

**CEPF and Poverty Reduction:
A Review of the CEPF Portfolio in the Eastern Arc Mountains and Coastal Forests
of Tanzania and Kenya Region**

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The benefits from intact habitats and healthy ecosystems extend well beyond biodiversity. This report is part of an ongoing effort by the Critical Ecosystem Partnership Fund (CEPF) to analyze the relationship between the projects it supports and poverty reduction.

This analysis includes a socioeconomic study across the CEPF geographic funding area and a project- and portfolio-specific study performed through administering questionnaires to grantees. The socioeconomic information provides CEPF with more detailed information about the priority areas where it invests, and can be layered with existing biodiversity data to present a more comprehensive picture of these areas. Project-specific information, collected through questionnaires, provides specific data on key indicators agreed upon by the CEPF donor partners. In addition, this report incorporates narrative examples of how CEPF-supported conservation projects contribute to poverty reduction.

The project-level information is presented in a standard format agreed upon with the CEPF donor partners that is then globally aggregated.

This approach has so far been completed in 13 regions: Atlantic Forest, Cape Floristic Region, Caucasus, Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya, Guinean Forests of West Africa, Madagascar and Indian Ocean Islands, Mountains of Southwest China, Philippines, Southern Mesoamerica, Succulent Karoo, Sundaland, Tropical Andes, and Tumbes-Chocó-Magdalena. The following report presents the results from a study of the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya region.

As the name indicates, the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya region occurs in two countries in East Africa. This region represents a remarkably high concentration of endemic species, particularly plants, many of which face considerable threat from the activities of the region's poor human residents. CEPF's strategic investments in the Eastern Arc focus on two distinct habitats: the coastal forests and the Eastern Arc Mountains. This region has had a history of biological research over the past century, providing considerable information on the biological inventory in the Eastern Arc, as well as a history of support in the management of natural resources. This background contributed to the development of the CEPF ecosystem profile for the region and to a stakeholder's workshop in March 2003 that helped to further define conservation priorities. The result has been a geographic focus on conservation in five different areas: the Lower Tana River Forests, the Taita Hills, the East Usambara Mountains/Tanga, the Udzungwa Mountains, and Jozani Forest (Figure 1). The CEPF strategy emphasizes the identification of conservation solutions in and around these priority areas, and that incorporate humans as an essential part of long-term biodiversity maintenance in this portion of East Africa.

Updated hotspot boundaries continue to include the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya region, with portions occurring in the Eastern Afromontane Hotspot and in the Coastal Forests of East Africa Hotspot.

Figure 1. Map of Key Conservation Areas for CEPF Investments in the Eastern Arc Mountains & Coastal Forests



Data from various, complementary sources were used for the analyses presented in this report. For the entire region and each priority area, we compiled and examined available socioeconomic data from Kenya and Tanzania. For individual projects, we collected and analyzed data from CEPF grant recipients. This report summarizes the data analysis at a regional scale, at the portfolio level, and for individual projects.

Regional Level

Kenya and Tanzania are neighboring countries located on the coast of eastern Africa. Containing considerable biodiversity, including charismatic savannah species such as elephants and lions as well as remarkable levels of plant endemism in certain areas, these nations also feature high levels of poverty. Standard measures of socioeconomic conditions such as the human development index and the poverty index indicate the magnitude of poverty in each country (Table 1). In 2003 roughly one-fifth of the population of both Kenya and Tanzania survived on less than \$1 per day, with nearly 60 percent living on less than \$2 per day. Both countries are dominated by broad expanses of rural area, where poverty is widespread, interrupted by a few large cities. In the case of Kenya, much of the nation's population occurs in the highlands in the southwestern portion of the country. In the case of Tanzania, human settlement is more dispersed, with more people tending to live along the coast and near the borders than in the interior.

Table 1. National Development and Poverty Levels for Kenya and Tanzania

	<i>Kenya</i>	<i>Tanzania</i>
Human Development Index: value (rank ^a)	0.474 (#154)	0.418 (#164)
Human Poverty Index: value (rank ^a)	35.4 (#64)	35.8 (#65)
% population living on less than \$2 per day ^b	58.3	59.7
% population living on less than \$1 per day ^b	22.8	19.9

a : Rank among less developed countries globally; values given are for 2003

b: Figures for 1990-2003

Source: United Nations Development Programme-Human Development Reports online:

<http://hdr.undp.org/hdr2006/statistics/>

Portfolio Level

To explore the socioeconomic context of CEPF priority investment areas in the Eastern Arc, this study examined measures of poverty in terms of variables available for Kenya and for Tanzania. In particular, this analysis relies on various socioeconomic *indicators* of poverty, in the case of Kenya focusing on various measures of income to show the geographic distribution of poverty, and in the case of Tanzania focusing more on indirect indicators of poverty.

A map of Kenya showing the percentage of population in each district below the poverty line in 1999 reveals that the largest percentages of population in poverty live in the central and southwestern portions of the country (Figure 2). Slight concentrations of poverty density occur along the coast within the portion of the Eastern Arc region that occurs in Kenya as well, though not near the Lower Tana River Forests or Taita Hills Forests priority areas which lie in this portion of the funding region. Mapping the poverty gap—a measure of the distance that people live below the poverty line—indicates more widely distributed poverty in Kenya, concentrated largely in the western half of the country with relatively higher poverty gaps along the coast (Figure 3a). The density of people below the poverty line indicates a slightly broader geographic distribution of poverty, though the concentration remains in the western half of the country, again with a lesser presence along the coast (Figure 3b). As was the case with the poverty gap and percentage of people below the poverty line, poor people do not tend to co-occur with CEPF priority areas in Kenya, largely because the remaining forests that help define these priority areas lie in districts that feature relatively few people. That stated, levels of poverty in Kenya are considerable, such that the occurrence of projects outside of areas featuring high levels of poverty by Kenya standards still feature poor human conditions.

Figure 2. Percent of Population Below the Poverty Line in Kenya, 1999 (Data source: International Livestock Research Institute (ILRI) and Central Bureau of Statistics, Ministry of Planning and National Development, Kenya)

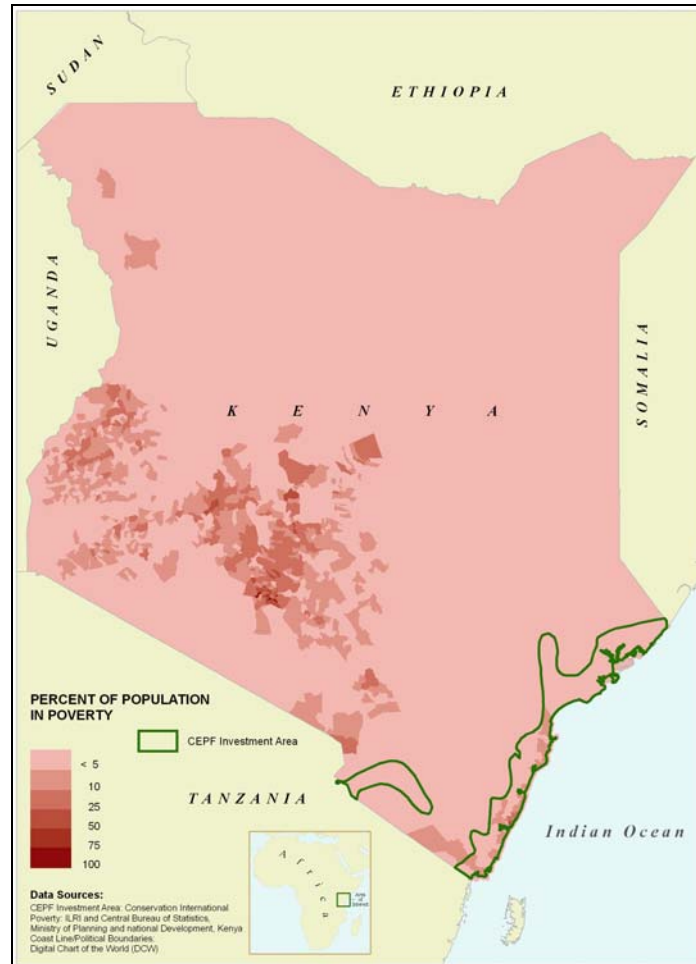
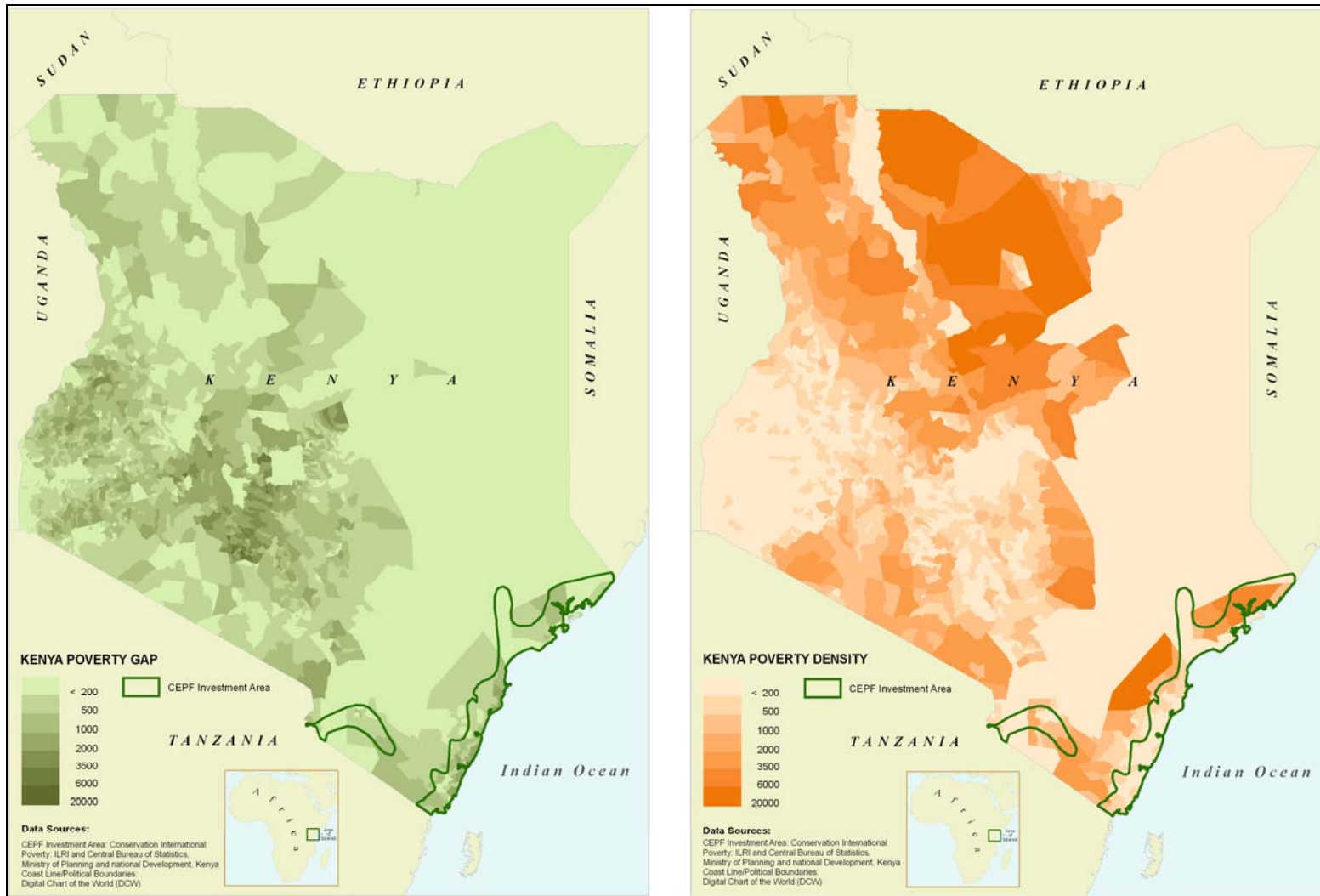


Figure 3. (a) Average Difference Between Poor People and the Poverty Line in Kenya, 1999; (b) Density of Population Below the Poverty Line in Kenya, 1999 (Data source for both maps: ILRI and Central Bureau of Statistics, Ministry of Planning and National Development, Kenya)



Surrogate indicators for poverty—infant mortality and percentage of underweight children aged 5 years or less—provide a sense of the geographic distribution of the poor in Tanzania. In 2000, the geographic arrangement of infant mortality (the number of deaths per 1,000 live births) indicates that CEPF priority areas co-occur with areas of particularly high infant mortality; the East Usambara Mountains/Tanga, the Udzungwa Mountains, and Jozani Forest all occur in areas of particularly high infant mortality, on the order of 10 percent of children born (Figure 4). The same is true with the proportion of children aged 5 years or less that is underweight (Figure 5). For the three CEPF priority areas that occur in Tanzania, 30 percent or more of the children are categorized as lacking adequate food, with conditions particularly bad in and around the Udzungwa Mountains.

Figure 4. Infant Mortality Rate in Tanzania, 2000 (www.ciesin.columbia.edu/povmap/ds_global.htm)

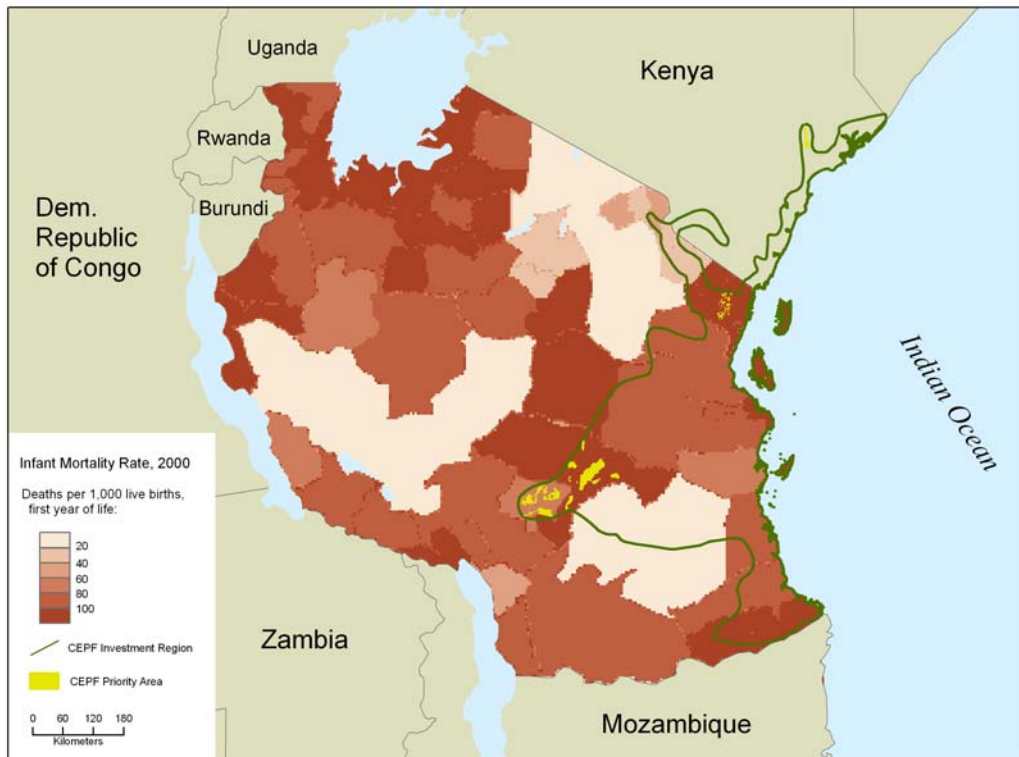
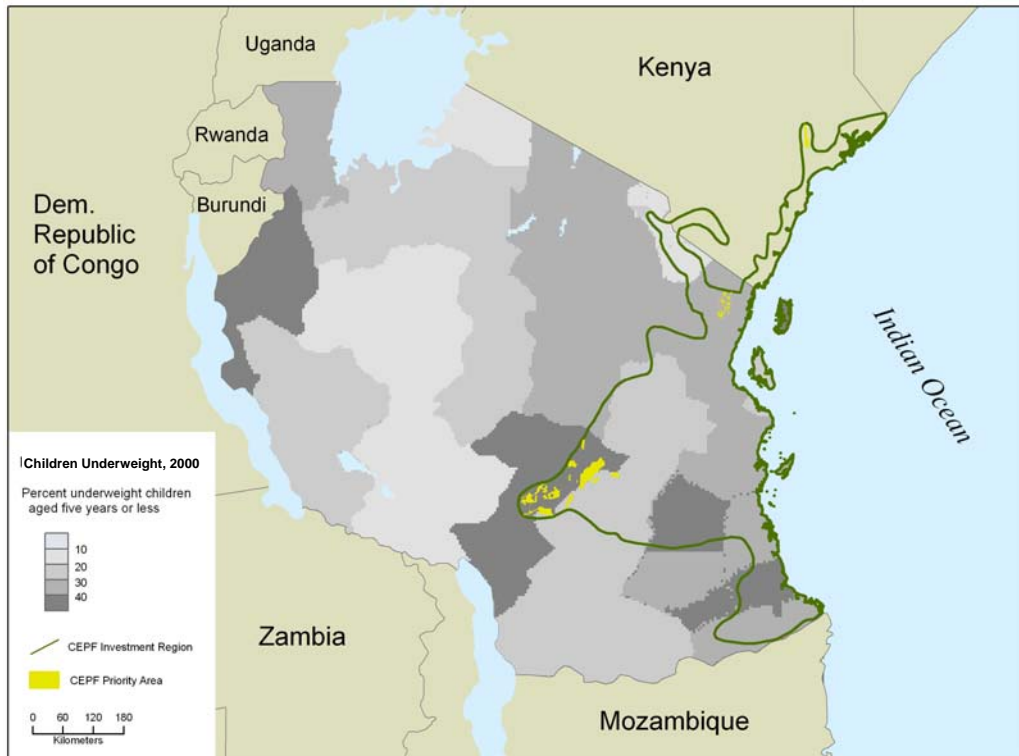


Figure 5. Children Aged 5 years and Under Who Are Underweight, Tanzania, 2000
(www.ciesin.columbia.edu/povmap/ds_global.htm)



Individual Project Level

To examine how CEPF projects contribute to poverty reduction in the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya region, we surveyed CEPF grantees to gather project-level data. To date, 26 percent of the 90 region-specific projects in the portfolio completed questionnaires (Table 2). The data in the table below represent the information collected from the 23 projects that responded to the questionnaire.

Table 2. Summary from CEPF Questionnaire Responses, Eastern Arc Mountains & Coastal Forests

Strategic Direction^{a, b}					
Indicator	1	2	3	4	Total
No. Projects Reporting	7	3	9	4	23
CEPF Funding ^c	854,897	177,390	807,218	253,180	2,092,685
No. Projects Offering Training	4	2	6	3	15
Workshops Offered	23	1	0	0	24
Jobs Created	32	46	92	21	191
Persons Trained	648	190	280	23	1,141
Organizations Created or Strengthened	35	4	11	4	54
Network or Alliance Organizations	21	30	0		51

a: Strategic directions for the Eastern Arc:

1. Increase the ability of local populations to benefit from and contribute to biodiversity conservation, especially in and around Lower Tana River Forests; Taita Hills; East Usambaras/Tanga; Udzungwas; and Jozani Forest.
2. Restore and increase connectivity among fragmented forest patches, especially in Lower Tana River Forests; Taita Hills; East Usambaras/Tanga; and Udzungwas.
3. Improve biological knowledge (all 160 sites eligible).
4. Establish a small grants program (all 160 sites eligible) that focuses on Critically Endangered species and small-scale efforts to increase connectivity of biologically important habitat patches.
5. Develop and support efforts for further fundraising

b: No projects under Strategic Direction 5: Develop and support efforts for further fundraising, had been funded at the time the research was conducted for this report

c: US dollars

One key finding of this study is that CEPF grantees report both direct and indirect contributions to poverty reduction. Direct contributions include job creation and training. Indirect contributions to poverty reduction include the creation or strengthening of local organizations. Our analysis of indirect impacts on poverty almost certainly is conservative. Several indirect contributions are difficult to summarize statistically. Other indirect effects, such as indirect job creation or economic multiplier effects, were beyond the scope of this study.

We used the three-heading framework on the links between biodiversity conservation and poverty reduction, presented to the 7th Meeting of the Donor Council in November 2004, as the basis for information-gathering from individual projects. Selected results of analyzing the questionnaire data appear below under those same headings: Building Income or Assets for the Poor, Facilitating Empowerment of the Poor, and Reducing Vulnerability and/or Enhancing Poor People's Security.

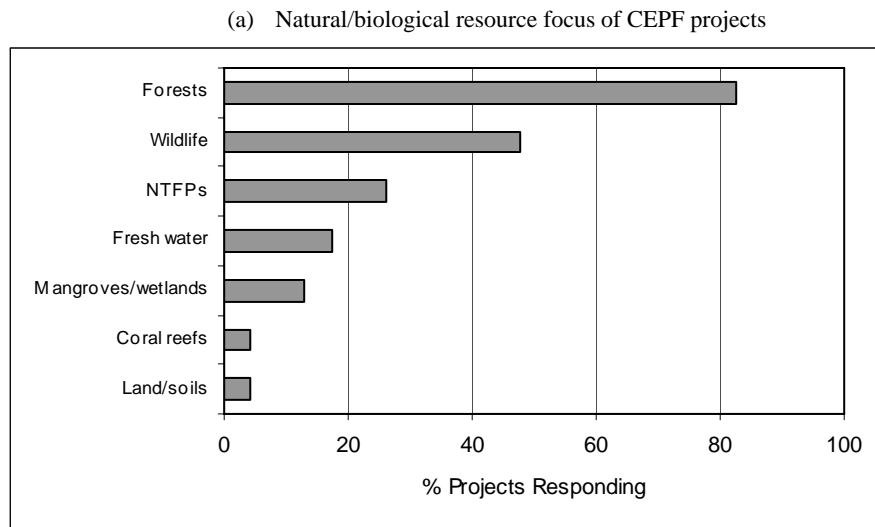
Building Income or Assets for the Poor

To obtain information from CEPF projects on building income or assets for the poor, the questionnaire focused on the following issues:

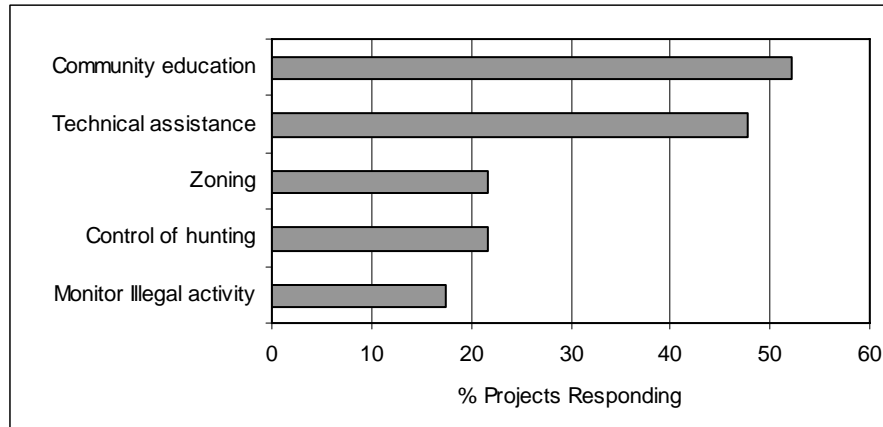
- biological and natural resource assets;
- human resource assets;
- conditions for secure management: household or community; and
- conditions for secure management: civil society.

In the Eastern Arc portfolio, the majority of projects supported improved resource management through focusing on forests, with slightly fewer than half of the projects that responded dealing with wildlife-related issues (Figure 6a). Forests in this hotspot represent an extremely important type of habitat. Forested ecosystems host considerable biological diversity in the Eastern Arc, and have been disappearing at alarming rates over the past several decades due to a range of causes. Projects used a variety of methods to engage communities in resource management, with slightly more than half the respondents employing community education about the consequences of wise and unwise management and slightly less than half providing technical assistance to aid in resource management (Figure 6b). Management of natural and biological resources is extremely important for poor rural communities that depend on the products of healthy ecosystems for much of their food, fuel, clothing, medicine, and shelter. Indeed, more than one-fourth of the responding projects reported a focus on non-timber forest products (NTFPs) as a means of improving resource management. Much of the attention of CEPF investments in this area focused on the remains of the forests that once covered much of this portion of East Africa, and on means of maintaining these forests through engaging local communities via technical assistance and education on the importance of conservation, for example.

Figure 6. CEPF Projects and the Management of Natural and Biological Resource Assets in the Eastern Arc Mountains & Coastal Forests of Tanzania and Kenya

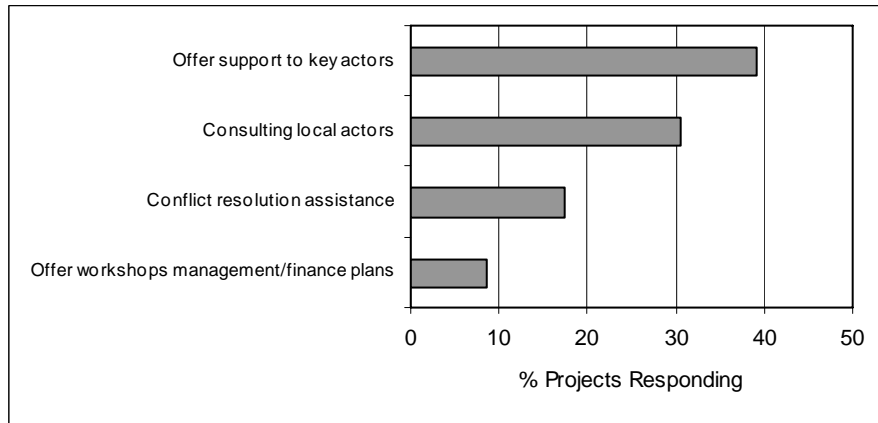


(b) Principal method used for community engagement



The focus of most grantees in this portfolio is on improving the conservation in selected portions of the Eastern Arc, employing large-scale conservation linked to protected areas. Funded conservation actions broadly include capacity building, education, and training for civil society organizations on protected area and regional-level conservation. CEPF investments included providing support to key actors to build or maintain accountable private and public institutions, and helping key stakeholders understand the consequences of destroying natural resources (Figure 6c).

(c) Ways projects aid civil society or build alliances



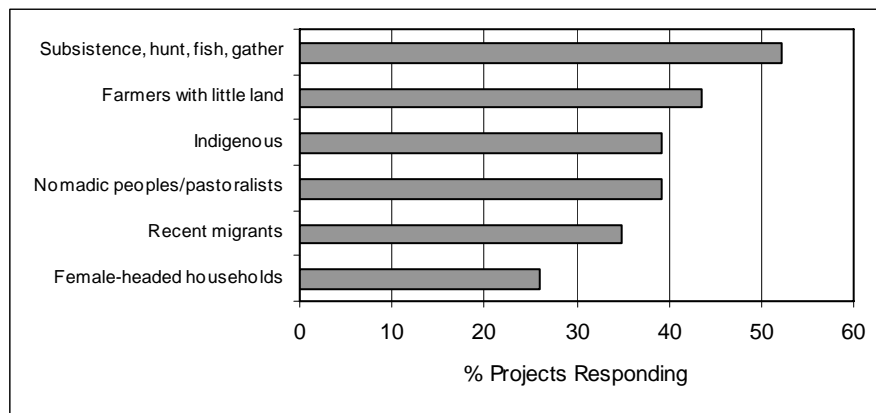
Finally, CEPF projects in the Eastern Arc Mountains & Coastal Forests region contributed to secure management at both the household and community levels by creating or strengthening approximately 54 local organizations and building alliances between these organizations and 51 other institutions. All of these efforts to create or strengthen local organizations and networks help empower local rural communities by increasing the information flowing to them and their capacity to respond to markets, government, projects, the legal system, or other sources of change. Effective local institutions have been shown to use such capabilities to help reduce poverty in the communities where they work.

To build assets for the poor, one cornerstone project of the International Centre of Insect Physiology and Ecology (ICIPE) is training communities living near forests in the East Usambaras, Taita Hills, and Lower Tana River regions to farm, process, and market butterflies, beetles, organic honey, medicinal plants, and raw silk. The project, supported in part by CEPF, aims to increase the income of participating households, and also increase the proportion of the community supporting forest conservation. ICIPE is equipping and training community groups in nature-based sustainable businesses and ensuring that training is comprehensive, covering each step from initiating an activity to marketing the end product. So far more than 170 community group members living in the three project areas have been trained and equipped for silk-moth rearing and beekeeping. Groups will then harvest the organic honey and silk cocoons and process the raw products. Two community groups in Taita Hills are farming 14 species of butterfly, including two species endemic to the Taita Hills. The groups are also planting the food plants of the most lucrative butterflies on their farms. Within six months of starting butterfly farming, the groups had produced 1,052 pupae. The sale of 61 percent of these pupae earned the groups \$600. Plant-based businesses are underway at each of the three main sites with community groups cultivating plants, including neem, used in a variety of medicinal, cosmetic, pesticidal, and agricultural products. The project has also included support for the community enterprise at Lower Tana River to renovate a suitable building and install the necessary equipment to process neem into cake and oil.

Facilitating Empowerment of the Poor

CEPF investments in biodiversity conservation often help empower the poor. Many CEPF investments directly support civil society efforts to help communities and local people participate in and benefit from conservation efforts. In countries such as Kenya and Tanzania, where so many are of limited means, projects inevitably affect the poor. However, certain CEPF investments focus specifically on sub-groups traditionally lacking resources that conservation projects involved. More than half the projects that responded engaged people who practiced subsistence farming, or engaged in subsistence hunting and collecting, with nearly half of the respondents dealing with farmers with limited land (Figure 7). A diverse range of other sub-groups were involved, though less frequently, in conservation projects supported by CEPF.

Figure 7. Categories of Poor Families Engaged by CEPF-funded Projects in the Eastern Arc Mountains & Coastal Forests



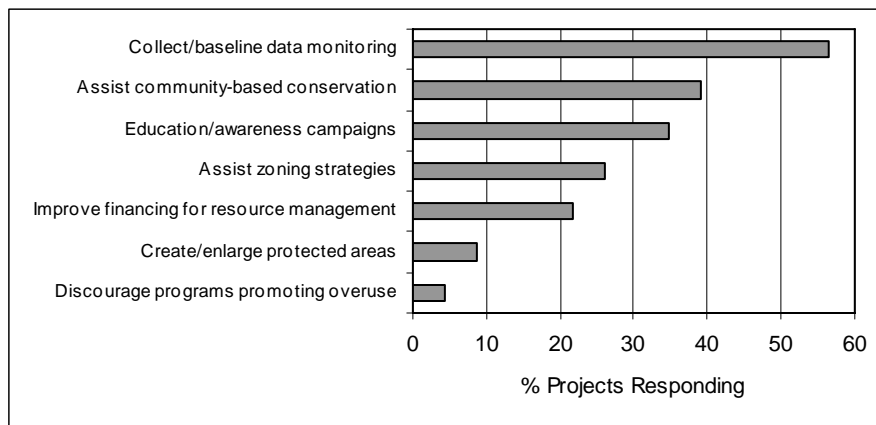
In a project developed in collaboration with ICIPE, the Tanzania Forest Conservation Group helped engage small farmers in the East Usambara Mountains in butterfly farming. CEPF support for the project helped in improving project facilities, training staff and new project participants, and covering some project operation costs during an expansion period. The project pays 390 participating butterfly farming households at the end of each month for the pupae they sell through the project. Prices are set by an elected committee of butterfly farmers with advice from the project's manager. At least 65 percent of total project earnings go directly to farmers as pupae payments, and an additional 7 percent of earnings go into a community development fund shared by the four villages involved in the project. Income surveys conducted prior to the start of the project revealed that the average household cash income in the project area was about \$350 a year. It is estimated that butterfly farming has already increased the average farming household's yearly income by 15 to 25 percent. In addition to income generation, the project has community-wide benefits through a community development fund that is managed by an elected committee of butterfly farmers. So far, the fund has been used to construct school buildings and to purchase land for a village forest reserve.

Reducing Vulnerability and/or Enhancing Poor People's Security

The questionnaire obtained information on reducing resource depletion, resource degradation, and the effects of shocks and disasters. More than half the questionnaire respondents reported that their projects engaged in collecting baseline data and monitoring (Figure 8a). In addition, nearly 40 percent of the respondents assisted in community-based conservation and conducted education and awareness campaigns. These and other types of projects help local people use natural resources more wisely and help to maintain natural habitat for the resources and services such habitat provides to local communities.

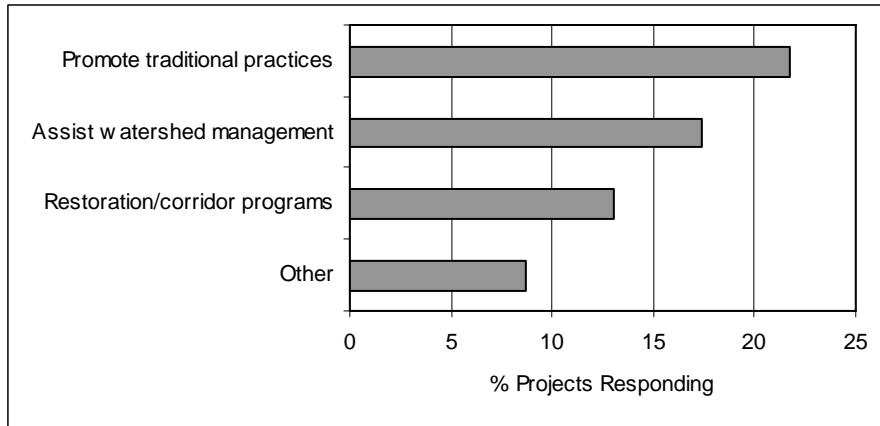
Figure 8. CEPF Projects and Reducing Vulnerability in the Eastern Arc Mountains & Coastal Forests

(a) Methods used to reduce resource depletion



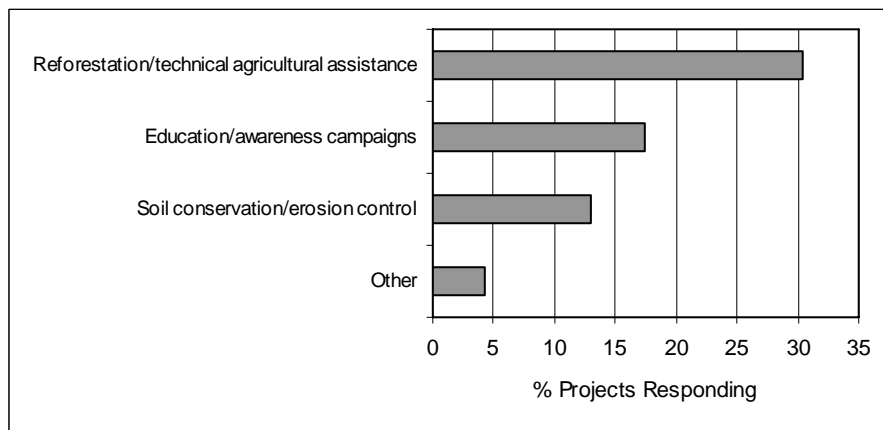
CEPF investments attempted to reduce resource degradation in the Eastern Arc primarily by focusing on how people adapt to their local natural environmental settings. The most frequently used approach was through encouraging the adoption of traditional resource management practices (Figure 8b). Several CEPF-funded projects also used watershed management assistance, focusing on the essential and increasingly rare resource of fresh water. In contrast to CEPF investment portfolios in other regions, relatively few Eastern Arc projects invested in reducing resource degradation, although this could be due to the types of projects that responded to the questionnaire.

(b) Methods used to reduce resource degradation



Several CEPF grantees reported that their projects helped to reduce community vulnerability to shocks and natural disasters. Projects reduced vulnerability most frequently through technical assistance in reforestation and agricultural practices, thereby creating (or conserving) habitat that reduces the impacts of severe natural events (Figure 8c). In the Eastern Arc, this dual focus is significant both for the importance of forest to biological diversity in this investment region, and because of the important role that agricultural expansion has played (and likely will continue to play) in natural habitat loss. Projects also reported using education or awareness campaigns as a means of reducing vulnerability to shocks and disasters. Such measures are important in areas where the challenge of meeting basic human needs can lead people toward activities that increase their vulnerability to severe events—such as broad deforestation that increases susceptibility to impacts from storms or the effects of drought—and where other types of protection from shocks and disasters, and assistance following such events, are unavailable. However, compared to similar studies of other CEPF investment portfolios, relatively few projects focused on reducing community vulnerability to shocks and disasters.

(c) Methods used to reduce vulnerability to shocks and natural disasters



One project helping reduce the vulnerability of the poor, through education and awareness campaigns, is Training, Awareness, Leadership, Knowledge (TALK), implemented by the Tanzania Forest Conservation Group with assistance from CEPF. This project aims to raise awareness about the importance of eastern African forests, the biodiversity they contain, the services they provide, and the threats confronting their long-term conservation through a variety of media. The project launched a Web site, <http://coastalforests.tfcg.org>, which includes profiles and maps of major coastal forests of Kenya and Tanzania, as well as reports available for download. TALK also supported a 25-minute documentary broadcast on BBC World in November 2006 as part of a series called “Villages on the Front Line.” The documentary, which is estimated to have been watched by more than 100 million people, highlighted how communities are finding solutions to the problems of deforestation in the region. The program was also broadcast by local channels within Kenya and Tanzania, and is being translated into Swahili. TALK is also in the process of organizing drama and music competitions involving communities in Iringa, Morogoro, and Rufiji focusing on links between forests and climate change.

Conclusion

Available socioeconomic data indicate that CEPF-supported projects in the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya region often occur in rural areas with high levels of poverty, with the geographic co-occurrence much stronger for priority funding areas in Tanzania than in Kenya (though poverty is widespread in both countries). Within these areas of poverty, CEPF grantees often focus on subsistence practitioners, farmers with limited land holdings, and other groups in Tanzania and Kenya with limited means. CEPF projects directly and indirectly contribute to poverty reduction and improve human conditions where they occur in the hotspot while achieving their primary objective of biodiversity conservation. Direct impacts include creating jobs and providing training to local peoples. Indirect impacts include creating local organizations, strengthening civil society, and other activities that maintain and restore the ecosystems upon which many poor people in rural Kenya and Tanzania rely.