

# **SOCIO-ECONOMIC CHARACTERISTICS OF A COMMUNITY FOREST IN THE WESTERN HIGHLANDS OF CAMEROON. CASE OF IJIM FOREST**

**E. A. TSI, G. WIEGLEB, T. PESCHEL, and G. T. FORBID**

(Received 6 April, 2005; Revision Accepted 27 January, 2006)

## **ABSTRACT**

Public views on resource use in relation to conservation measures at Kilum/Ijim were obtained through interviews and questionnaires. Forty-five questionnaires were distributed to 3 of the 9 villages surrounding the Kilum/Ijim forest over a period of 3 months (August to October, 2000).

A design and implementation of different activities (community forest management, institutional strengthening programme, monitoring and livelihood programmes) to sensitize the population in accordance with the Kilum/Ijim forest objectives was done. Ninety-five and half percent of the population benefits readily available fuel wood while practicing agro-forestry, 91% food crops, 57.7% livestock and 42.2% apiculture.

After a market survey, comparative to the past, income has increased by 98.05%. A single farmer can generate per year US \$ 438.4. Ninety-one percent of the population affirms that they have witness a decrease in soil erosion due to the implementation of agro-forestry practices introduced by the project.

It was generally observed that community involvement in the conservation of natural resources is a success at Kilum/Ijim with a very high level of population awareness.

**KEYWORDS:** Social and Economic Characteristics, Community Forest, Ijim Forest, agro-forestry practices

## **INTRODUCTION**

Many third world countries including Cameroon depend on agriculture for their livelihood and revenue. Improvement in farming systems yields better results. Agro-forestry practices on farms are one of such improvement tools. Apart from the maximization of out put, conservation of the limited available resources is also an objective. The western highlands of Cameroon are characterized by mountainous habitats (forest, grassland, and inselbergs) with Kilum and Ijim mountain forests as a viable site for biodiversity conservation. About 200,000 inhabitants live in the forest periphery, making it one of the most densely populated in Africa (Kilum-Ijim annual report, 2000). Several taxa of amphibians, small mammals, reptiles, birds and plants species are found in the mountains of Cameroon; most of which are endemic.

A community forest project called Kilum/Ijim forest project (KIP) was established in partnership with the government of Cameroon, Birdlife International and the British Oversea Development Authority in 1992. Brown, (2001) says the Cameroon case of community forest presents one of the greatest challenges to community forestry in the tropics, and has generated exceptional interest in the international community. A radical overhaul of the forest legislation in 1994 opened the way for community involvement in the management of forests for commercial timber production. The story which the papers collectively tell is that, despite the enormity of the challenges, real progress can be made where there is a critical mass of local and international concern, and that the benefits to be had may spread beyond the forest sector, and extend into the wider realms of public governance.

An important aspect of the conservation of the natural resources is the education and involvement of the indigenous population. The local community around the Kilum-Ijim forest depends on the resources (hunting, gathering, slash and burn, farming, extraction, rape and pillage) of this forest for a livelihood. A consequence is the jeopardisation of water catchments and supply, degradation of soil leading to excessive erosion, reduction in soil fertility and farmland

shortage and bush fires. All these impacts lead sometimes to permanent and irreparable loss of biodiversity.

Massive environmental transformation has far-reaching impacts on social, economic and ecological systems (Pretty, 1995). Though excluding local communities can protect natural resources in National Parks, there are now many examples of better protection by a participatory approach in the implementation of conservation strategies. The area around Kilum-Ijim forest is among the most densely populated in West Africa 1 person per 1000m square. Around 200,000 people live within a day's walk of the forest (200,000,000 m square). In addition to pressures to provide stable food crops and livestock for local needs, the decline of world coffee prices led to further encroachment on the forest, as farmers cleared land for new cash crops. In 1992, it was estimated that if the rates of clearance were allowed to continue unchecked, the entire forest would disappear within five years (<http://www.birdlife.net/news/features/2003/08/kilum.html>).

Bromley and Cernea, (1989) have reported that natural resources projects in developing countries which do not actively incorporate local users will ultimately fail. The Kilum-Ijim community forest is a project of Birdlife International and the Government of Cameroon, through the Ministry of Environment and Forest (MINEF). The local population and the international community share a common interest in the conservation of the forest. It is generally believed that, local people will develop a vested interest in management of the resources, if the associated benefits are re-invested in the community. Under these circumstances, the project has adopted a highly participatory approach in its development of a community-based system of forest management to ensure the long-term conservation and sustainable use of the forest resources. To resolve the problem of human pressure on forest resource, this project puts in place structures and functions, aimed at educating and creating awareness amongst the local population targeting the rational use of these natural resources and enhancement of farmer livelihood. This study investigates:-

- Public opinion on whether the implementation of agro-forestry practices by the project had positive or negative impacts.

- The extent and reasons for resource exploitation in Kilum-Ijim forest.

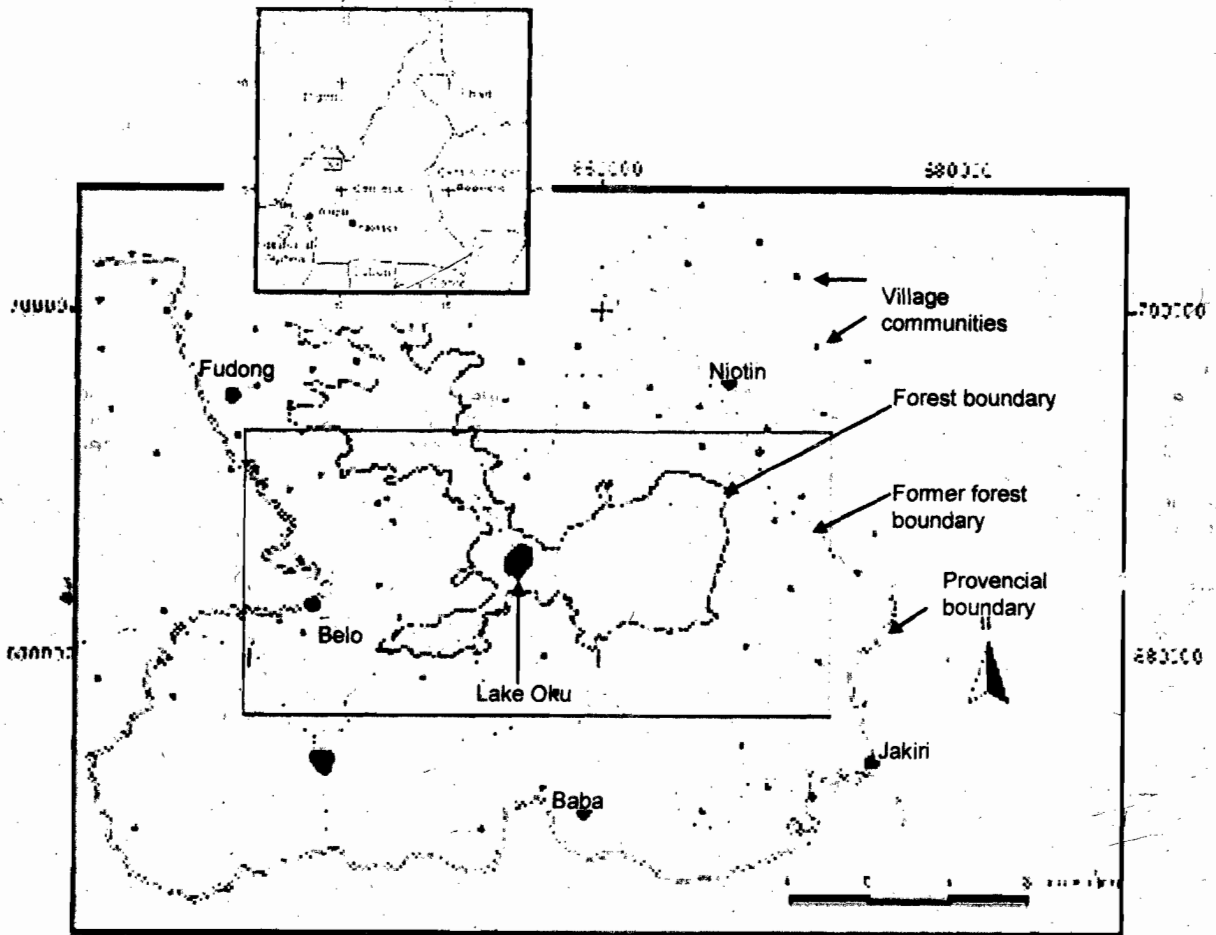
- The improvements in livelihood following the introduction of participatory conservation measures.

## METHODOLOGY

### The Study Area

Kilum-Ijim forest is located between latitude 06°05'N and 06°20'S and longitude 10°20'W and 10°36'E. Kilum-Ijim covers

20,000 hectares of Mount Oku and the adjoining Ijim ridge in the west of Cameroon, near the border with Nigeria. Most of the area is above 2,000 meters altitude with Mount Oku which is the second highest mountain in mainland West Africa having a peak of 3,011 meters. The area includes a mixture of montane forest, montane grassland and sub-alpine habitats. The sub-alpine can be sub-divided into the agro-sub alpine zone of altitude greater than 2800m and afro-mountain zone less than 2800m above sea level. The afro-sub alpine is found only on Mt. Cameroon and Kilum-Ijim in West Africa. Very little flat land exists in the area and slopes sometimes exceeding 45% (Thorpe, 1995).



**Fig 1: Map of Kilum-Ijim showing study site (big map) and map of Cameroon with location of study area (small map on top).**

Source: GIS Unit, Royal Botanic Gardens, Kew.

Kilum-Ijim project (KIP) works with the 35 communities that surround the Kilum-Ijim Forest, the largest remaining patch of Afro-montane forest in West Africa. It is found on Mount Oku (the second highest mountain in mainland West Africa) and the adjoining Ijim Ridge. Traditionally, three Fondoms (or kingdoms) cover this area - those of Kom, Nso and Oku. These traditional set-ups headed by the Fon's, are highly

respected and play an important role in the governance of the region.

Data from Kilum-Ijim project's own meteorological records and that kindly supplied by Elak and Fudong Agric post (MINAGRI), show that the climate is strongly influenced by the rainy season which lasts for eight months (March to October) with annual precipitation between 1300mm and 2300mm. Peak rainfall occurs between July and September.

## SOCIO-ECONOMIC CHARACTERISTICS OF A COMMUNITY FOREST IN THE WESTERN HIGHLANDS OF CAMEROON. CASE OF IJIM FOREST

The dry season lasts four months (November to February). Temperatures are strongly influenced by altitude and range from 10°C to 24°C. The soils are typically dark and reddish brown and are reported to develop from weathered volcanic parent rocks (Meclod, 1987). They are humic ferrisols, characterized by high organic matter content and are highly permeable.

### Data collection

Information was obtained from two major sources classified as primary and secondary data. Secondary data was obtained from a literature review of the reports of the project reports at the project library. Primary data was obtained through the interview of resource persons and a total of 45 questionnaires were administered in 3 of the 9 villages of the Ijim forest chosen according to proximity to the forest and representing 33.3% of the population of the area. These questionnaires were issued to people of the age 20-60 which is considered to be the most active group that is involved in the exploitation of forest resources FAO (1999).

A market survey was also conducted on the cost of commercial forest items at the Bello, Oku and Fundong markets on wholesale and retailers in these villages. An evaluation of livelihood improvement was done by comparing present and past market trends before the project implementation.

Farmers from different zones were selected with the aid of the local authorities and trained on how to apply the different farming techniques. Seventeen demonstration farms on slopes along roadsides to intensify farm activities (animal rearing, food crop production and even tree planting) were established.

### RESULTS AND DISCUSSION

The following indigenous and exotic Agro-forestry tree species were identified to have been introduced with the following importance in Agro-forestry practices in the study area (Table 1).

**Table 1: Plant species established through agro-forestry to enhance ecological processes within the habitat**

| Family      | Scientific name              | Utility/Product              |       |
|-------------|------------------------------|------------------------------|-------|
| Indigenous  | <i>Schefflera mannii</i>     | AE                           |       |
|             | <i>Schefflera harteri</i>    | AG                           |       |
|             | <i>Schefflera abyssinica</i> | AE                           |       |
|             | <i>Polyscias fulva</i>       | AGH                          |       |
|             | Asteraceae/ Compositae       | <i>Crassocephalum mannii</i> | A     |
|             |                              | <i>Kigelia africana</i>      | DF    |
|             | Bignoniaceae                 | <i>Markhamia tomentosa</i>   | DG    |
|             | Euphorbiaceae                | <i>Brihena speciosa</i>      | AD    |
|             |                              | <i>Croton macrostachyu</i>   | AEFJ  |
|             | Fabaceae                     | <i>Ricinus communis</i>      | ABG   |
|             |                              | <i>Adenocarpus mannii</i>    | AJ    |
|             |                              | <i>Crotalaria</i>            | I     |
|             |                              | <i>Melilotus corraui</i>     | ABE   |
| Loganiaceae | <i>Sesbania sesbans</i>      | ABE                          |       |
| Mimosaceae  | <i>Tephrosia vogelii</i>     | ABE                          |       |
| Moraceae    | <i>Nuxia congesta</i>        | ABGH                         |       |
| Mysinaceae  | <i>Albizia gummiifera</i>    | ABG                          |       |
| Myrtaceae   | <i>Ficus oreodryadum</i>     | ABE                          |       |
| Rosaceae    | <i>Maesa lanceolata</i>      | BEG                          |       |
| Ulmaceae    | <i>Syzygium guineense</i>    | FH                           |       |
|             | <i>Prunus africana</i>       | ABG                          |       |
|             | <i>Trema orientalis</i>      |                              |       |
| Exotic      |                              |                              |       |
|             | Fabaceae                     | <i>Erythrina poeppigiana</i> | AEF   |
|             |                              | <i>Acacia angustissima</i>   | ABI   |
|             | Mimosaceae                   | <i>Calliandra caletyrsus</i> | ABCDI |
|             |                              | <i>Leucaena leucocephala</i> | ABCDI |
|             |                              | <i>Crotalaria ervoides</i>   | ABCDI |
|             | Myrtaceae                    | <i>Eucalyptus spp</i>        | BDEG  |
|             | Proteaceae                   | <i>Grevillea robusta</i>     | GI    |
|             |                              | <i>Ardisia cymosa</i>        | G     |
|             |                              | <i>Measopsis spp</i>         | GI    |
|             |                              |                              |       |

A= Increasing soil fertility, B=Fuel wood, C=Folder, E=Apiculture, F=Traditional medicine, G= Live fences, H=Timber for construction, I=Ornamental, J=Edible oil/Food

The Agro-forestry identified plants were in a ratio of 1:3 with respect to indigenous and exotic species respectively. Over thirty-two percent (32.8%) of the plants identified to improve soil fertility of which 7.8/100 \* 32.8 of these fertility plants were exotic species. Indigenous plants indicated had in the past suffered from the practice of slash and burn and the farm practice of shifting cultivation. Twenty percent (20.3%) of the plants are used for fuel wood which is the main source of cheap energy for domestic heating and cooking. Agro-forestry farming system has greatly helped in providing readily available and affordable domestic energy source. The least utility was 3.1% of the plants providing a direct as food or vegetable oil source (see Table 2).

From the environmental viewpoint, some of these folder plant species which support bee-farming were used to alleviate or provide livestock feed. It was found that farmers kept their bee hives in the reserved forest so as to benefit from nectar and from the protection of the hives from bush fire. The Oku rural radio communicating in the local dialect, news papers and exchange programs helped in creating awareness about conservation objectives and activities especially its ecological and socio economic impacts on the indigenous communities.

Dr Jonathan Barnard, BirdLife's Programme and Projects Manager says the partners provided a 'livelihoods programme', now concluded, which offered advice on making the best use of existing crop and grazing land, and also on non-agricultural uses of the forest which can generate cash for the local economy. As a result, bee-keeping has been taken up enthusiastically, and the number of hives in the forest is increasing. Bee-farming Co-operatives harvest and sell

the honey. Other forest activities include paper-making and wood-carving at a rudimentary level.

The bark of the tree *Prunus africana* is exploited and used as local medicine, and as an ingredient in pharmaceuticals to treat prostate problems. Previously the trees were exploited unsustainably by cutting them down or ring-barking them, and the money was pocketed by businessmen from outside the area. "The communities are now in a position to develop revenues from harvesting *Prunus africana* in a sustainable way in the future," says Jonathan Barnard. Fortunately there is no threat from commercial logging in the Kilum-Ijim forests, in contrast to the immense social conflicts between logging companies and communities in the lowland forests of Cameroon, but there is potential for sustainable local harvesting of timber by the communities.

Ecotourism is another possible source of revenue, since as well as its huge wildlife interest, Kilum-Ijim is more accessible than some of the other forested areas in Cameroon. The project partners are working strategies to ensure that any revenues from ecotourism go directly to the communities. The community decides what to do with the forest within the limits agreed with the partners. After attempts to appoint formal wardens proved potentially divisive, with the real risk that the project would be resented as an interfering outside agency, the business of policing the forest was handed over to the communities themselves. When there are cases of illegal grazing or fire-starting, they are handled by village surveillance committees, who impose fines and penalties on the perpetrators. More serious disputes, and those involving people from outside the local area, such as absentee livestock owners, are dealt with by the councils of the local paramount chiefs, and the Fon's <http://www.birdlife.net/news/features/2003/08/kilum.html>

Table 2: Perception of the success of the project by local communities

| Communities          | Food crop |    | Fire wood |      | Bee-keeping |      | Livestock |      | Indigenous medicine |    | Pesticide |      | Timber |      |
|----------------------|-----------|----|-----------|------|-------------|------|-----------|------|---------------------|----|-----------|------|--------|------|
|                      | Yes       | No | Yes       | No   | Yes         | No   | Yes       | No   | Yes                 | No | Yes       | No   | Yes    | No   |
| Bello                | 13        | 02 | 13        | 02   | 10          | 05   | 05        | 10   | 03                  | 12 | 04        | 11   | 04     | 11   |
| Fundong              | 15        | 00 | 15        | 00   | 05          | 10   | 10        | 05   | 05                  | 10 | 06        | 09   | 05     | 10   |
| Njinikom             | 13        | 02 | 15        | 00   | 04          | 11   | 06        | 09   | 01                  | 14 | 02        | 13   | 07     | 08   |
| No of Questionnaires | 41        | 04 | 43        | 02   | 14          | 26   | 26        | 19   | 09                  | 36 | 12        | 33   | 16     | 39   |
| Percentage (%)       | 91        | 09 | 95.5      | 04.5 | 42.2        | 67.8 | 57.7      | 42.3 | 20.0                | 80 | 26.7      | 23.3 | 35.6   | 64.4 |

It was observed that the community is involved in more than one economic activity. About 95% of the population depends on fuel wood, 91% food crop and 42.2% apiculture with the forest as the main source. The percentage involved in apiculture is expected to

increase as wax, which formally was a waste product is now used for making of skin oil, shoe polish and soap. The high percentage of the population involvement in activities like fetching fuel wood and using food crops production demonstrates that they are indispensable

and basic commodities for life. All three villages however acknowledge with satisfaction the benefits and improvement in their livelihood by the project.

Based on the results on Table 3 percentage increase in income since the initiation of the community forest project is 98.14% with the advent of the project. A single farmer per year makes an income of US \$ 16,535.80. Responsibilities such as education, health and social involvement are dependent on income generated and farmers now can commonly take care. Just as the findings of Dehllot, (1990), Canocoo and Bertei-Doku (1992) else where in Ghana; Ajayi (1993),

Adegeye and Ayodele, (1996) in Nigeria, have reported similar situations where local communities involved in processing and sale of forest products for livelihood. It is clear that all these activities impinge either directly or indirectly on forest and natural resource conservation. The community has a high positive perception to the fact that agro-forestry (a structure implemented by the project) is acceptable, controls soil erosion and conserves the forest. Respondents reported that products found in their neighbouring forest have contributed to economic improvement.

Table 3: Contributions of conservation project to economic improvement ten years after project initiation

| Items      | Period before project involvement<br>(Before 1992) |           |               |             | Period after project involvement<br>(1992 to present) |           |               |             |
|------------|--|-----------|---------------|-------------|---|-----------|---------------|-------------|
|            | Qty/person   | Cost US\$ | N° of persons | Amount US\$ | Qty/person  | Cost US\$ | N° of persons | Amount US\$ |
| Apiculture | 7 Litters of honey                                 | 02        | 19            | 39.6        | 37.5 Litters  | 02        | 19            | 1,406       |
| Food crop  | 10 Maize buckets                                   | 03.5      | 41            | 142.4       | 25 maize buckets                                      | 3.5       | 41            | 35,875      |
| Livestock  | 3 goats  | 16.7      | 36            | 600.0       | 8 goats   | 16.7      | 36            | 4,809.6     |
| Total      |  | 22.2      | 96            | 782         |   | 22.2      | 96            | 42,090.6    |

Using the quantity and price factor (Table 3) to compare yield from farm activities (Bee-farming, maize farming and goat rearing) one can appreciate the input of community forestry within a time frame of ten years. Since 1992 when the KIP was initiated, there has been a significant impact on the livelihood of the communities around the forest. Yield has increased and more cash is obtained from sales of farm produce. For example, maize yield has increased by 42.8% and income from it has risen by 98.9%. This area (200,000 hectares) that before made barely US\$ 782 is today making US\$ 42,090.6. Given the high awareness created by the project and the benefits of conservation more to the community, adequate attention is and will be given to resource exploitation and use. Poverty is reduced and a new life is entering into the people as more children are sent to school, medical care and feeding habits have improved.

## CONCLUSION

Kilum-Ijim community forest project has demonstrated that, given enough financial support, people will not inevitably pursue short-term financial gains from cash crops. Communities may value their traditional way of life and their natural surroundings sufficiently to accept limits on their activities, the expenditure of a good deal of unpaid time and effort, and long-term benefits over an immediate financial return. The forest provides villagers with food such as mushrooms, honey and meat, with firewood, building materials such as bamboo poles, wood for carving and

with medicinal plants. The role the forest plays as a water source is also well understood locally. Wild animals that provided earlier generations with meat can no longer be found, and women must travel ever greater distances in search of firewood. The forest also has great cultural significance: many traditional ceremonies are held, making use of forest products, including the red feathers of Bannerman's Tauraco (*Tauraco banamanni*) Tsi & Ayodele, (2004).

The study has shown that where the community has had a hilly landscape (Bello), where soil erosion and landslides are very common, is now much useful. The farmers are quite familiar with the fact that erosion reduces fertility and so are making use of agro-forestry principles and practices and today land is available for cultivation. 91.1% people have witnessed a decrease in soil erosion due to the practice of agro-forestry. Community involvement in the conservation of natural resources is a success at Ijim over powering the "no-use-policy" for indigenous population in resource management.

The 'livelihoods programme', now offers advice on making the best use of existing crop and grazing land, and also on non-agricultural uses of the forest which can generate cash for the local economy. As a result, modern bee-keeping has been taken up enthusiastically with the number of hives in the forest is increasing. Co-operatives harvest and sell the honey. Other forest activities include paper-making and wood-carving.

The bark of the tree *Prunus africana* is used in local medicine, and as an ingredient in pharmaceuticals to

treat prostate gland hypertrophy. Previously the trees were exploited unsustainably by cutting them down or ring-barking them, and sold by unscrupulous businessmen from outside the area. "The communities are now in a position to develop revenues from harvesting *Prunus africana* in a sustainable way in the future.

The community forest of Kilum and Ijim Cameroon has greatly influenced the social and economic life of the people.

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