

# FORESTS, COMMUNITIES AND URBAN MARKETS: CAN THEY CO-EXIST IN A DEVOLVED STRUCTURE?

Paul O. Ongugo<sup>1</sup>, Samuel Munyua Kimani<sup>2</sup> and George Okwaro<sup>2</sup>

## ABSTRACT

In an attempt to understand the link between forest condition and the activities of the forest adjacent communities, and how these are influenced by market opportunities; a study was carried out on four out of the eight forests where the Institutional and Livelihoods Change in East African Landscapes (IFLEA) project was implemented. The four forests Aberdare; Ramogi; Eburru; and, Arabuko-Sokoke were selected based on their close proximity to Nairobi; Kisumu; Naivasha; and, Malindi urban centers with large market opportunities. Communities living adjacent to these forests participate in forest management through Community Forest Associations (CFAs). Studies were carried out using the International Forestry Resources and Institutions (IFRI) research protocol. The forest, distance to closest major market, major products sold where used as independent variables while being members of a forest association and activities carried out to improve the forest were the dependent variables.

Results show that ready markets in urban and peri urban areas for firewood, poles and charcoal attracted non forest adjacent actors into the forests. This suggests the need to look at the fundamental causes of the pressure on forests, turn the threats by the adjacent forest dwellers into sustainable livelihood opportunities as well as institutionalize the relationships and linkages of the various actors in the forestry sector under the emerging policy and regulatory framework. This provides an entry point for adjacent communities, private sector and other actors to engage more formally with the forestry sector.

**Key words:** Devolution, degradation, community, markets, forest

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<sup>1</sup> IFRI/CRC Kenya, Kenya Forestry Research Institute (KEFRI), P.O. Box 20412, 00200 Nairobi, Kenya

<sup>2</sup> Interns with IFRI/CRC-Kenya

## **INTRODUCTION**

Kenya's forest cover stands at 1.7% of the total national land mass, having decreased from about 2.0% in the early 1990s. The current coverage is very low as compared to the globally recommended 10%. The pressure and degradation on the forests have mainly been attributed to many factors including illegal logging, encroachment on forest land for farming and charcoal burning.

Kenya's indigenous forests are home to many communities whose livelihoods depend on the natural resources. Approximately 2.9 million people live adjacent to forests in Kenya (Odera, 2001, Wass, 1995). This is about one tenth of the country's population. Though population growth in Kenya has been claimed to be a major driving force behind forest degradation and decline in forest cover, it has also been recognized that the livelihoods of a major part of the Kenyan population are linked to agricultural production at subsistence level. Therefore, with the growing population, expansion of agriculture has been achieved at the expense of the natural resource base (Omenda, 2003). The problem has been how to integrate human development and forest conservation or alternatively, conservation efforts into development initiatives.

Cases where local forest adjacent communities have managed their forests well do exist; and, in most cases, it is mainly those individuals and groups (often outsiders), who harvest trees for commercial purposes who contribute to forest destruction (Ongugo et al. 2001). Even though the perception that it is the local forest adjacent communities who destroy the forest was based on the classical theory of forest management, the acceptance of the importance of local indigenous knowledge systems, especially in the development of new agricultural crops, has not had a major impact in forest management practice (Ongugo, 2002). For example, in Kenya, it is the small holder tea producers who produce 85% of export quality tea leaves (GOK, 1997).

Policy and legislation are important management instruments, which can impede or enhance the contribution of a forest resource to national development and sustainable livelihoods. The evolution of Kenya's forest policy and legislation resembles that of many developing countries. Most of these countries were under the rule of local chiefs or councils of elders depending on their location and structure before they were colonized by Europeans. With the emergence of new administrative dispensation, many countries in the tropical world initiated new policies and legislation to protect the forests from the local people (Ribot, 1999). Making emerging forest policies and legislative instruments to enhance forest conservation has remained elusive since conflicts between market demand for goods and services to power the urban and peri-urban growth and development have persisted over the years. This is especially important in Kenya where urban and peri-urban growth depend very much on the availability of natural resources especially those which provide energy for the urban and peri-urban population. Assessment of the link between conservation of forests close to urban centers and the demand for forest goods and services to be provided by those

community groups (CFAs) was the main objective of this study. The paper aimed to address the following specific objectives:

1. To understand the link between forest condition and the activities of the forest adjacent communities;
2. To investigate how activities carried out by adjacent forest communities are influenced by market opportunities; and,
3. To document measures which the adjacent forest communities are taking to better manage the forest resources adjacent to them

## Methods

### Study Sites

The studies were carried out in three forest ecosystems which are located within close proximity to urban centers. The Aberdares forest which is only 40 Km from Nairobi is gazetted as a government conservation forest and is divided into two management units. Eburu forest, which means, 'the place of smoke', is located about 20 Km from Naivasha town on a gentle slope surrounded with many ridges. Arabuko Sokoke forest which is only 12 Km from Malindi, is found along the Coastal strip of Kilifi and Malindi districts covering approximately 6 kilometers stretch along the Kenyan North coast. Initially the Coastal dry forest near the East coast of Africa (of which Arabuko Sokoke was apart of), extended all the way from the northern part of Mozambique to the southern part of Somalia. Ramogi forest which is about 60 Kms from Kisumu has been divided into three management units. There is no established system of regeneration and harvesting that are implemented in these units. The forest is designated as a forest reserve gazetted by the government for conservation.

All the three forests are different sizes (fig 1) and have undergone different stages of degradation but the rate of degradation has since stabilized as a result of intervention by local adjacent forest communities in a devolved system (Banana et al, 2010 in press).

Forest Name	Size in hectares
Got Ramogi	283 hectares
Arabuko Sokoke	41676 hectares
Eburu	8715 hectares
Aberdares	500 hectares

Table1. Forest sizes in hectares

Each of the four forests was studied to document the change of each of them since the time when communities adjacent to them started to participate in their management.

### Research Tools

Full International Forestry Resources and Institutions (IFRI) research and SANREM protocols were used to collect data from several sites. This research used a combination of the biophysical and social sciences research approaches. The data collection included visits to organizations and people living far from the forest but still involved indirectly in its management. These were officials from the stakeholders involved the management of the forest. Biophysical data was obtained from the study sites by taking 30 concentric plots with a radius of 10 meters all randomly selected from known UTM coordinates. Data were collected using structured questionnaires and PRA tools such as wealth ranking; transect walks, activity calendars, group meetings focus group meetings, and key informants. Socio-economic data was collected using participatory rapid appraisal (PRA) which, included group interviews, individual interviews, public interviews, public meetings, historical profiles, product and wealth ranking, observations and secondary sources of information. Data was analyzed using the Statistical package for Social Scientists (SPSS) and MS Excel.

## RESULTS AND DISCUSSION

### Forest condition

Figure 1 show that 78% of forest adjacent users rank the condition of the Ramogi forest as somewhat sparse and the users think that the level of conservation is too lax and if harvesting continues at the same rate, the sustainability of the forest is endangered.

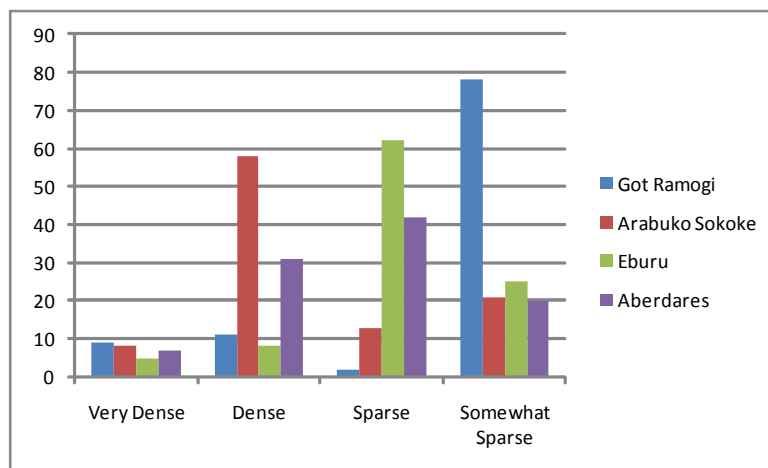


Fig1: Forest user's perception on the forest condition

The Aberdare forest is faced with many problems as result of the degradation due to demand for forests goods and services for the city of Nairobi population. Moreover, the water catchment area is slowly but surely being degraded as community members open farms and settle. The adjacent communities completely destroyed the once luxuriant bamboo forest and only a remnant of the forest remains. As shown in fig 1, 42 % of the members of forest association rank the forest as sparse compared to what it used to be five years ago.

The Eburru forest is considered the lifeline of the members of the community who live around it. Forest users within Eburu forest see the condition of the forest as sparse, as shown in figure 1, 62 % of the respondents attribute these to several reasons. One major problem is the conflicting interests between members of the community and the management (the Kenya Forest Service). Due to the dry condition of the areas surrounding the Eburu forest, many conflicts have been observed in the use of the forest.

Apart from a few small Kaya forests that were conserved because they were sacred to local people, only 420 square kilometers that is around 41, 676 hectares of the Arabuko-Sokoke Forest remained. The forest is gazetted and proclaimed as a crown forest. Though the forest cover has survived for many decades, its resources have been seriously depleted and modified by over-exploitation. 58% of the respondents rank the forest as dense although there were many activities that had reduced its density. Though threats such as excisions (lifting of legal protection so that land can be sold off for development), mining of titanium and white sand (used for making glasses) and the illegal extraction of indigenous *Brachylaena huillensis* (Muhuhu) (used in wood carving industry for local and international tourism face the forest), the single greatest threat experienced in this forest remains to be subsistence use by local people due to the depth of poverty experienced in this area. Devolution of forest management has been piloted in this forest since 1997 and because of this and despite its close proximity to Malindi town, the forest has remained in a better condition when compared with the other three forests which were studied.

### **Major activities carried out by forest adjacent communities**

Got Ramogi forest adjacent community comprises of 602 households with 850 families and making a population of 3071 individuals. As shown in fig 2, the residents derive their basic income from subsistence farming. According to the community members, most of them depend on subsistence agriculture for their livelihood. Fishing is the second most important economic activity followed by cattle rearing. Fishing as a

commercial activity faces marketing problems and is not providing the benefits as expected. Agricultural production in the area is hampered by non-adoption of the new technologies and a shortage of the rainfall for most of the commercial crops. The area has a potential for cotton growing as a cash crop if the industry could be reorganized. Charcoal production to supply the nearby Kisumu urban area is the single most profitable economic activity. The poor condition of Ramogi forest reported above can be attributed to charcoal production activities being carried out by the local adjacent forest communities.

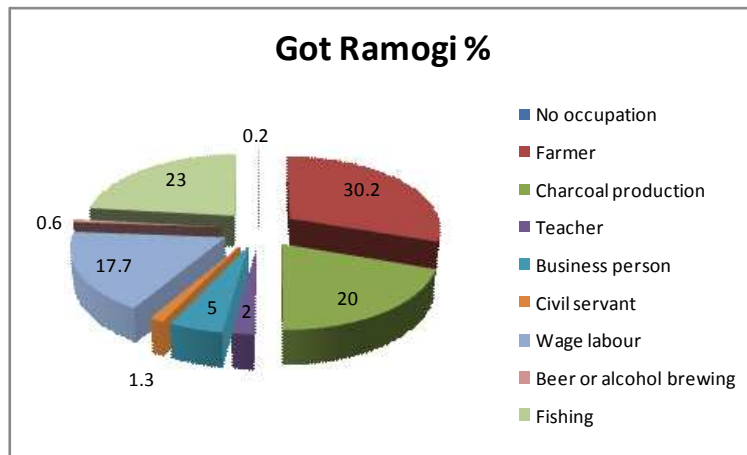


Fig 2: Occupational activities in Got Ramogi forest

Aberdares forest settlement comprise of 696 families in 696 households. The total number of individuals in the settlements is 4,871 with 812 adult females, 541 adult males, 2,436 female children and 1,082 male children. Fig 3 shows that 31.7% of the respondents rely heavily on the forest for charcoal, poles and post for their livelihood. These can be backed by the fact that the urban market that is located 33 kilometers from the forest edge provides ready market for forest products. A number of respondents practice farming for subsistence with vegetables and flowers for commercial purposes. There are two community forest associations involved in the protection and conservation of the forest. One of the associations in the area is the Geta Region Environmental Conservation Group while the other is called Mukeu ridge forest association. Most members of these associations are engaged in horticultural production to supply the city of Nairobi. The forest is the major source of water for the city. Charcoal produced from the trees of Aberdare forest (fig 3), is a major source of energy for the low income households of Nairobi and even Thika town.

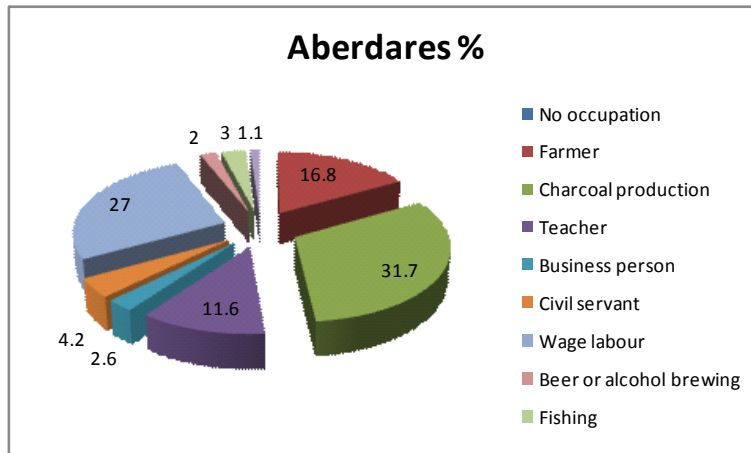


Fig 3: Occupational activities in Aberdares forest

Evidently, 43 % of the respondents use Arabuko Sokoke for charcoal production (fig 4). Although there are many stakeholders involved in the protection of the forest, many unemployed youths practice charcoal production as a means of improving their livelihoods. Arabuko sokoke forest faces a great challenge due to high poverty rate. Absolute poverty results in heavy domestic demands, especially for firewood and building materials, and other illegal activities within the forest, such as poaching of animals and harvesting of poles which are sold in the local urban areas such as Malindi, Kilifi and even Mombasa which is about 120 Kms away. Pole poachers have depleted the forest of mature seed-producing trees and now result to cutting younger trees which have serious consequences for the forest. Such activities endanger the forest resources that have helped to support local communities leading to a vicious circle of degradation all too often seen in tropical forests. The involvement of communities in the management if the forest has however contributed to the improved condition of the forest.

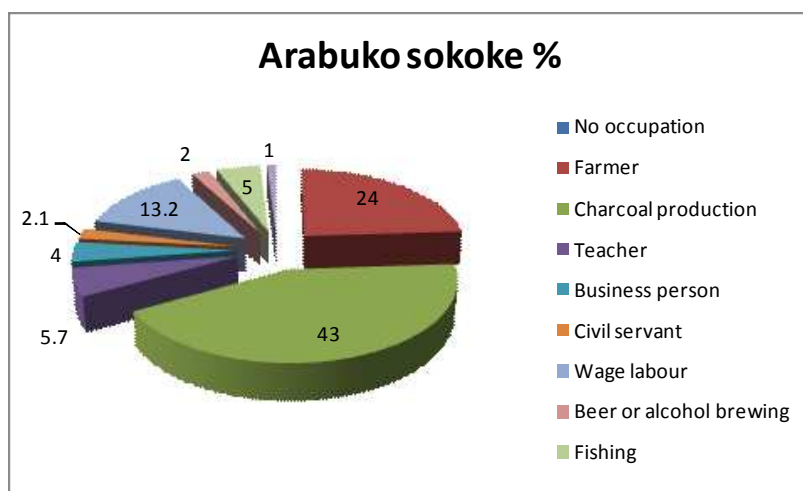


Fig 4: Occupational activities in Arabuko Sokoke forest

Eburu forest has a community that has 527 households. Their main source of income is mixed farming and the main cash crops are maize, beans and pyrethrum. Maize, beans and Irish potatoes are the main food crops. Livestock is very important to them so they depend highly on the forest for fodder. The presence of forest guards in Eburu forest has not hindered high rates of charcoal burning in the forest. As shown in figure 5, most of the respondents have been getting poles, posts, charcoal from the forest despite the government ban on harvesting of timber products from the forest.

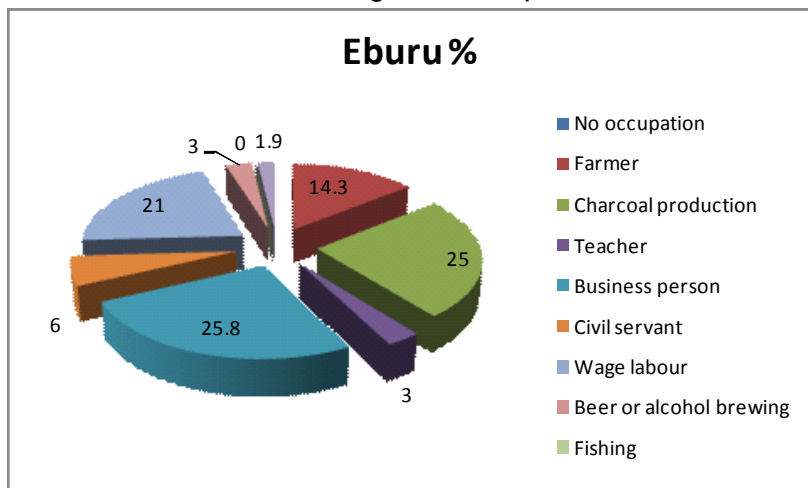


Fig 5: Occupational activities in Eburu forest

### Activities carried out in the forest to improve the forest

The community around Got Ramogi forest has adopted more efficient wood stoves as a way of reducing the dependence on the forest.

Arabuko-Sokoke Forest remains an outstanding model of sustainable development. This is attributed to the Arabuko-Sokoke Forest Management Team (ASFMT) that has balanced between forest resources utilization and conservation. The communities adjacent to the forest have promoted conservation and at the same time sustainable utilization thus getting benefit from the forest. Organizations such as: Nature Kenya, A Rocha Kenya, Wildlife Club of Kenya, Arabuko Sokoke Forest Management Team (ASFMT), and Birdlife International have supported conservation practices with the local community.

In Aberdares forest, the forest association got together and formed a group to improve the condition of the forest through the establishment tree of nurseries to provide seedlings which would be planted to the forest. It has been involved in collective choice



activities such as planting trees and maintenance of the forest boundary among other activities.

Eburu community has less conservation activities within the forest. Members of the community stress on the need to be allowed to cultivate food crops in the forest to supplement what they harvest from their farms.

### **Market products (firewood, poles and charcoal) within major markets**

Got Ramogi has four major groups that make good use of the forest directly. They include: firewood collectors, herbalists, poles and post collectors, and game hunters. Firewood collectors group is made up of 50 individuals from 40 households. Two female individuals in this group are not members of the community forest association and work out side the settlement on full time jobs. All members of the group depend on forests for their subsistence and 12 members are involved in commercial activities from the forests. The tree species commonly harvested are *Teclea trichocarpus* and *Teclea nobilis*. Apart from fuel wood, this group also obtains other forest products like medicinal herbs, thatching materials; fruits and use some parts of the forest as cultural sites. The group members have not tried to limit usage of this forest by shifting to other forests. The forest meets 95% for fuel wood, 90% for building materials and 5% for fodder. The firewood collected is utilized locally (62%) while the rest 38% is sold to hoteliers and beach kiosks in Kisumu town.

The pole and post collectors within Got Ramogi forest comprises of 33 individuals from 32 households (32 males and one female). None of the members work outside the settlement but two have full time jobs within the settlement area. Eighty four percent of individuals depend primarily on the forests for subsistence and sixteen percent of individuals are engaged in commercial activities arising from the use of forests. This group harvest poles and posts for housing and construction of other farm structures. The tree species commonly harvested are *Tarrena graviolens* as building poles. Apart from poles and posts, this group also obtains other forest products like firewood, thatching materials, fodder, and uses some parts of the forest as cultural sites. The group members have not tried to limit usage of this forest by shifting to other forests. The group interacts freely and works with other user groups such as fuel wood collectors. The forest meets 80% for fuel wood, 100% for building materials and 20% for fodder. Individuals from this group earn income from commercial pole and post harvesting in the forest.

Aberdares community depends on the forest for all their subsistence and commercial needs. About 98% of the people in the area depend on the forest for their subsistence

and commercial needs. Among the products from the forest that are ranked as the most important include water, fuel wood and land for Non Residential cultivation. The forest has also been used for charcoal burning which has caused a lot of forest destruction. About 40% of the people in the settlement gain income from charcoal making and cutting wood from the forest. The forest adjacent to the people is almost cleared of trees and thus they have to go to other parts of the forest for wood. The extent of reduced trees is such that the youth have to dig up roots of trees especially *Olea africana* to make charcoal.

The majority of community members in Eburu forest are involved in the use of forest for cultivation and charcoal burning. 67 % collect firewood and charcoal burning in the forest. 16 % of the majority is involved in bee keeping while the rest 17 % is involved in fodder for livestock.

Arabuko sokoke is endowed with various activities. The study shows that, 69 % of the respondents showed are largely involved in several activities benefiting their lives. This includes: butterfly farming, mushroom harvesting, bee keeping, basketry, herbal medicines and ecotourism. The rest, 31 % are more concerned with opening farmland within the forest, for planting palm and cashew nut trees and cultivation for subsistence crop production.

## **CONCLUSIONS AND DISCUSSION**

As a result of this study the following can be concluded:

1. There is direct link between the condition of the forests and urban centres. The forests which are close to urban centres provide such centres with products which are required by those who live in the centres. Those forests close to urban centres provide more products such as charcoal and building materials especially poles to the urban centres than those forests which are located far from the urban centres;
2. Most members of adjacent forest communities depend more on forest related activities for their livelihoods than any other socio-economic involvement; and,
3. Because of the importance of forests to the livelihoods of the adjacent forest communities, they are involved in activities aimed at improving forest condition. Such activities include raising of seedlings, planting of trees and protecting the forest from destruction.

## **Policy Recommendation**

Research in peri-urban areas of developing countries reveals the former's importance as critical environments in alleviating food insecurity of poor inhabitants (Drescher and Laquinta 1999). While it is acknowledged that increasing urbanisation results in expanding markets for forest products (Wiggins and Holt 2000a), it remains unclear how this may translate into enhanced livelihood options for the urban and peri-urban poor. Neglect of the urban dimension of forest resources leads to an underestimation of the forests importance in the livelihood strategies of urban peri-urban households. The following measures may be applied in order to recognize the important contribution forests make towards the improvements of urban and per-urban livelihoods:

While the contribution of forest products in will decrease as the income levels of urban households increase, many low-income families continue to depend on wood for fuel (Scherr 1995). An increase in urban poverty temporarily increases demand for low cost forest products which normally would have been displaced in urban markets (Ogle 1996). Urban communities influence markets on traded forest goods.

Expanding and growing forest product activities are more likely to be found where per capita incomes are rising, and there is growing demand for the products in the markets. The scenario existing in Kenya supports the move from a situation where forestry activities are controlled by the government to that involving other stakeholders and players in the sector. It also heralds a move where the country's forests could be managed better as a result of reduced pressure on them for products and services (Seymour et al, 2000).

The emerging field of urban forestry underscores the urban poor's dependence on forest and tree products (Carter 1994; FAO 1995b, 1999). These sources, though, refer to forest and tree resources in urban and peri-urban environments rather than those in the forest hinterland. While it is acknowledged that increasing urbanisation results in expanding markets for forest products (Wiggins and Holt 2000a), it remains unclear how this may translate into livelihood options for the urban and peri-urban poor.

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