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SOCIAL FORESTRY NETWORK

RURAL WOMEN AND URBAN MEN: FUELWOOD CONFLICTS AND FOREST SUSTAINABILITY IN SUSSEX VILLAGE, SIERRA LEONE

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INTRODUCTION

This paper[1] details the conflicts between users of a forest resource, showing how urban needs for firewood are threatening the local economy of a rural village. It illustrates the need to implement forestry projects that are not directed solely to the protection of forests, realising the interconnections of all parts of the local economy.

THE VILLAGE

Sussex village is a settlement at the mouth of the Sussex river, with a population of 425. The village is divided into two groups - the Sherbros who settled in the area in 1750, and the Creoles, descendants of freed slave settlers who settled in Sussex in 1824. The village is on the west coast of the Western Area Peninsula (Mapla), 17 km from the suburbs of the capital Freetown. This area has an extended rainy season of 7-8 months and a dry season of between 4-5 months.

The economy of Sussex is primarily dependent on two renewable natural resources: fish and trees. However, external pressures, mainly from the city, are affecting the basis of the local economy. At sea, modern trawlers owned by businessmen in Freetown encroach on traditional fishing grounds, causing a reduction in the amount of fish landed by the villagers.

On land, the areas of forest and forest regrowth, which are the main source of fuelwood for the local community, are being exploited by woodcutters/traders who commute regularly from the city.

Sherbro men fish throughout the year, with a peak of activity during the wet season. The fish are sold at wharfside to the Sherbro women fishmongers, who then dry the bulk of the catch and transport the surplus processed fish to the wealthier inland areas of Sierra Leone and to Liberia.

ALthough the Sherbros are more economically active locally than the Creoles, the Sherbro standard of living is much lower - poor housing, inadequate water supplies, no electricity, high population density and a lack of communal facilities.

THE PROJECT

PLAN International have been working in Sussex for two years. They have initiated cooperatives for the fishermen and also have started a community forestry project. This area was selected by PLAN because of the rapid erosion of natural resources on which the economy of Sussex is dependent. However, PLAN's initial assumptions, stating that the local community was responsible for causing deforestation, were too simplistic. The survey on which this paper is based was conducted to find out what and who were the causes of deforestation in the Sussex area.[2] The results of the survey, which will be discussed below, showed that the primary cause of the rapid degradation of the Sussex forests was the requirement for urban firewood. The firewood needs of the local community were a lesser cause.

THE WOODCUTTERS

The original settlers of what later became known as Sussex were the Sherbros who called their settlement Bambuatuk - village on the rock.

At this time, the Sherbros were able to collect dead wood from the high primary and secondary forests which bordered their fishing village. Wood was also available from the small cassava farms that the Sherbros had cleared. In 1824, the Creoles came to the area and settled in the Sherbro village which they renamed Sussex. The Creole settlers bought and cleared the forests for farms and land for building homes and a church, forcing the Sherbros further afield to collect fuelwood.

Today, farming of the flat land around Sussex has all but ceased. Local people own only a small proportion of land; large areas of land are privately owned by individuals who live in Freetown. The land is severely degraded, having been overfarmed with increasingly shorter fallow periods. The vegetation is sparse low forest regrowth, with a low species diversity, providing only a small amount of fuelwood.

The local wood cutters collect most of their fuelwood from the lower slopes of the peninsula mountains which are separated from the flat degraded land by the main road to Freetown. The mountain slopes are privately owned up to the Government Forest Reserve boundary. The local woodcutters do not have formal or financial rights of access agreements with landowners. However, they are not physically prevented from entering the area or harvesting firewood.

Sherbro women collect the majority of fuelwood that is used in Sussex and some of the woodcutter women are also commercial fishmongers. Amongst this group of female woodcutters are six women from different tribes (Mende, Temne). They operate as woodcutters and traders throughout the year, selling fuelwood to the fishmongers and to the Creole women who do not cut and collect their own firewood but who depend on it for cooking. A few unemployed males (non-Sherbros and Sherbros too young to be fishermen) also cut wood to sell in Sussex but only in the dry season.

Firewood Harvesting

The women leave their house early in the morning after feeding the household and cleaning the house and compound. They meet up with their friends and walk in groups of 4-6 women about 1 km to their own small areas of bush (about 0.5 ha) which are scattered along the lower slopes of the peninsular mountains. The group then splits up and the women go to their individual sections within the group's area to cut firewood.

Small trees are cut using a sharp cutlass, and if it is a coppicing species with a large number of shoots, only two or three of the thickest stems are harvested. The wood is collected in a central clearing from where, at the end of the harvesting session, each woman takes a bundle back to the village balanced on her head. Each bundle weighs about 60 kg when wet and 50 kg if it is dry wood. There is now no species preference for firewood for cooking and drying fish because of the few trees remaining. However, the women try to cut from colonising species and those that coppice. Fuelwood is stored next to the house, with wet wood left in the

open for four or five months to dry.

From October to December the Sherbro woodcutters cut only dry dead wood for immediate use, as their stocks are exhausted after the wet season. From January to May they cut live wet wood. This differs from the full time woodcutters who operate throughout the year depending on the weather. Usually they cut live wood and leave it hidden in the bush until it is dry and then sell it within the village.

In recent years, however, the woodcutters have been joined on the lower mountain slopes by urban woodcutters and traders - mainly males of the Fullah tribe. The Fullahs have formal and informal financial agreements with the landowners in Freetown for entry to these lands to cut firewood. The Fullahs have acquired a reputation of being very industrious and this characteristic extends to their woodcutting activities on the lower slopes. Large trees are felled, split into firewood with axes and the tied bundles are then left to dry for a few months before they are transported to the city. They also harvest the forest regrowth, cutting all coppice wood and small trees which are popular locally, leaving no regeneration. Groups of 2-4 men work from early morning until mid-afternoon, every weekday during the dry season and 2 days each week during the rainy season.

It has not been possible to estimate how much wood is cut every year because the wood is usually hidden in the bush and the Fullahs will not answer questions about their activities, probably because, as local rumour says, they are encroaching on Government Forest Reserve. However, large

quantities of wood are removed from the forest, evident by the lorry loads of wood transported to Freetown each week.

There is increasing pressure on the forest in areas where absentee landowners have permitted the urban woodcutters/traders to operate. The vegetation cover is decreasing rapidly; tracks and paths which were formed by woodcutting and transporting operations are becoming small rivers during the rains. Silt and small stones are being washed down onto the main road below, which in turn becomes a large river whenever it rains heavily, and a mass of gullies, pot holes and silt beds when the rain stops. The government bus to and from Freetown - the only fairly regular cheap form of public transport which serves Sussex - has now been stopped because of the worsening condition of the road in the Sussex area and also in other woodcutting areas. The people of Sussex, who depend on Freetown for trade and commodities are left with the choice of paying high prices for private transport to and from the city, or walking, with the possibility of hitching a lift in lorries which ironically are often loaded with wood from the Sussex area.

The stress that local firewood demands are placing on the forest resource have been estimated to be sustainable from the forest.[3] However, if the male urban woodcutters/traders are permitted by absentee landowners to continue and even to expand their exploitative operations on the lower mountain slopes, then the local community and in particular the women fishmongers and woodcutters will suffer.

FIREWOOD CONSUMPTION

Cooking

The majority of the cooking in Sussex is done by women over wood fires in covered outhouse kitchens. The traditional three stone cooking stoves used by most of the households require large amounts of fuelwood.[4] At least two meals are cooked over the fire each day. Dry firewood is preferred to wet, and generally the best species for catching alight and producing heat are Octhocosmus africanus and Hymenocardia sp. In households with young children, the fire is kept alight for heating water and the kitchen.

The three stone fire is not an efficient user of firewood. Air passes freely through the gaps in the stones causing the fire to burn more quickly; heat escapes from between the stones and from around the base of the pot. To try and reduce the firewood requirements a new stove was introduced, based on traditional designs - the Louga stove developed in Mali and Senegal.

The new stove is easily constructed using locally available materials. The inefficiencies of the three stone fire have been resolved by enclosing the stones with a thick clay wall with only one entrance through which to feed fuelwood. Households that have adopted the stove have found that they need 50% less firewood than before; cooking times have also been reduced. However, exclusive use of the stove is not possible because some traditional foods cannot be cooked on it - each household with a new stove also has a three stone fire. Even with the continued use of the old stoves, new stoves could cause a significant reduction in the amount of fuelwood used for cooking.

Commercial Fish Processing

The second major area of firewood use is in the local fish processing industry. A large majority of all fish landed in Sussex is dried and smoked over wood fires (banda) by the fishmongers. Only a small amount of fresh fish is consumed locally and a few high value species are sold in the market. The fish have to be processed a few hours after being landed or they will spoil. The heat from the wood fire dries out most of the moisture from the fish and smoking the fish helps to preserve it. The fish is then kept from three days up to a month, depending on the number of times it has been dried, before it is sent to market.

The bandas are also located in the covered kitchens. Fish are laid in a tightly packed layer on a wire mesh and a fire lit underneath. As the fire underneath the fish catches alight, fuelwood is spread out along the length and breadth of the fireplace, ensuring that all the fish are evenly dried and smoked.

The existing fish drying system uses large amounts of fuelwood (estimated total fuelwood consumption per annum is 70 tonnes)[5]. The number of times that a commercial banda is used depends on the amount of fish landed, but generally during the rainy season the bandas are used four times each week and three times per week in the dry season. A variety of species are used in the drying process including Ochthocosmus africanus and Hymenocardia sp. and damp branches of Utex domana and Anisyphyllea lawina. Dry coconut husks and palm fronds are used at the end of the fish processing operation, to produce thick smoke to brown the fish and thus increase its market value.

However, as with the three stone fire cooking stove, the traditional banda does not use firewood efficiently. Unrestricted air flows fan the flames and scorch the fish. The large amounts of smoke produced make an unpleasant and unhealthy working environment. Alternative fish drying bandas have been introduced in the area with varying degrees of success. However, an improved banda - the chorka banda - developed by FAO in Ghana, is proving to be successful with fishmongers in the Sussex area.

The open fireplace of the bandas is enclosed in a firebox with only one entrance to each fire. Several trays of fish are laid on top of one another and rotated regularly throughout the drying process, so that all the fish are dried and smoked evenly. The same size and species of fuelwood are used as in the traditional bandas but there is a 50-60% reduction in the amount of fuelwood required to process the same amount of fish. Users have also noted that these new ovens are safer to operate and drying times are shorter.

The three stone fires and traditional bandas have been used since the settlements were established and when fuelwood was an abundant local resource. At present, the local fuelwood sources are still able to meet the community's current demand for fuelwood. Community awareness of future fuelwood supply problems is low with a consequent poor adoption rate of fuel saving technologies. However, extension programmes are being set up to raise people's awareness and to demonstrate the benefits of the new technologies.

Table 1 shows the potential savings of firewood if there is widescale adoption of these new technologies.

Table 1

Operation	Apparatus	No.of units in village	Present fuelwood consumption/yr. (tonnes)	Possible savings (tonnes)
Cooking	3-stone fire	50	142	72
Cooking	Louga stove	10	14	-
Fish processing	Commercial banda	15	70	40
	Small banda/ 3-stone fire	32	16	9
	Louga stove/ mud oven	8	2	
	Total	115	244	121

EXTENSION

Extension programmes for the introduction of improved stoves and fish-drying ovens should be conducted by experienced, preferably female, field communicators, who are fluent in local languages and who also understand the basic theory behind the improved technologies.

The success of extension programmes in Sussex depends on which groups within the village are contacted; local female opinion leaders should be used as agents of change. These would include older women amongst the fishmongers, bundu (women's secret societies) and 'bigwigs'. Existing women's groups should be used as the forum for discussion and

dissemination of new cooking stoves and fish drying ovens. The women should be encouraged to participate in designing and adapting stoves to fit with their local conditions.

ALTERNATIVE ENERGY SOURCES

Alternative energy sources are not going to be an immediate solution to the future fuelwood problem. Supplies of electricity are irregular, expensive and restricted to the Creole settlement; bottled gas and kerosene have to be bought from Freetown. Again the supply is uncertain and the cooking apparatus needed is prohibitively expensive. The immediate solution to the fuelwood problem would seem to lie in the better management of the existing forest resource and also the creation of new resources.

ALTERNATIVE LOCAL FUELWOOD SOURCES

There are three other possible sources of fuelwood that have not been exploited by the local woodcutters: the mangrove swamps on the sides of the Sussex river; the Porro Society Bush; and driftwood on the beach. However, there are cultural and practical reasons for why these firewood sources remain uncollected. Women are unable to swim and so are afraid to go in the river; even when the tide is out the terrain is soft mud and sand which makes cutting the mangrove wood a difficult and dangerous task. The women do cut dry, dead mangrove wood but only from the easily accessible fringes when they are collecting oysters. The Sherbro people are wary of interfering with the ecology of the river and the estuary (in the past they have prevented outsiders from extracting sand, fishing with dynamite or building a bridge over to the beach) as the river provides

them with large high quality fish in the wet season and oysters which are collected when fish is unavailable.

Wood is not cut from the high secondary forest - the Porro Society Bush - as it is sacrosant. Women are not permitted to enter the forest nor would they want to go inside the Bush boundaries. The Society Bush is reserved for use by the men and boys of the village; it is the area where boys are initiated into adult male society.

Driftwood is collected during the dry season when the Sussex river can be forded at low tide. During the rainy season when driftwood is more abundant due to heavy storms, and fuelwood stocks are at their lowest in the village, the river runs too high and too fast for the women to cross and return carrying wood.

Tree Planting

Planting trees for fuelwood is a new concept in this area and many of the local people feel that it is a waste of time and effort as the forest (God) has always provided in the past and it (He) will provide in the future. However, by conducting a sensitive environmental awareness campaign through local opinion leaders, the community has begun to understand the future problems and the ways in which the forest or God can be helped to provide the community's fuelwood needs.

Trees have been planted around compounds and vegetable gardens, along roads and around the primary school, community centre and church.

Initially, the tree seedlings were supplied by PLAN International but now a small nursery has been constructed in the village which now supplies all the tree seedlings.

The growth performance of trees planted in the first year of the project has helped to stimulate interest. Several of the species planted have grown to heights of over 3 m in 14 months.

The tree planting programme is as 'untechnical and unscientific' as possible - no particular tree spacings were recommended. Although mistakes were made, people have learnt from them, and the first stage has been achieved in the process of ensuring that valuable reforestation skills are being adopted in the community.

The future for the village and this project is to plant all the underutilised land within the village and to restock the depleted farmbush and forest regrowth. It is important to involve the Sherbro women woodcutters in the programme. The extension campaign needs to be carefully organised to ensure that tree planting is not a cosmetic exercise but provides an alternative source of fuelwood to help the energy needs of the community. Most of the extension has been directed at the educated males of the Creole community who have shown the most interest in the project. The extension programme must ensure that the users (mainly women) of the forest resource are involved in its management and regeneration. Without their interest there can be no real protection of the resource.

ALTERNATIVE STRATEGIES

There are several courses of action which could be followed:

- Do nothing and let the local woodcutters go further up the mountain slopes into the Forest Reserve or continue to compete with the urban wood traders on the lower mountain slopes for the remaining vegetation. This will incur heavy social, environmental and economic costs, particularly when the road is improved and more transport is available to the urban traders.

- Allow urban traders to cut and collect firewood from the Forest Reserve, under licence and supervised by Forestry Division rangers and guards.

- Reduce the demand for firewood in the urban areas. Freetown is one of the few African capital cities that still depends on fuelwood (instead of charcoal), over 90% of Freetown's population use a three stone fire for all their cooking. A reduction in demand could be achieved by promoting a recently initiated marketing campaign for cheap, efficient, one pot, wood-burning cooking stoves made from scrap metal.

- Help should be given to the Sussex community to put pressure on the absentee landlords, to stop them allowing urban traders access to their land, and giving local woodcutters priority over rights of access to firewood on the land.

CONCLUSIONS

This case study outlines the problems of balancing the various demands on a resource, ensuring that the local community does not suffer and that the resource can be sustained. It is predominantly male urban wood traders and land owners who are exacerbating the deforestation problem; while it

is the female rural traders who suffer. At the same time it is clear that the way in which female rural woodcutters cut shows more thought for issues of sustainability than the methods of their male urban counterparts. Yet their residence and gender doubly disadvantage them in any conflict over the resource. There is a need here for appropriate land use planning and an understanding of the whole local economy and its interactions with the wider economy. The sectoral approach that is currently being followed will not lead to a sustainable use of natural resources and the conflicts between urban/rural; rich/poor; men/women are not yet being addressed. Whilst small forestry projects may not seem to be a significant step in attempting to tackle these underlying conflicts, they may lead to a greater control of the forest resources by those that need them; if they can clearly document and publicize the relationship between good forest management and local managers.

NOTES

1. This work was carried out with the help of many people, whilst the writer was working as a VSO volunteer in Sussex Village for PLAN International. The views expressed in this report are the author's and do not necessarily reflect the views of PLAN International nor VSO.

2. The surveys were carried out in May and August 1986. Additional information is from field notes made over an 18 month period and from time spent working with local woodcutters.

3. Local firewood needs have been calculated to be 300 m^3 per year. This would be collected from 72 ha of forest regrowth on the lower mountain slopes ie 4.16 m^3/ha/yr.

4. According to the survey responses, the amount of fuelwood used per day ranges from 2.5 kg to 13.6 kg with an average of 7.75 kg per household. Each year the community uses about 142 tonnes of fuelwood.

5. The amount of fuelwood varies according to the amount of fresh fish processed. From the survey the average weight of fuelwood used per commercial fish drying session is 27.3 kg. There are 15 commercial bandas giving a total annual firewood consumption of 70 tonnes.

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