management arrangements.** Respect the indigenous knowledge of resource users and the role this knowledge can play in good governance of natural resources. Involve women and vulnerable groups in decisions affecting resources they use.
- **Create new income opportunities for local communities** based upon secure management and usufruct rights over land, forest, water, or fisheries resources. If good governance arrangements are in place, this will become a key incentive for sustainable resource management.
- **Monitor rigorously the linkages between tenure security, good resource governance, and ecological indicators.** To date, monitoring systems have generally failed to determine the causality between security of tenure and improved resource management. This issue brief highlights the few cases where the nexus between tenure and ecological indicators are demonstrated. Since indicators of ecological change often surpass the duration of a project, educational institutions ought to be supported to carry out long-term research showing these linkages. Longitudinal research on ecological and land use changes combined with solid empirical ethnographic research on evolving tenure and governance regimes can provide sound evidence of the causality between tenure security and improved resource management.

REFERENCES

- Agarwal, Bina. 2009. Gender and forest conservation: The impact of women's participation in community forest governance. *Ecological Economics* 68: 2785-2799.
- Alcala, Angel C., Garry R. Russ, Aileen P. Maypa, and Hilconida P. Calumpong. 2005. A long-term, spatially replicated experimental test of the effect of marine reserves on local fish yields. *Canadian Journal of Aquatic Sciences* 62: 98-108.
- Angell, Philip. 2008. Strengthening the poor's roots to resilience. World Resources Institute. Website: <http://www.wri.org/stories/2008/07/strengthening-poor-roots-resilience> (accessed 20 October 2012)
- Asia Network for Sustainable Agriculture and Bioresources. 2009. Challenges and opportunities for Nepal's small and medium forest enterprises (SMFEs). Asia Network for Sustainable Agriculture and Bioresources, Kathmandu, Nepal.
- Bray, David. 2010. Toward 'post-REDD+ landscapes.' Mexico's community forest enterprises provide a proven pathway to reduce emissions from deforestation and forest degradation, Infobrief 30, Bogor: CIFOR.
- Bray, D.B., E. Duran, V.H. Ramos, J.F. Mas, A. Velazquez, R.B. McNab, D. Barry, and J. Radachowsky. 2008. Tropical deforestation, community forests, and protected areas in the Maya Forest. *Ecology and Society* 13 (2): 56. Website: <http://www.ecologyandsociety.org/vol13/iss2/art56/> (accessed 20 October 2012).
- Bray, David, and Leticia Merino-Perez. 2002. The rise of community forestry in Mexico: History, concepts, and lessons learned from twenty-five years of community timber production. Mexico City: The Ford Foundation.
- Brown, Lester. 2005. *Outgrowing the Earth: The food security challenge in an age of falling water tables and rising temperatures*. Earthscan: London.
- Bruns, Byan, Claudia Ringler, and Ruth Meinzen-Dick (eds.). 2005. Water rights reform: Lessons for institutional design. Washington, DC. IFPRI.
- Carrington, Daisy. 2012. How Namibia turned poachers into gamekeepers and saved rare wildlife. CNN Eye On Series. CNN.

- Catley, Andy, Jeremy Lind, and Ian Scoones (eds.) 2012. Pastoralism and development in Africa: Dynamic change at the margins. Routledge.
- Cotula, Lorenzo, Camilla Toulmin, and Ced Hesse. 2004. Land tenure and administration in Africa: Lessons of experience and emerging issues. London: IIED.
- Food and Agriculture Organization (FAO). 2007. Institutionalizing pastoral risk management in Mongolia: Lessons Learned. Rome: FAO.
- FAO. 2010. Global forest resources assessment 2010. FAO Forestry Paper 163. Rome: FAO.
- FAO. 2011. State of the world's forests 2011. Rome: FAO.
- FAO and Committee on World Food Security. 2012. *Voluntary guidelines on the responsible governance of tenure of land, fisheries, and forests in the context of national food security*. Rome: FAO.
- Forster, R., L.A. Arguelles, S. Kaatz, and N. Aguilar. 2004. Market options and barriers for community produced timber and sawnwood from Michoacan, Oaxaca, Guerrero, Campeche, and Quintana Roo. Forest Trends, University of Quintana Roo, Tropical Rural Latinoamericana, and National Forest Commission, Mexico.
- Gautam, Ambika P., Edward L. Webb, Ganesh P. Shivakoti, and Michael A. Zoebisch. 2003. Land use dynamics and landscape change pattern in a mountain watershed in Nepal. *Agriculture, Ecosystems, and Environment* 99: 83-96.
- Global Dryland Initiative (GDI). 2003a. Land tenure reform and the drylands.
- GDI. 2003b. Challenge paper: Pastoralism and mobility in the drylands. Global Dryland Initiative.
- Global Wildlife Conservation (GWC). Our mission and vision. Website: <http://www.globalwildlife.org/about/mission> (accessed 30 October 2012).
- Gomez-Mendoza, L., and L. Arriaga. 2007. Modeling the effect of climate change on the distribution of oak and pine species of Mexico. *Conservation Biology* 21: 1545-1555.
- Gutierrez, N., R. Hilborn, and O. Defeo. 2012. Leadership, social capital, and incentives promote successful fisheries. (Letter) *Nature* 470: 386-389.
- Johannes, R., and F. Hickey. 2004. Evolution of village-based marine resource management in Vanuatu between 1993 and 2001. Rome: UNESCO.
- Jones, Brian. 2007. Synthesis of the CBNRM policy and legislation in Botswana, Malawi, Mozambique, Namibia, Zambia, and Zimbabwe. Occasional Paper, Number 16. Harare: WWF-SARPO.
- Kanel, Keshav. 2012. Overview of Nepal's tenure reform, 1992-2012. Washington, DC: Rights and Resources Initiative.
- Kanel, Keshav. 2006. Current status of community forestry in Nepal. Paper submitted to Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC), Bangkok.
- Leisher, Craig, Sebastiaan Hess, Timothy Boucher, Pieter van Beukering, and M. Sanjayan. 2012. Measuring the impacts of community-based grasslands management in Mongolia's Gobi. *PLoS ONE* 7(2): e30991.
- Meinzen-Dick, Ruth and Monica Di Gregorio (eds.). Collective action and property rights for sustainable development. Focus 2020, Washington, DC: IFPRI.
- Namibian Association of CBNRM Support Organizations (NACSO). 2011. Namibia's communal conservancies: A review of progress 2010. Windhoek: NACSO.
- Rainforest Alliance. 2011. Community forestry in Mexico. Website: <http://www.rainforest-alliance.org/community-forestry/regions/mexico> (accessed 20 October 2012).
- Rights and Resources Initiative. 2012. Mexico: *Ejidors* located on forest land. Washington, DC: Rights and Resources Initiative.

Secretariat of the Convention on Biological Diversity (CBD). 2010. *Pastoralism, nature conservation, and development: A good practice guide*. Montreal: CBD.

Thompson, Paul. 2006. Fishing rights and access: Poverty reduction and sustainable fisheries. Policy Brief 6, Dhaka: MACH Program.

United States Agency for International Development (USAID). 2010. USAID Policy Framework 2011-2015. Washington, DC: USAID.

USAID. 2012. Devolution of forest rights, and sustainable forest management: A review of policies and programs in 16 developing countries. Property Rights and Resource Governance (PRRG), Washington, DC: USAID.

USAID. 2013. The quest for sustainable fisheries. Website: <http://philippines.usaid.gov/newsroom/success-story-quest-sustainable-fisheries> (accessed 23 February 2013).

Vision 2016 Council. 2010. Long-term vision for Botswana. Fourth Quarter Report, Botswana.

World Business Council for Sustainable Development. 2006. Water facts and trends.

White, Andy, and Alejandra Martin. 2002. Who owns the world's forests? Forest Tenure and Public Forests in Transition, Forest Trends, Washington DC.

Worldwatch Institute. 2005. Environmental tipping points: A new slant on strategic environmentalism. Website: <http://www.worldwatch.org/node/587> (accessed 16 October 2012).

World Resources Institute (WRI). 2011. A compilation of green economy policies, programs, and initiatives from around the world. Washington, DC. WRI.

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