

# ***SOCIAL FORESTRY NETWORK***

**FORESTRY AND THE DEVELOPMENT OF A NATIONAL FORESTRY EXTENSION SERVICE**

**A SUDAN CASE STUDY**

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## **INTRODUCTION**

The emergence of a National Forestry Extension Service in the Sudan (as from 1985 onwards) represents a considerable shift in emphasis on the part of the Forests Administration. This shift reflects the realisation by the Administration of the gravity of the forestry situation and their inability to control the rate of deforestation using existing methods of forest protection and management. The demand for fuelwood both in the rural and urban sector is large and increasing; currently over 90% of the wood harvest is destined for use either as firewood or for charcoal. Forest reserves cover less than 0.5% of the total land area and will not be able to meet the projected demands for wood products over the next 15 years. The Administration recognised that if the people of Sudan are to be able to meet their forest product needs, forestry must reorient itself beyond the boundaries of the forest reserves: forest product users should be involved and encouraged to take responsibility for the forest resource.

## **THE EVOLUTION OF THE SUDANESE FORESTS ADMINISTRATION**

The Forest Department was one of the first departments created in Sudan by the British Government in 1901. Initially, its main purpose was to secure a good supply of wood for the steamers plying the River Nile. This objective was later superseded by the development of gum arabic as a commercial crop in the 1920s. The Forest Department was renamed Department of Forestry and Agriculture after the development and increasing importance of large-scale commercial agriculture. The word forestry completely disappeared from the title in 1965 when the Ministry of Agriculture was created which later became the Ministry of Agriculture and Natural Resources. At this stage, the Forestry Department became one of five departments within the Natural Resources Section.

Since 1908 forest management rules have been enacted, and in 1917, additional conservation rules were passed to increase the extent of land under Forest Department jurisdiction and management. It was not until 1932 that a general policy for forestry was drawn up; a policy which increased the powers of the Forest Department to include control over the cutting of trees outside reserved areas. The Policy also made provision for the creation of Central and Provincial forest reserves which were to be managed by Central and Provincial forest departments. These reserved forests were to supply the needs of local and urban areas. Management plans for these forests concentrated on the exploitation of forest products and did not fully take into account the needs (grazing and fuelwood) of the local people. However, rights of passage and water points were given to local people in certain areas. Management practices were highly restrictive and protectionist, guards with guns were employed to protect the forests and tree-cutting was permitted only in forest reserves and on issue of a permit from the forest authorities. The allocation of forests to the Provinces brought forest management firmly under the control of local government.

The pressure on the forest areas outside the reserves has increased with changing agricultural practices. The introduction of mechanised farming has led to the degradation of many marginal areas (Seif El Din, 1986). Illegal

charcoal burning, overgrazing and drought have further contributed to the increased forest degradation. The commercialisation of charcoal production with traders using lorries to transport large quantities of charcoal has ensured that forest guards on camels and donkeys are unable to stop this trade.

The conflicting pressures on the forest resource were further exacerbated by the Forests Administration's own lack of control and ability to enforce rules. Throughout the 1970s the Forests Administration experienced a continuing decline within the Ministry of Agriculture. Promulgation of numerous and often conflicting laws since 1971 has had the effect of transferring forestry authority from the central government to regional and local governments. As a consequence of the Regionalisation Act of 1981, the forestry sector was decentralised and the Regional Directors of Forestry were made responsible to Regional Governors through the Regional Director Generals of Agriculture. The administration of forestry research was transferred to the Agricultural Research Corporation (ARC) in the Ministry of Agriculture. Forestry education and training administered by the College of Forestry was put under the Ministry of Education (Anon, 1987). Forestry suffered a severe professional status blow through its subordination to the Agricultural Administration.

As a result of these changes, forestry research became increasingly removed from the field situation and had no connection with dissemination activities in the Forests Administration. Similarly, because the technical foresters were trained under a wider umbrella organisation, the curriculum became remote from the needs of the field, and did not relate to the changing needs of the Forest Service (World Bank, 1985).

Although regionalisation led to devolution of responsibility, it did not lead to increased funds to the regions, and thus, resulted in the mining of forest resources to generate funds locally. The funds generated in this way were directed to the Ministry of Finance and were not reallocated to the Forests Administration either nationally or regionally (World Bank, 1985). Low budget allocations contributed much to the decline of the Forests Administration: development funds allocated to forestry did not exceed 1% of the total development budget despite the fact that forestry contributes 7% of the GNP and 16% of the agricultural sector (Anon, 1987).

By 1973, about 23% of the professionals and technicians in the Forests Administration had left for more rewarding employment elsewhere and the "brain drain" of forestry graduates continues to this day. Overall, forestry institutions have become severely hampered by critical shortages of manpower and funds (Anon, 1987). All these factors have combined to form a highly demoralized Forest Service.

During the late 1970s and early 1980s most of the reforestation activities were funded by about 26 international bilateral donors and NGOs. The Forests Administration, while expected to give technical assistance to these donors, exercised little of its own control and coordination over these initiatives. Forestry extension was virtually ignored and led to insufficient support for private forestry (Anon, 1987). This situation of rapid deforestation, low Forest Service morale and inadequate budgets led to a complete reorientation of both the Forests Administration and donor policy.

## **THE TRANSITION TOWARDS SOCIAL FORESTRY**

Prior to 1985, the Forests Administration had attempted to introduce local involvement in forestry through 'taungya' systems in its forest reserves. Open areas in reserved forests, away from rivers, were planted by farmers with *Acacia senegal* (hashab). The farmers entered into three year contracts with the Forests Administration which granted the farmer access to reserve forests for a period of two years to plant sorghum. In the third year the farmer was obliged to plant both sorghum and hashab seeds and then relinquish the land after the third year once he had harvested his crop. As land became increasingly scarce, the number of farmers participating in the scheme increased beyond control. At the same time the price of sorghum improved and so less hashab was planted and farmers were reluctant to leave the land at the end of the three year period. Rapidly large areas of reserve forests were turned over to mechanized agriculture.

The experience of the Forests Administration with the 'taungya' system had many negative consequences, not least the increase of suspicion within the forestry profession towards schemes which involved local participation. However, more recent trials of taungya systems for small farmers are under way and it is hoped that these will have a better chance of success.

Until the mid-1980s the majority of forestry projects in the Sudan were primarily concerned with reforestation (Tapp, 1984). Many of these forestry projects had no extension systems and would often not inform the local population of activities being conducted on their land. This resulted in one case in the Qala Nahal area of Kassala Province of a project tractor driver being forced off the land at gun point by local people.

Even when projects had some extension services they were of limited success. The United Nations Sahelian Organisation (UNSO) supported gum restocking project produced large numbers of seedlings at Forests Administration nurseries, but few were successfully planted or survived the necessary 5-6 years for gum production (Gamser, 1987). Key problems identified were those of uncontrolled animal browsing, poor planting techniques and failure to protect the seedlings in the following years. However, these were all symptoms and not the cause. The real issue was the lack of communication between forester and farmer - 'the foresters spent the bulk of their time in and around their central nurseries, caring for seedlings, while farmers spent most of their time in their villages'. Brief interaction occurred between the forester and the farmer during village and farm selection, and seedling delivery, but only limited field visits occurred both before and, more importantly, after tree planting had begun.

This UNSO project, in spite of its reputation, was not a 'community' forestry project, it was largely a tree propagation endeavour carried out within centralized forestry facilities. It involved the local population only at a very late stage of project development. The experience of the gum restocking project of low community participation and limited effectiveness of outplanting with farmers was also experienced by other donor projects in the Sudan.

## **IMPETUS FOR CHANGE: DROUGHT AND ELECTION**

The catastrophic drought of 1984/85 led to the eventual overthrow of the military regime and to the democratic election of the government in the April uprising of 1985. In the wake of this drought worldwide attention was focussed on the problems of Sudan: deforestation was singled out as one of the major problems that must be overcome if such droughts are to be withstood in the future. Donors increased funding to the Forestry Sector and pressure was exerted on the Forests Administration for change.

The history of low levels of local participation, poor motivation within the Forests Administration, and a lack of an effective extension service led to the complete reorientation of the Forests Administration following the April uprising. It was obvious that the Forest Service alone could not reforest and manage sufficient land to provide for the needs of the Sudanese people for forest products, and so local people had to be closely involved in any future forestry programme. To do this however, changes in the forest law and in its implementation had to be made. In its form the forest law acted as a hindrance to tree planting by forbidding the cutting of any tree, either on private or on public land, without the prior consent of the Forests Administration.

A review of the forestry sector was carried out by a five man forestry committee. The suggestions for reformation which emerged from this committee were directed to two aspects - the law and the structure of the Forests Administration. The committee recommended a centralized structure for the Administration, and the recommendation was implemented during 1985. It also recommended that the Administration be restructured into a Forests National Corporation (FNC).

The Law amendments included the following:

'... essential amendments to the Forest Bill include clarification of the individuals right to plant his land, or villagers theirs, to legally own trees and to fell and secure profits from them without interference by the FNC.

Also vital is a clause empowering the FNC to raise royalties and fees on all except privately owned trees' (FAO, 1989).

To ensure that the Corporation has authority and control over its own future, the Ministry of Finance and Economic Planning has agreed to permit the Forests National Corporation to retain income from the sale of trees and to return to them a portion of the surplus. However, it is still unstated how large that portion will be or how the profit will be calculated.

Another important recommendation refers to forest classification. Previously there were two types of classified forest, the Central and Provincial. A third category of "Others" has been created, which includes other government department forests (e.g. Department of Energy), community forests and personal forests. The Central forests continue

to be for the supply of firewood and charcoal to Khartoum, the Northern Region and Red Sea province; the Provincial forests for the provision of local needs.

In 1982, the World Bank was invited by the government of the Sudan to undertake an assessment of the Forestry Sector. The assessment was started in 1984 by a multi-donor team led by the World Bank, and by a local Sudanese team. The recommendations made by the five man forestry committee in 1985 were incorporated into the plan of action proposed by the World Bank.

As a result of this review the World Bank and other donors are to provide US\$ 58 million over 7½ years to strengthen key function of the Forests National Corporation (FNC), such as planning, management, marketing, financial systems and career development. A large extension component accounts for 25% of baseline costs with extension training provided for all Forest Service staff.

The current Forests Administration is to be restructured following the passing of the FNC Act to form a centralized Forest Corporation with authority devolved to Regional Managers (Table 1). The Forest Corporation will be officially designated a service corporation. However, it will combine the duties of a forest authority with the role of an executing agency. As a forest authority it will be responsible for law making, policy planning and training. As an executing agency it will plant and sell trees (at replacement cost) and be responsible for the collection of royalties from public land and revenue from forest reserves. While officially designated a service corporation - its commercial activities will be profit oriented.

The components of service activities such as extension will be reviewed on the basis of cost effectiveness. It is suggested that overall, the creation of a Forest Corporation would enable the forestry sector to have better control of its revenue and staff, and hence a more effective administration of the Forestry Sector (Anon, 1987).

There is however, a potential conflict of interest between the service and profit sectors of the Corporation that could impair the long-term environmental policy issues of the Sudan. If, for example, the profit sector prefers to emphasize irrigated plantations at the expense of managing the dryland forest, the long-term environmental consequences could be severe (Ball, 1988). The creation of the Forest Corporation will not be a panacea for all the issues facing the Forests Administration at this time.

A report carried out by FAO in 1989 estimates that 14 million ha of forest reserve are required to be developed over the next 15 years to sustain national consumption. The World Bank proposal is relatively modest

**TABLE 1**



compared with the demand, and only makes provision for 3.1 million ha over 15 years, or 6 million ha if the extension systems are effective.

The FAO report outlines a system whereby half the reserved forests would be managed by the FNC and the other half would be private, commercial, institutional or provincial forests, managed under the extension programme. At the time that the World Bank was commencing its pre-project studies the National Forestry Extension Service under the auspices of the FAO project 'Fuelwood Development for Energy in the Sudan' started operation. The creation of the Forestry Extension Unit was seen to be one way of raising morale within the forest service by giving it an alternative approach with which to work (Ball, 1988).

### **THE NATIONAL EXTENSION SERVICE: PAST, PRESENT AND FUTURE**

In the early 1980s several projects had begun tentative experiments with extension systems. These efforts were consolidated in 1984 with the introduction of the FAO project 'Fuelwood Development for Energy in the Sudan' (FDES).

Under FDES the extension service was to be composed of both Forests Administration staff and staff particular to extension at the Range and Circle levels. However, such a plan would have been very difficult to implement due to the large number of staff required. The proposal was reviewed and it was decided to create two separate systems of staff within the Forest Services. Though preferable, combining the role of guard and extensionist is not an easy task.

In 1985 the FDES extension proposal called for the formation of a national extension service within the Forests Administration, to increase the training in extension and to enhance community involvement in the management of reserved forests. An implementation plan for extension was prepared to include the following strategies (Ouerfelli, 1988):

1. Reach the grassroots in terms of political suppliers and of actual users.
2. To provide economic benefits to landless, nomads and disadvantaged.
3. Increase forest awareness among the population.
4. Use existing government institutions, organisations and staff. Promote NGO coordination.
5. Strengthen existing and future forestry staff to carry out extension through in service training, and training at the Forest Institute, Soba and University of Khartoum.
6. Concentration on pilot/model villages and area.

It was thought that it would be possible to implement parts of the extension plan through the Ministry of Agriculture

extension office. However, due to conflicts within the Agricultural Extension Service this has not been possible. The Extension Division is now solely within the Forests Administration (Table 2).

The extension division is divided into two sections: communications and field support. A third documentation and library section is to be added under the forthcoming World Bank finance. The communication section deals with the national campaign media of radio, press, video, slides and publications. The field extension section is responsible for training, monitoring and the regional extension offices (Table 3).

The Regional Extension offices are responsible for coordination with other NGOs working in forestry extension. This coordination involves the allocation of areas and activities within each project, in an attempt to reduce duplications of interventions. Discussions are also held to try and draw together the approaches of the various agencies.

All forest personnel are to receive training in forestry extension and the training programme has a practical emphasis whereby 'training the trainers' a wider number of participants can be reached. The conflict between the role of the forester as a guard and his new role as extensionist will be one of the central concerns of the training programmes. However, the type of extension methodologies to be used by the foresters must be adaptive to the needs of the farmers. The findings of CARE's attitude survey (July 1988)

## TABLE 2

**TABLE 3**

and of a report by Kuchelmeister (Sept. 1988) indicate that farmers are fully aware of the benefits of trees, and the causes of desertification which have tended to be the central messages of the extension programme to date. This general level of environmental awareness suggests that awareness creation is not the form of extension that is required, it is now time for action oriented demonstrations and specific technical advice (Dafaalla & Holding, 1988).

Over the four year period in which the Extension Service has been developed, several lessons have been learnt which should now be incorporated into any future planning. It has been found that projects which promote tree-planting alone meet with little success; forestry extensionists need to be aware of the wider context of the agricultural system in which they work (Dafaalla & Holding, 1988). In preparation for the final evaluation of the Eastern Refugee Reforestation Project (ERRP) CARE staff wrote a report of their observations during the project life. The report highlighted the problems faced by staff involved in forestry extension:

"An outreach program dealing only with trees in isolation from many other factors affecting rural life, tend to be viewed by small farmers as marginal to their needs." (Clausi & Holding, February 1988)

These views have been reiterated by other projects demonstrating the importance of having a full understanding of the people's needs and access to forestry resources, along with the realisation that trees are not necessarily the first priority of farmers.

It is important to retain a flexibility of approach when devising extension programmes, so that the extension agent is not constrained by rules which may be applicable to one village but not to another. The quality of community forests and woodlots varies considerably from area to area. Predictably in flood irrigated areas where growth and returns are more immediate, the woodlots are meeting with greater success. In 1987 in Kassala the Extension Service started with five irrigated woodlots of 3½ ha each, in 1988 six woodlots were created totalling about 40 ha. These woodlots are organized to ensure that there is communal planting to include all those who wish to participate. Each family head who participates in the programme is allocated a certain number of trees. The family head is responsible for the maintenance and harvesting of the woodlots and also for financial contributions to the guard and irrigator (Shami & Osheik, 1988). Similar woodlot trials established under rainfed conditions have not met with such success. There are a different series of extension problems, among which are the need to fence and protect the trees against grazing animals.

From experiences in Eastern Sudan, it has been found that village tree planting activities should be started on a small scale; some woodlots may be as small as a fifth of a hectare. However, the demonstration effect of a successful woodlot, of whatever size, is great and encourages other villagers to participate in the programme. In many cases more ambitious trials have failed and have had a negative impact in the locality of the trial.

All the experiences of projects demonstrate the need for field-level research which must be carried out to ensure a successful and responsive extension programme. Currently, there are no agroforestry interventions which are

applicable to farmers in rainfed areas. In a review carried out by Kuchelmeister of 20 systems under trial in the Sudan of which 13 were on irrigated land, he found that knowledge of farm forestry in the Sudan is limited, because very little systematic research has been done and validated in the field. He recommends that forestry extension staff and students should be trained through action research oriented workshops, and be encouraged to initiate simple informal trials with farmers.

Field-level extension activities can be divided into two different types of forestry intervention: one relating to private tree planting, and the other relating to management of existing forest resources. The FDES have been preparing an integrated forest management plan for Rawashda and Wad Kabo forests reserves in the Eastern Region which involves the local people in taungya activities and also in the protection of the forests against illegal wood cutters. Much has been learnt from this process of local management, not least that the people should be involved in the whole decision making process. This was demonstrated in 1987 when the management coupe was halted when the villages around Rawashda officially complained to the Governor of the Region about the project sending staff to cut the trees (Vink, 1989).

Forestry extension agents meet their greatest difficulties when trying to involve women in tree-planting schemes. Many projects are now involved in encouraging women to participate in forestry. The CARE Eastern Refugee Reforestation Project has found that the most effective way of drawing women into their forestry programme is through the Adult Education Service, which traditionally provides nutrition, sewing and literacy classes for women in rural areas. The Department has trained adult educators, but it lacks adequate resources with which to encourage women to plant trees.

CARE supplied the needed materials and gave additional training to the female extensionists in women's crops, tree production and maintenance. Women who have become involved in the project have established nurseries in their homes, grown trees for their compounds and sold surplus trees to neighbouring villages.

It is important for the Extension Service to be able to offer a variety of skills and training to the women that will fulfil their diverse needs. Women have many priorities which must be met before they can direct their attention to tree-planting. The experiences of the ERRP in Gedaref District highlight this:

'If the ultimate objective is to plant trees, and the program doesn't first meet people's other needs, the trees won't be planted anyway. This same assumption was also articulated by the Director of Extension for the Forestry Administration as an appropriate forestry extension activity ... This project has demonstrated that separate extension strategies are necessary for men and women in Gedaref District. It also demonstrated that an extension programme must be oriented towards the recipients needs and priorities, even if that extends beyond the scope of trees. It was difficult to work with women with a tree agenda, when they had concerns which were of higher priority' (ERRP, Final Evaluation).

The extension programme is still in its initial stages of formulation and as such, there are many issues that must be resolved arising out of past experience before the programme can become fully effective. Amongst the most important are:

#### I. Donor coordination

Donor activities should be incorporated into government programmes and be guided by government plans and priorities. Due to a lack of clear government priorities, much of the current programming relies on donor coordination. This is not an appropriate way to proceed. When coordination does not occur one may find in the same rural council one project promoting tree planting through food for work, and another through participatory extension techniques. Clear government guidance is required.

The large number of differing approaches within the forestry extension sector, is not a problem in itself, however the lack of evaluation of those approaches is. A greater analysis of methods used and sharing of experiences would facilitate the development of the extension service.

#### II. Time frame of projects

A longer time frame is needed for forestry projects. The current time span of five years is sufficient only to establish demonstrations. Little effective extension can be carried out in such a short time frame.

#### III. Monitoring of extension activities

To confirm the role of extension in afforestation activities in the Sudan, greater efforts are required to monitor and quantify extension results. Those of us working in extension can see the results of our efforts in the changing attitudes of people, the greater involvement of people in forestry activities and the increased planting and protection activities in the villages. What we need now is to come up with the numbers to prove it.

#### IV. The development of a clear land use policy in the Sudan

This issue is now being addressed under the World Bank Forestry Conservation Project.

#### V. Clarification is needed not only of the role of the Forests Administration, but of all government departments involved in rural development.

Even if all these issues are resolved, the actual effectiveness of the extension systems and the measurement of their success is still to be evaluated. Both CARE and FDES have had problems in monitoring and evaluating their extension activities. It has been relatively straightforward to count numbers of trees distributed, the configurations of plantings and the survival. However, it has been more difficult to assess the effectiveness of the extension service in terms of the time spent and the cost involved in promoting tree planting activities at village level. These issues are to be addressed by a joint monitoring and evaluation project between CARE and FAO.

There are several major constraints to the implementation of an effective extension system, as have been outlined above. However, the history of forestry in the Sudan indicates the importance of involving local people in the

management of resources that they use. It has also shown the key role that the forest service must play in any extension system and the importance of appropriate field-level training programmes. Tree planting should be addressed within the context of the whole farming system, and not viewed as a sectoral activity remote from other aspects of the agricultural system.

The history of the Sudan forestry sector demonstrates the problems of reorienting a service which has been built up to act as the guardians of the forests, to a service which is to devolve responsibility to the local people for the protection and maintenance of the forests. The conflicts engendered by such a change will need time to be resolved both within the forestry service and also at the local level. It is to this future that donor agencies are working in Sudan with the formation of an effective extension system.



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