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BURUNDI BIOLOGICAL DIVERSITY
AND
TROPICAL FOREST ASSESSMENT

Steve Dennison, Team Leader,
E/DI

Gerald Murray, DAI
Greg Booth, AFR/TR/ANR

Edited by Karen LeAnn McKay, DAI

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E/DI
1400 I Street, NW
Suite 700
Washington, DC 20005

EXECUTIVE SUMMARY

Major Findings

Ecological Diversity. The geography, climate and ecology of Burundi are characterized by impressive heterogeneity. This heterogeneity is the product of Burundi's location in the East African Rift System, with its north/south mountain chains and the varying altitude, temperature and rainfall regimes created by that system.

Transformation of Native Flora. Under the impact of agricultural and pastoral land use, there has been a large-scale transformation of the flora of Burundi. In agricultural areas, native forest and savannah species have been replaced by domestic crops. In pastoral areas the herbaceous vegetation remains indigenous but the diversity of the original primary associations has been reduced. Overgrazing and over-burning have led to a more homogeneous, degraded landscape dominated by one secondary grass species (Exothea abyssinica). Only in drier woody savanna areas with sparser populations and fewer human interventions can we find clusters of trees and grasses perhaps resembling the associations of earlier times. Less than one percent of the nation's landscape remains in virgin forest.

Fauna. The mammalian wildlife of Burundi is now restricted to a small percentage of the country's territory. Though no known cases of total species extinction have occurred in Burundi, several species such as elephants and gorillas have become, at least locally, extinct because of human expansion and depredation. A few of the larger reptiles, especially crocodiles, are also in danger of local extinction. Birdlife, especially species that dwell near water, has been less threatened by human expansion and several large waterbird species continue to flourish. Most fish species are found in Lake Tanganyika and two other smaller lakes. Human exploitation of fish may actually be leading to an (at least temporary) increase in the population of some species. Though the major fish predators--various species of perch--have themselves come under some pressure from net-fishers, the population of smaller species on which they prey appears to have increased.

Density of Human Population. The population density of Burundi, which averages about 180 people per square kilometer, is one of the densest in Africa. With 95% of the people living in rural areas, it is also one of the most rural nations on the entire continent. The diverse geography has led to an unequal distribution of this population, with drier regions having fewer than 70 people per square kilometer and certain moister, highland regions having up to 450 per square kilometer. This concentration of population in the steep-sloped highlands increases the vulnerability of the landscape to soil erosion. Ethnically, the population is divided between the Hutu majority (85 percent of the population), and the politically dominant Tutsi minority (14 percent). The pygmy Twa now constitute only 1 percent of the population. Linguistically, the population is homogeneous: all three ethnic groups speak Kirundi as their mother tongue. French is the official language of Burundi.

Land Tenure Issues. Pre-colonial patterns of kingly and princely control of land have yielded under colonial and post-colonial dynamics. A more privatized land tenure system now prevails in which each household group is the effective owner of its own land, even in the continuing absence of legal deeds to holdings. The few data available on holding size

indicate that virtually all families in Burundi own land and that in most regions, the average holding is 2 hectares or more. Most land is transmitted through patrilineal inheritance and women are largely excluded from land ownership. The transmission of land through purchase and sale, though more common than before, is still the statistical exception.

Intensive Agriculture. The bulk of the land in Burundi is dedicated to cropping activities. The major food crops are: beans, bananas, manioc, sweet potatoes and corn. The traditional sorghum now has lost its former importance. First under Belgian auspices and now under Burundi parastatal control, most farmers in the country grow at least one export crop on their holdings, coffee being by far the most important. Labor inputs into the land are all human. There are no draft animals in most regions and most labor is domestic; agrarian wage labor is still the exception. Erosion control techniques are ubiquitous but of low apparent effectiveness. Population pressure is too great and landholdings too small to permit systematic fallow in most regions. Soil fertility restoration is accomplished through organic techniques (particularly manure in regions with cattle) and through crop rotation.

Conservation interventions. Though Belgian colonial policy provided for the establishment of reserves and the planting of trees, the reserves were never effectively protected. Tree planting consisted primarily of border plantings along roads, park boundaries and plantations. The Burundi government, through the Institut National pour la Conservation de la Nature (INCN), has created new reserves and national parks, expelled residents from new and old reserve areas and has begun to take stricter measures to protect the few remaining stands of natural forest. There is evidence that these activities are having some positive effect on vegetation and wildlife populations in the protected areas. In the process, however, large numbers of rural families within or in the vicinity of the reserves have lost their homes, agricultural and grazing land and access to traditional wood supplies.

Government control of tree planting activities. During the past decades thousands of hectares of exotic trees (principally pine, cyprus, eucalyptus and grevillea) have been planted all over Burundi. Foreign donors have been the principal financiers of these activities with Burundian and expatriate involvement in the management of nurseries and outreach activities. Projects involving non-governmental organizations are expected to work with government agents who are responsible for managing nurseries and organizing extension. Tree planting is often associated in the eyes of Burundi farmers with the authority of the central government.

State ownership of planted tree stands. The government is the primary manager of nurseries as well as the owner of the trees that are planted in government plantations (even those planted on "communal land"). In addition, farmers require government permission to harvest their own trees. The result of all this government activity is that the population at large is excluded from access to many project benefits in the form of tree products. On the other hand, employment in site preparation, planting and maintenance are concrete benefits that accrue directly to local residents. Current wood scarcity and wood market conditions throughout Burundi are such as to render privatized tree planting programs both attractive and profitable to ordinary farm households. However, current government control of planted trees could be replaced, or at least supplemented, by programs which give local populations autonomous control over planted trees. Small-scale

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projects by USAID and Catholic Relief Services demonstrate the feasibility of this approach.

Major Recommendations

Natural forests and the Kumoso lowlands. Continue with the current policy of public ownership and control of the few remaining stands of natural forest in Burundi. Consider the possibility of extending legal protection to certain areas in the Kumoso (the drier eastern lowlands near Tanzania). As will be discussed below, this region is still sparsely populated and contains pockets of indigenous vegetation and wildlife.

Buffer Zones. In protecting reserves, shift from a policy of simple protection to a mixed park/buffer zone strategy as has been done in the Rumonge and Bururi areas discussed below. In addition to the funding for park protection activities, provide equally adequate funding to enable the population in the buffer zones to undertake income generation activities. These economic inputs should be convincing enough to turn the creation of a reserve into positive economic news for neighboring populations. (Under current protection policies the announcement of a new reserve is catastrophic news for nearby populations.)

Tree planting programs. Undertake tree planting activities in which trees desired by farmers are made available as potential income generators and in which household ownership over planted trees is clear enough to leave no doubt as to eventual benefit flows. The traditional state control and state ownership approach should be, if not phased out, at least vastly reduced. There should be a mixture of trees for farmers to plant. This might include nitrogen fixing species which help to ameliorate poor soils and complement food crops. Other species such as grevillea and eucalyptus, could also be planted for construction and fuelwood needs as well as popular fruit tree species.

Non-governmental organizations (NGOs). Organize at least some tree planting programs under the auspices of NGOs, be they foreign or indigenous. Without dampening government interest in tree planting, encourage projects that are designed and managed by NGOs.

Education. Reorient conservation education in a way that links it up to specific programs providing funding for specific activities. Though educational messages must be part of any environmental program, donors should nonetheless be skeptical of funding public "conservation education" campaigns that exhort the population at large to engage in behaviors for whose implementation no specific program funds are provided.

Farming systems research. Ongoing USAID farming systems research should expand its scope to look at the role of both exotic and indigenous woody species in local agrarian systems, not only as ecological units, but also as possible income-generators on the holdings of ordinary Burundians.

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