

# Community Needs

*Efforts to involve local people in the conservation of biological diversity will not succeed in the long term unless local people believe those efforts contribute to their welfare.*

**W**hile such fundamental needs as food, shelter, health, and clothing are universal, the ways and means of satisfying them vary according to culture, historical context, and prevailing conditions. In industrialized nations, fundamental human needs are catered to mainly by market supplies and industrially produced



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*Fundamental needs, such as food, must be satisfied for a conservation project to succeed.*

goods (Pimbert and Pretty 1997). In rural Africa and Madagascar, wild plants and animals contribute significantly to food and livelihood security, and, in some cases, constitute the primary source of resources to fulfill basic human needs. Wild species provide food and dietary supplements, contribute to household income, provide medicines, constitute a major source of building materials and household tools, and provide

energy for cooking and food for livestock (Makombe 1993; Ntiamoa-Baidu 1997). Wild species may be food items of choice in good times, they may also be lifesaving reserves in times of food shortage (Falconer 1991; Hoskins 1991). In traditional societies, natural resource conservation was aimed at regulating resource use and ensuring that resources upon which people's livelihood depended were always available.

In the more developed world, basic needs for food, shelter, health, and clothing may be taken for granted. In rural Africa and Madagascar, obtaining even these basic needs is often a real struggle. Many people live in abject poverty. According to estimates of the Food and Agriculture Organization (FAO), the Gross National Product (GNP) per capita of Africa in 1990 was U.S. \$470, with 0 percent annual growth in the previous decade. This compares with the average for all developing nations of U.S. \$763 and annual growth of 1.8 percent, and U.S. \$13,362 and annual growth of 2.8 percent for developed nations (FAO 1995).

Natural resource conservation through protected area establishment in Africa and Madagascar was initially based on the concept of preservation without consideration for meeting rural people's needs. Local farmers, fishermen, and pastoralists were driven away from their ancestral lands when they were expropriated as protected areas, and they were denied access to resources upon which they had depended for their livelihood and food security. In most cases, without due regard for people's culture, hopes, or aspirations, no alternatives were provided, and the needs and rights of people were either not addressed at all or poorly met. This situation invariably resulted, at best, in apathy; more often, it resulted in antagonism toward conservation measures, sometimes resulting in serious confrontation between local people and protected area projects. In many cases, the lack of adequate provision for livelihood security of people living around protected areas invariably promoted local actions that undermined the objectives for managing the area, and, in some cases, threatened the long-term productivity of the natural resource base. Unfortunately, the retaliatory actions of the rural communities often caused further environmental degradation, increasing poverty and decreasing quality of life, the end result being more bitterness toward conservation actions and intensification of conflicts between rural people and protected area managers.

To balance the twin goals of conserving biodiversity and meeting people's needs, the use of natural resources must be sustainable. Observation of BIOME projects suggests that project managers and staff have several options available for achieving this:

- 🌿 Promoting the sustainable harvest of the resource
- 🌿 Promoting *ex situ* cultivation of the resource
- 🌿 Increasing the market value of a managed resource
- 🌿 Providing alternative resources or income, and
- 🌿 Providing directly for people's needs.

The BIOME projects illustrate examples of all of these options.

## Observations from the Field

### PROMOTING THE SUSTAINABLE HARVEST OF THE RESOURCE

It may be possible to promote the sustainable harvest of certain wild resources. These are typically resources that are either tolerant of intensive use or that are of high value.

Thatch-grass marketing is an excellent example of how the commercialization of wild resources can result in a steady source of revenue for local communities

with little risk of resource overexploitation. The decision to harvest and sell thatch grass by the **LIFE** project resulted from an understanding of thatch-grass ecology, knowledge of the harvesting methods of local communities, and a market survey to evaluate potential demand and expected economic rates of return from the sale of thatch grass. The ecology of thatch grass is such that annual harvesting is unlikely to diminish future growth capacity, particularly when much of the thatch grass is burned naturally at the end of the growing season. Harvesting of thatch grass does not remove a food source for wildlife as the old growth is too coarse for forage. Local women already had, from experience, developed techniques for harvesting thatch grass that prevent permanent damage to the plants. Nearby tourist lodges required a regular supply of grass to repair and replace the thatch on their buildings. Taken together, this is an almost perfect example of

sustainable commercial use of a wild resource, because the resource is tolerant of intensive exploitation; if not used, the resource is lost as a result of naturally occurring bush fires; appropriate harvesting methods are already known by the community; and a stable market for the product is close by.

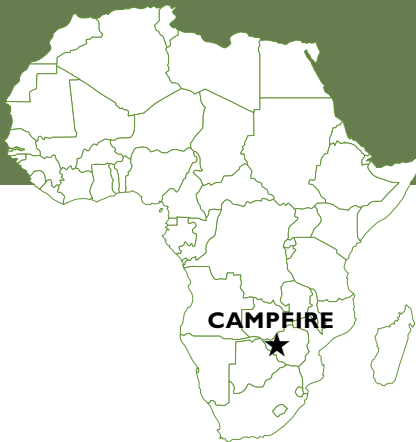
Safari hunting relies on the highly regulated exploitation of scarce and thus high-value (i.e., trophy quality) wildlife. Scarcity is either real, in that few of the animals exist, or virtual, in that governments only provide a very limited number of permits to shoot them. The **CAMPFIRE** program in Zimbabwe is an example of a project that generates income for local people through the

**The CAMPFIRE Project** is located in Zimbabwe and is coordinated by a consortium of eight governmental and nongovernmental organizations. CAMPFIRE's goals are to

- develop a program for the long-term management and sustainable use of natural resources in the Communal Areas
- place the custody of and responsibility for natural resources in the hands of resident communities
- ensure that communities benefit directly from the sustainable use of natural resources and
- establish the administrative and institutional structures necessary to make the program work.

CAMPFIRE generates revenues for local communities primarily through the sale of wildlife to safari hunters.

To learn more about the CAMPFIRE project, see page 72.



exploitation of high-value resources. In 1993, 12 districts with a total population of 400,000 earned U.S. \$1,516,693 in trophy fees and received another \$97,732 from tourism and culling, and from problem animals that had to be shot. The Hurungwe District's population of 31,000 received \$119,342 from **CAMPFIRE** activities in 1993, which increased to \$145,519 in 1995 (Butler 1995). Household income in communal areas has increased 15-25 percent as a result of benefits from **CAMPFIRE**.

Success resulting from this form of resource commercialization depends on the continued scarcity of the resource and a demand for safari hunting that does not change with the price. **CAMPFIRE** gains 92 percent of its revenue from safari hunting, of which 34 percent comes from elephant hunting alone. Should elephant hunting become legal and regulated in most or all of the remaining nations that support populations of elephants, a surge in supply and competition could drive the value of **CAMPFIRE**'s safari hunting revenues down considerably. **CAMPFIRE** is aware of this and is working on diversifying its revenue sources. Interestingly, as scarcity is the source of the value of trophy animals, a decline in real terms in their numbers would merely raise the price, and thus in the short term, returns to safari hunting, even with declining populations of animals, might not change. However, there is a risk that this situation could send mixed signals to local communities; ultimately, if wildlife populations are not conserved, revenues cannot be generated from safari hunting.

### **PROMOTING *EX SITU* CULTIVATION OF THE RESOURCE**

If resources are scarce in the wild, encouraging the *ex situ* cultivation of these resources may provide for the needs of local people and may reduce pressure on the wild population.

In Kenya, for example, rural women are traditionally the main providers of food crops. Relatively recent introduction of income-generating agricultural activities has encouraged the cultivation of new crops and diminished the production of traditional foods. As local people switch from producing and consuming a traditionally wide range of indigenous food plants to a much narrower range of introduced food items, local diets and food security are often adversely affected. This is particularly true as indigenous foods once provided nutritional insurance during times of drought and famine, and introduced crops are often nutritionally inferior. To retain the nutritional and food security value of traditional crops, the **KENGO** project identified 42 species of indigenous fruit trees and vegetables and encouraged their cultivation. By doing so, the project not only met the nutritional needs of people but also promoted the maintenance of biodiversity in the landscape.

One of the aims of the **GACON** project was to minimize encroachment into the groves and degradation of the groves' resources, particularly by tree cutting for fuelwood. Promotion of tree planting on individual farms in agroforestry ventures and establishment of tree nurseries and fuelwood plantations therefore contributed to meeting the communities' need for fuelwood and, at the same time, helped to reduce pressure on the groves. To help meet the communities' dietary needs, snail and mushroom farms were established.

The Bambara, Sarakule, and Fulani people living around the Boucle du Baoulé Biosphere Reserve in Mali live in a harsh, semi-arid environment, with very limited agricultural opportunities. One way to cope with the harsh conditions is to maximize the use of natural resources, particularly plant resources. Local communities consume a whole range of wild plants. Fresh or dried leaves and flowers are used in sauces and as medicines. The major activities of the **AMCFE** project were an ethnobotanical survey aimed at identifying and documenting useful plant species, analyzing the medicinal value of plants, promoting both *in situ* and *ex situ* conservation of key medicinal plant species, such as *Vernonia korchyana*, and encouraging the rational use of these useful plant species. In this case, the sale of *V. korchyana* helped to meet the community's health needs directly and provided a much needed source of income.

### **INCREASING THE MARKET VALUE OF A MANAGED RESOURCE**

Harvesting of reeds for thatch provided the main source of cash income for women in the East Caprivi area. The resource was, however, underused because of market limitations. The way around the problem was for **LIFE** project implementers to find new markets and sources of demand in cities where the women could sell the grass. This was, however, not without problems. The first year, buyers placed orders that were not purchased; thus, the women harvested a lot of grass that they were unable to sell, and the grass was left to rot. Such failures could have demoralized novice traders and had negative impacts on program viability. The risk of buyers defaulting on their orders was reduced by finding additional markets and thus increasing competition among buyers. There was also a need to improve the quality of the harvested grass, including arranging for spraying to prevent spread of foot and mouth disease. To ensure sustainability of the resource base, female Resource Monitors were trained to monitor the effect of harvesting on the growth and spread of the grass. The result was a considerable increase in village income. Before the project, women in villages within the project area were earning less than U.S. \$27 (exchange rate N \$1 = U.S. \$0.2741) from selling thatch grass in a season. In contrast, in 1994-1995, they earned U.S. \$130-260 and the whole Liazulu village earned U.S. \$16,500.

Craftwork is another major source of livelihood in the East Caprivi area. By supporting the Caprivi Arts and Cultural Association (CACA), the **LIFE** project succeeded in improving the quality of carvings, helped to make the association become more professional, and improved the earnings from carving. The Caprivi Arts and Cultural Center, which is run by CACA, is based in Katima Mulilo and serves as an umbrella organization for artists in the area. Before the artists were organized as a group, the crafts produced were mainly household implements that were sold in the villages and at the roadside. With funding and technical expertise from **LIFE**, it was possible to improve communication between staff and the artists through organization of the artists into village groups, to improve quality of their work through training workshops, and to establish a system of financial accountability and controls. The association was also able to put a system in place whereby artists could bring their crafts to the Center to facilitate sales and to generate higher prices. The association added 25 percent to the price recommended by the artist, which went to support the association's operating costs. Supplementary funding from the Swedish International Development Authority (SIDA) also enabled the association to construct a museum and a reception area where exhibits would be mounted on the culture and life of the Caprivi people. This facility, aimed primarily at tourists, was meant to generate income to enable the association to become self-sustaining. CACA was run wholly by local people and was independent of the government.

### PROVIDING ALTERNATIVE RESOURCES OR INCOME

Unsustainable hunting was a major problem for the management of the Tai National Park in Côte d'Ivoire. In the **VIE ET FORÊT** project, people in the villages had said that getting sufficient protein was difficult. Men described the difficulty of finding game and women spoke of not being able to provide for their children. This project was run on the philosophy that the participating villagers had to take initiatives to help themselves. Project components that merely gave participants food, equipment, or any type of provision were argued to be unsustainable. In order to provide alternative protein sources for local communities and in an attempt to reduce hunting pressure on wildlife in the park, the **VIE ET FORÊT** project tried to introduce fish farming,

**Vie et Forêt**, a national NGO of Côte d'Ivoire, is coordinating a project to help conserve resources within the Tai National Park through the sustainable development of peripheral zones. The project's goals are to  promote awareness of the need for forest conservation among communities bordering the Tai National Park  train community members to become involved in biodiversity conservation  strengthen existing institutions that regulate resource use through the introduction of participative tools for sustainable management of resources in inhabited areas of the Tai Forest  increase domestic production of animal protein and  enhance research activities focused on biodiversity conservation and rural development.

*To learn more about the VIE ET FORÊT project, see page 90.*



snail farming, and farming of small rodents, such as the grasscutter (*Thryonomys swinderianus*). Fish-pond projects had been started by another development project in a nearby town. Snails are found in the wild in the forest and are sold in the markets. Cane rats are considered gourmet and are hard to catch. Women and men entrepreneurs in the villages voiced a desire to try domesticating these animals. The project officers gathered the information and most of the materials, and the villagers were expected to provide the labor and their expertise.

Although the projects were successful, they were not without difficulties. For example, data were needed on snail growth as part of the project. One woman was selected by the project to be paid for collecting these data. She was chosen because she was the most enthusiastic and attentive to her snails. All the other women temporarily quit the project as a result of this, claiming that it was unfair that one woman was being paid, and that she had not been chosen in a participatory way. Instead, it would have been better if all the participating women had gathered to decide among themselves who would collect the data.

Employment of local men and women as Community Game Guards and as Resource Monitors by the **LIFE** project provided direct income to workers and their families. In 1993, the management of Lianshulu Lodge in East Caprivi voluntarily introduced a levy of U.S. \$1.5 per visitor for every night that a visitor stayed at the lodge, to be returned to five neighboring communities of the Mudumu National Park (Lianshulu, Sauzuo, Lizauli, Sachona, and Lubuta). The idea was that, by preserving the natural resources of the park for tourists to come and enjoy, the communities deserve to benefit from the income generated by tourism. By April 1995, the more than U.S. \$7,000 that had accumulated in the bed-levy fund was distributed to the villages. It was up to the villagers to decide what to do with the money. While some villages chose to distribute it to households, others chose to fund community projects.

Many of the BIOME projects provided opportunities for small-scale village enterprises as a means of increasing people's livelihood sources. These enterprises may have contributed directly to biodiversity conservation (e.g., encouraging beekeeping provided people with a source of income and served as an incentive to protect the forest in which they have their hives); but more often, they were intended to compensate communities for modifying their use of protected natural resources. One such enterprise was the Lizauli Traditional Village in East Caprivi, Namibia, which was initiated by the management of Lianshulu Lodge and received support (financial, technical, training) from the **LIFE** project. For U.S. \$5, tourists could visit the village, experience the culture and traditions of the village people, and have the opportunity to purchase crafts from local artists. All entrance fees from tourist visits to the village went to the Lizauli

community. **AMCFE** supported small-scale production of dyed fabrics by women as a way to reduce the dependence of rural women on the sale of fuelwood as their main source of cash income.

### **PROVIDING DIRECTLY FOR PEOPLE'S NEEDS**

Although the goal of their project is conservation of natural resources, several BIOME project staff have observed that this cannot be achieved unless the social and economic welfare of local communities is improved. Consequently, they have attempted to provide directly for the needs of the people.

For example, villagers living around the Taï National Park in Côte d'Ivoire (**VIE ET FORÊT**) believe strongly that a sick person cannot function effectively; therefore, for them, health care is a number-one requirement in any development and conservation process. **VIE ET FORÊT** helped the communities to construct village health huts used for delivery of babies, primary health care, and family planning clinics. **VIE ET FORÊT** provided technical assistance and some financial support, approved the design of the hut, and arranged supply of medicines to the clinics on a credit basis. The villagers provided labor for the construction and supplied locally available building materials. The result of this activity was improved community spirit, improved health for the villagers, and improved confidence of the villagers in **VIE ET FORÊT**, which facilitated implementation of the biodiversity conservation initiatives.

For the villagers living where the **MADAGASCAR WETLANDS** project is based, shortage of medicines was voiced as a major problem. The project established a community pharmacy as part of its activities to meet this pressing community need. This not only contributed to the health of the villagers, but also enhanced the villagers' support for the project. The **DZANGA-SANGHA** project established a village pharmacy in Bayanga that proved so successful that it continues today without the external assistance of the project. Similarly, many communities adjacent to the Lake Mburo National Park have benefited from the **LAKE MBURO** project through support for various community-initiated projects, such as schools and clean water supply.

## Conclusions



Clearly, the dependence of people on biological resources and the impact of wildlife on their livelihoods should be a key consideration when designing and implementing biodiversity conservation projects. Any conservation activities that are likely to impinge on the basic needs of local communities must find ways to minimize these impacts or provide compensation for lost revenues or resources. As a Sikumi man in Zimbabwe put it: “If we were enjoying full rights on wild animals, we would be able to better manage it. Animals bringing a source of income can be compared to a herd. An owner does not destroy his herd, but he increases its value according to his own strategy.”

Each of the 11 BIOME projects recognized the importance of this principle and incorporated meeting people’s needs into project activities. The extent to which project resources (funds and time) were committed to meeting people’s needs, as opposed to purely biodiversity conservation activities, and the way in which the issue was approached, however, varied among projects. Though all BIOME projects were advocates for a more integrated approach to biodiversity conservation that included development concerns, analysis of the projects associated with protected areas showed that they can be distributed along a continuum, depending on their relative initial investment in understanding the ecological or socioeconomic context of the area. For example, although an objective of the **DZANGA-SANGHA**

project was to balance wildlife protection with human needs, financial constraints resulted in an initial focus on antipoaching activities. Only later, when additional funding became available, was more emphasis placed upon the human needs side of the management equation. The **LIFE** project, on the other hand, started with intensive socioeconomic surveys and only later began biological inventories.

The reasons for this are complex and linked to the project context. In the case of **NATURAMA, LAKE MBURO, AMCFE, and VIE ET FORÊT**, the initial focus on human needs seems to have derived, in part, from the fact that established but unmanaged protected areas associated with these projects warranted

### The Madagascar Fish Eagle and Wetlands Conservation

project is located along the western coast of Madagascar and encompasses three lakes and a forest reserve. The project is coordinated by The Peregrine Fund, an international NGO. The goals of the project are to  conserve and monitor Madagascar Fish Eagle populations in the region  identify appropriate tools and methods for monitoring Fish Eagle population status and  strengthen national and local technical capacity to manage and monitor biological resources in the region.

To learn more about the MADAGASCAR WETLANDS project, see page 84.



conservation activities because of the perceived human impact on resources in the area. Thus, at the project outset, there was a focus on the human dimension of resource management. The **MADAGASCAR WETLANDS** and **MASOALA** projects in Madagascar were also historical forest reserves with evident human impacts, and still the initial focus of both projects was to develop local capacity to understand and monitor the ecology of the area. In general terms, who or what institutions initiated the project and the history of biodiversity conservation in the region appear to strongly influence the initial focus. The **LIFE** project focused on human needs, in part, because of the hostile relationship between local communities and the staff of the Mudumu and Mamili parks which were created 24 hours before Namibian independence and resulted in the forced eviction of local people.

Regardless of the causes, the consequence is largely the same. Projects that start with a focus on biology are more likely to be designed by highly skilled technicians who are often non-nationals, tend to rely heavily on resource protection, and risk alienating local communities whose participation is, at worst, limited to “rubber-stamping” the management plan. Projects that start with a focus on human needs are more likely to ensure the active support of local communities and are often more financially viable, but they risk unintended resource overexploitation as a result of implementing activities with insufficient understanding of the ecology of the region.

Economic incentives is the most important factor that all BIOME projects have focused on to improve the living conditions of local communities and conserve biodiversity. Developing and maintaining markets for safari hunting (**CAMPFIRE**), tourism (**DZANGA-SANGHA, NATURAMA, GACON, LAKE MBURO**), thatch grass (**LIFE**), alternatives to bushmeat (**VIE ET FORÊT**), medicinal plants (**AMCFE**), vegetables and fruits (**KENGO**), and other agricultural crops (**MASOALA**) were key to the success of BIOME projects’ attempts to improve community livelihoods. The majority of these activities focused on either the nonconsumptive use (tourism) or the cultivation of resources (snails, vegetables, or other agricultural crops). Only safari hunting, thatch-grass cutting, and collection of medicinal plants involved the sale of wild resources.

These market-based initiatives are not without problems, however. The criteria for sharing of revenues are always problematic. Communities that may have lost more land or that are closer to the park and therefore suffer more crop damage from wild animals may believe they deserve more, while others, left out because they happen to be farther from the park’s influence, believe they also deserve some of the benefits. In the Caprivi case, some communities that had lost land to the park saw the funds as a compensation for their land; others saw it as a

compensation for crops damaged. In both cases, people complained that the benefit was far too small in comparison with what they had lost.

Stakeholders' interest in and degree of dependency on community natural resources vary. A village community may comprise farmers, pastoralists, hunter/gatherers, and government employees, such as school teachers and other public servants. The degree of natural-resource dependency of hunter/gatherers, such as the San in Zimbabwe, is of a totally different magnitude than that of a farmer. Thus, when revenue from **CAMPFIRE** is distributed equitably to households as dividends, these may represent a significant but supplementary income for village farmers; for the San hunter, however, it may be the only source of income throughout the year and may not compensate for income losses caused by discontinuing hunting activities. Again, when revenues are used for community projects, such as building a school or health clinic, the quality of life is improved for the community as a whole. But a poor farmer, who has very little food during the dry season, may prefer the cash to buy food to feed his or her family.

It follows from these considerations that the distribution of such revenue requires intensive consultation to ensure that it achieves its purpose—that is, positive action and support for natural resource conservation rather than bitterness and antagonism. It is also important to maintain a balance between community welfare and individual household needs and to ensure that the interests of all stakeholders are considered in sharing of benefits from biodiversity conservation activities.

Such benefits, no doubt, encourage community support for projects, but the challenge is how to link such benefits with biodiversity conservation and how to ensure support of the communities for conserving biodiversity. In many cases, communities see revenue sharing as handouts and not as a reward for managing their natural resources. It should be possible to develop a system whereby these benefits can be traded for specific biodiversity conservation activities by the community. For example, in the case of the **VIE ET FORÊT** village clinics, could a system be developed whereby individuals pay for using and maintaining the facility by providing labor to Taï National Park's conservation activities?

Another problem is whether such funds actually contribute to community support for natural resource management and whether an increase in benefits results in the reduction of activities such as illegal hunting? For example, could poaching levels within the five Caprivi communities be measured and used to determine the proportion of conservation revenues a village gets?

Finally, harvesting of wild *V. kotchyana* within the Boucle du Baoulé Biosphere Reserve for sale as medicine in Mali allowed for both the analysis of its pharmacologically active components and the generation of income for local communities. The project did not, however, determine before promoting trade in this medicinal plant whether the density and productivity of the plant within the reserve was sufficient to tolerate intensified use associated with trade. Promoting trade in a wild resource without estimating the potential demand for or the productive capacity of the resource risks overexploitation to meet high demand or oversupply that would drive down the price. Conducting market surveys and baseline ecological surveys should be a necessary first step to promoting commercial use of a wild resource (Freese 1998). The project did acknowledge, however, that too much emphasis was being placed on one medicinal plant species and was promoting both *in situ* and *ex situ* conservation of valuable medicinal species.