



SOCIAL FORESTRY NETWORK



LETTING THE PIPER CALL THE TUNE: EXPERIMENTING WITH DIFFERENT FORESTRY EXTENSION METHODS IN THE NORTHERN SUDAN

Matthew S. Gamser

Matthew Gamser is currently working for the Intermediate Technology
Development Group in Rugby, UK.

LETTING THE PIPER CALL THE TUNE: EXPERIMENTING WITH DIFFERENT FORESTRY EXTENSION METHODS IN THE NORTHERN SUDAN

Matthew S Gamsler

Introduction

This paper presents examples of the outcome of some of the grants made by the Energy Council (ERC) and, within it, the Government of Sudan/USAID sponsored Sudan Renewable Energy Project (SREP), examining the impact of institutional innovations upon social forestry development. The examples date from the period 1982 to 1985, while the writer was working with SREP.¹ The Sudan experience demonstrates that people's participation in the design and administration of forestry projects is an important component of project success. Moreover, the most remote, poorest communities tend to have the greatest resources of organisation and enthusiasm to bring to forestry, and produce the best results when given maximum responsibility for project development and management. This is contrary to the way in which most social forestry is performed, in which poorer people have less direct access to and control over project planning and facilities.

Village and community forestry

The ERC had been encouraged to support community forestry by its advisory committee, which also had pointed out that village-level forestry work was already underway in Sudan. In order to avoid duplication of effort and of error, the ERC reviewed some of the major work in this area before developing its grant programmes. Its review focused on community forestry work in northern Kordofan Region, and, in particular, on the United Nations-supported "Restocking the Gum Belt for Desertification Control" project.

¹This paper is excerpted from a doctoral thesis entitled Innovation, User Participation and Forest Energy Development, completed at the Science Policy Research Unit, University of Sussex in December 1986. The views expressed are the sole responsibility of the author, and do not necessarily reflect those of the Government of the Sudan, or USAID.

Gum Belt community forestry

The cultivation of Acacia senegal, the tree producing gum arabic, was a traditional agroforestry practice in this region. The trees, as well as providing an important trading (later international market) product for farmers and herders, also improved local agricultural conditions through nitrogen fixation and wind and water erosion control. They were grown on approximately a 20 year rotation, with tapping occurring after 5 years, and with food intercropping customary during the first few years of tree growth. The farmers' "gum gardens", scattered throughout the area of Sudan between 10 and 14 degrees north latitude, were models of agriculture-forestry integration that dated back to pre-historic times. Recent drought and declining real prices for gum arabic had resulted in declining production and cutting of trees for fuelwood. The United Nations project sought to restore tree cover and revitalize the gum trade.²

The ERC foresters toured the northern Kordofan area from 6 to 13 February 1984, visiting UN project operations in the Al Ghabsha, Um Ruwaba, Er Rahad, El Obeid, and Bara areas.³ They did not examine all UN project installations, but subsequent conversations with CARE foresters, who had greater experience in this region, confirmed the ERC's basic findings.

The most surprising finding of the tour was the low establishment rate of the Acacia seedlings. The ERC party did not visit one farm that showed more than a 20 per cent survival rate. This may have been due in part to adverse rainfall conditions, but the sites showed clear

²A more detailed description of the project can be found in Charles Tapp, Review of Forestry Projects in Sudan, Khartoum: Agricultural Research Council/USAID, 1984, p.24. Tapp points out that the UN project did not establish a sound monitoring apparatus to confirm whether its seedlings distributed to farmers survived or perished. This point is important in light of the observations of the project's problems to follow in the text.

³See Lester Bradford et al, "Trip Report: Northern Kordofan Forestry Study, 6-13 February 1984", Khartoum: February 1984.

evidence of other, less intractable problems, such as animal browsing, improper or late planting, and complete seedling abandonment. Some gum gardens had seedlings planted with their polythene tube casings still attached, which had prevented growth in the dry conditions. Others showed stacks of unplanted seedlings lying dried out in piles in the corners of fields. One farmer who had requested and diligently planted seedlings was quite disturbed when the ERC foresters informed him that he had received Acacia mellifera, not Acacia senegal, and this species would not produce a marketable gum. Tree seedlings were being raised in large quantities in the UN-supported Forestry Administration nurseries, but few of them were successfully making it into the ground, and few of those that made it that far seemed likely to grow unprotected for the 5-6 years needed for initial gum production.

Discussions with local farmers and foresters revealed several organizational and institutional problems. Despite the presence of new Land Rovers and lorries, furnished through UN support, seedlings were not being delivered to farmers at the proper time for planting, immediately after the seasonal rains. Also, farmers received a sufficient number of seedlings to plant their entire landholding in a 4-by-4 meter spacing. While this was a correct calculation for their eventual seedling needs, planting an entire farm in one season often was impractical, particularly as other agricultural needs were pressing and the planting season was short.

Overall communication between foresters and farmers in the programme was sporadic and ineffective. The foresters spent the bulk of their time in and around their central nurseries, caring for seedlings, while the farmers spent most of their time in their villages. Brief interaction occurred during village and farm selection, and seedling delivery, but only limited field visits occurred both before and, more importantly, after tree planting had begun.

The central problem was that, in spite of its reputation, this was not a "community" forestry project. It was largely a tree propagation endeavour carried out within centralized forestry facilities, bringing

in farmers only at a very late stage of project development, at which point little could be changed to adapt to local human or environmental conditions. As such, it failed effectively to channel the considerable material resources provided by the United Nations and local skills and knowledge of forestry, into the formulation of a practical and productive programme.

The ERC foresters resolved to seek a more villager-interactive forestry development strategy in the formulation of its community forestry projects. Involvement would be fostered by investing the basic responsibility for project design and implementation in the communities themselves, using the grants programme.

A new approach: the Um Inderaba village project

The ERC foresters initiated this approach at the conclusion of their northern Kordofan mission, when they visited the village of Um Inderaba, a site recommended by the advisory committee for community forestry project development.⁴

Um Inderaba village was located at roughly 15 degrees north latitude, north of the gum-growing area, with an annual rainfall of 150-200 millimeters only per year. The villagers depended on their large wadi (depression, seasonally filled with water, with underground reserves), with numerous shallow wells, and its one working government diesel borehole well for drinking water. The recent drought had virtually emptied the former water source, and the latter was afflicted with periodic mechanical failures and delays in service due to the remoteness of the village from Kordofan government offices.

Um Inderaba lay along the major livestock route between western Sudan and the markets of Khartoum, and herders and their stock would often break their journeys there. The villagers generated much of their

⁴M O El Sammani et al, "Village Forestry Project (Integrated Village Development)", study and proposal submitted to Advisory Committee on Forestry/Fuelwood Production, Khartoum: September 1983, pp.43-44.

income through selling water, food, and retail goods to passing nomads (the food and goods were usually obtained from Khartoum). The drought had severely depressed this trade, and also brought weak and ill herders to the borehole, as other watering sources were exhausted. This congregation of humans and animals further depleted dwindling local fuelwood and fodder resources.

The villagers felt that their environment was decaying, and they were particularly troubled by damage caused to houses and fences by windblown sands from the north. They had discussed the idea of a community forestry project with members of the advisory committee who had visited Um Inderaba in September 1983.

The ERC representatives proposed that the village committee consider what sort of forestry it would undertake if the ERC provided it with a SREP grant of approximately LS 10,000. This offer caused initial confusion, first because it was unusual for foresters to ask villagers what they wished to do, and second because the villagers, familiar with the UN programme, had expected a far more capital-intensive type of project. The ERC foresters, with some difficulty, explained that theirs was to be a different type of project, in which the villagers would take the lead in designing and implementing their own forestry programme.

The ERC party stayed in the village for 2 days, discussing the grant project idea further, and the villagers, led by their sheikh (religious leader), after some acrimony, eventually decided that some assistance was better than nothing, and began to prepare a proposal to submit to the ERC. The villagers eventually sent 2 proposals to the ERC for consideration, one for a LS 10,000 project, and another for a LS 25,000 one that consisted of the former plan plus additional funds to rehabilitate one of their 2 village borewells. The ERC Technical Committee, which had been briefed by the touring party, approved the smaller proposal, although it later added the borewell funds in a supplementary grant, after the village demonstrated its commitment to and success in meeting the smaller project's goals. The funds were disbursed to the village sheikh, and ERC foresters arranged for periodic consultations and field visits to assess project progress.

Institutional innovation and the Um Inderaba accomplishments

Um Inderaba had almost no physical resources to draw upon. Normal conditions there were harsh, and during the 1982-1985 drought there was no precipitation in the area. At the same time, its population declined, due to death, disease, and out-migration, from 2,000 to roughly 600 families. The local Forestry Administration representative, although based in Um Inderaba, spent little time there, and was of little help to the villagers' project. The ERC foresters could visit this remote site only every 2-3 months, and greater gaps between visits occasionally occurred.

Despite these formidable obstacles, by the end of its first grant period, the village had accomplished all its objectives, and still had funds in hand to continue its forestry work. It had established a nursery and raised 2 stocks of seedlings. It had planted and protected a 3 feddan windbreak with close to 100 per cent survival among Prosopis species, and had fenced off 1 feddan in its wadi (depression) to examine natural forest regeneration in the absence of animal browsing.⁵

The village had finished its work under its budget estimations because, being responsible for its own materials procurement, it had managed, through shopping around and lobbying the regional government, to obtain substantial concessions on sand, cement, wire, and other basic supplies for its project. The ERC, had it tried to implement the work itself, could not have performed it so economically.

The village had kept its trees alive in spite of the complete lack of rain, and in the presence of large animal herds, by hand watering each tree with donkey cart-transported water, and by establishing a village guard rota to protect the plantings (including a village-devised compensation scheme for the guards). Tree survival spoke well of the drought tolerance of Prosopis species, but it spoke even better of

⁵See Hamza Homoudi and Matthew Gamser, "Trip Report: Um Inderaba Visit, 24 February 1985", Khartoum: February 1985.

the capacities of the villagers themselves.

The village used its nursery to raise good windbreak species, like Prosopis, and other species for other purposes, such as neem (Azadirachta indica) for shade, and Acacia and Zizyphus species for fuel and fodder. People built brick shelters to protect shade plantings around their homes from animal damage. The village committee, noting the limited supplies from the nursery, introduced a penalty system for any shade trees that died, adding new incentives to protection efforts.

The success of this project lay in the community's control over its resources and direction. Neither Forestry Administration authorities nor ERC staff could make project decisions, because the funds were all held by the village committee. ERC foresters made themselves, and, to the maximum extent possible, other regional and Central Forestry Administration foresters available for advice and consultation, but the final authority rested with the committee. The relationship between forestry and agriculture (the villagers being agriculturalists, primarily) was transformed by the grant process, placing foresters in service to a larger agricultural cause. In essence, the grants programme allowed local people to take control of forestry development efforts. It provided a small financial incentive to inspire them to exercise their own capabilities in the forestry area, and to supplement these with outside forestry expertise where they deemed it necessary. The Um Inderaba villagers demonstrated ample skills both as cultivators and as project managers in establishing their nursery and small windbreak in the face of enormous environmental and economic hardships.

The existing plantings, by themselves, did not represent a substantial contribution to the welfare of the village or its people. A 3 feddan windbreak, even at maturity, would provide negligible control over sand encroachment for the village as a whole, with a strip of at least 10 times its present length needed to have a significant impact on local environmental conditions. However, the village had established a means and a method to move incrementally towards these greater tech-

nical changes to its environment, and, provided that it receives the borewell improvements promised by the National Water Administration (NAW), in response to SREP grant funds paid the NAW by the village, there is every reason to expect that it will, in time, achieve these more profound innovations. There is also hope that other villages will be inspired by the Um Inderaba example to undertake similar community-organized projects, a hope that has been strengthened by the ERC's continuing receipt and granting of new village forestry grants.

Other ERC community forestry projects : Um Tureibat and El Khwei

The ERC began several other community forestry projects between June 1984 and September 1985. Ironically, in the two projects believed to have the greatest potential, progress to date has been disappointing, despite the ERC's provision of greater technical support to these efforts than it had furnished to the Um Inderaba project. In retrospect, it appears that this performance disparity can be related to the fact that there was no attempt to establish new working relationships between forestry and community authorities, in these two projects.

The projects took place in Um Tureibat village in the Gezira scheme, and in El Khwei village in the gum-growing area of western Kordofan Region. Both villages had far greater rainfall than Um Inderaba (approximately 400-800 millimeters per year, versus 100-200 millimeters, on average), and Um Tureibat had the additional resource of Gezira scheme irrigation supplies. With more water, the villages could support a wider variety of tree species, and, in theory, could achieve higher growth rates with no requirement for supplemental hand irrigation, as was necessary in Um Inderaba. Moreover, irrigated agroforestry in Um Tureibat could improve crop yields through providing shelter and reducing evaporative losses, while gum obtained from Acacia senegal raised in El Khwei forestry would provide a valuable income, in addition to fuel, for local farmers.

The ERC observed the potential of these two sites, and made special arrangements, upon approving grants to the villages, to provide extra

support to their forestry efforts. A US Peace Corps volunteer forester was stationed in Um Tureibat to help with nursery establishment and forestry extension, and a Sudanese forester stationed in El Khwei was paid an incentive to assist the villagers in building and operating their nursery. The assumption made was that this greater support would accelerate project progress and facilitate its replication in nearby villages.⁶

In practice, neither of these things occurred. The nursery in Um Tureibat was completed, and 20,000 seedlings raised, but the volunteer noted that it was difficult to get the villagers involved in its operation.⁷ In addition, he had to obtain an ERC vehicle to carry seedlings to neighbouring villages in order to get the prepared seedlings planted, as few farmers were coming to the nursery (although most had access to adequate transport and finances to obtain seedlings in this far wealthier area than Um Inderaba).

In El Khwei the forester and the schoolmaster, who headed the village project, successfully constructed a nursery and raised some 17,000 Acacia senegal seedlings by July 1985. Good rains came for the first time in years, and the surrounding fields were planted with millet and sesame, presenting an ideal situation for Acacia senegal planting. However, when the author, a CARE forester, and the ERC forestry advisor visited the area in August 1985, they discovered that no seedlings had been taken to the fields for planting.⁸ The planting season was almost over, so promoting seedling sales was not practical. The ERC staff called a farmers' meeting, and offered to deliver seedlings free the next morning to any farmers that came to the nursery to direct the

⁶See Lester Bradford, SREP: Report on Fuelwood Production, December 1983 - September 1984 (Khartoum: Energy Research Council, September 1984), pp.7-9.

⁷Jim Adams, "Um Tureibat Monthly Renewable Energy Report", Khartoum: March 31 1985.

⁸Issam Haj El Tahir (CARE-Sudan), "Trip Report: Nahud, Turba Hamra, El Khoue (sic), 31 August - 2 September 1985", Khartoum: September 1985.

ERC vehicle to their land holdings. Several farmers stated at this meeting that they had not known that seedlings were available before this time. Some 2,000 seedlings were delivered the next day, and the ERC staff had to move on to other villages. It is assumed that little additional planting occurred using the remaining seedlings. Here, as in Um Tureibat, the project had not attracted a true community involvement, and as a result was doing poorly in spite of highly favourable environmental and economic conditions.

Although physical, social, and economic conditions were very different in all three villages examined, making any attempt to compare project progress between them tentative at best, it bears examination that the two villages which received the greatest continual forester presence and attention did less well than the one that had the least forester assistance. While the foresters themselves did their technical assignments well and acted in good faith to advance the project, their constant presence discouraged the communities from taking greater responsibility for and control of their grant projects. Although the communities, like Um Inderaba, held the funds required for nursery establishment and planting assistance, they, unlike Um Inderaba, had to acknowledge the presence of a forester paid and supported by another institution. The foresters, by their presence, brought an external authority into the project picture. Because they knew how things should be done, and were eager to help, the villagers tended to leave them to get on with the projects, and declined to get involved themselves.

In retrospect, it may have seemed, to the villagers, as if the ERC had included the foresters in the two village projects in order to keep the projects in line with its expectations. This perception may have provided a strong disincentive for local participation. The traditional relationship between forester and villager in Sudan, as in many other nations, was more that of policeman and potential criminal than that of benevolent "change agent" and his client. The foresters, trained not as teachers, but as technicians, saw their assignment as to ensure that the project was carried out according to plan; so, if

villagers didn't arrive to carry out necessary operations, they went ahead and did them themselves - thus unconsciously reinforcing the villagers' impression that they did not have to pitch in and help themselves, since the work was beyond their control. The Um Inderaba villagers, who had no such support, similarly had no such impressions, organising themselves to accomplish their goals and calling on distant foresters for services as required.

Neither the Um Tureibat nor the El Khwei project was a disaster, and both are ongoing at this time. However, considering the enormous physical and economic advantages the villages had over Um Inderaba, and the greater technical support they received from resident foresters, it is paradoxical that their achievements are less than those of the latter. Paradoxical, that is, from a physical standpoint. From the standpoint of this paper, the limited progress of the two projects can be traced to the limited involvement of their intended beneficiaries in project design and development, as opposed to the considerable participation seen in Um Inderaba.

Individual farm forestry

By October 1985 the ERC, through SREP grants, supported 18 individual farm forestry projects. While these projects represented the largest number of grants in the overall forestry sector, and were estimated to occupy, at that point, some 40 per cent of ERC staff forestry time, their results were not as encouraging as those of work in the village forestry areas.⁹

The ERC's methods and goals in its individual farm forestry work were straightforward. Much irrigated land in central Sudan was devoted to small (less than 20 feddan) farms, including the individual smallholder plots in the Gezira and other major irrigation schemes. Most of these small farmer holdings could, but did not, support some form of tree planting, ranging from border rows to small woodlots.

⁹Georgia Institute of Technology, Sudan Renewable Energy Project: Third Annual Report, p.5.

The ERC felt that, if it could get some farmers to initiate tree planting by providing partial financial assistance through its SREP grants, their example would inspire neighbouring farmers to do the same.

Soliciting farmer interest through grants

On 21 September 1983 the ERC placed an advertisement in the Khartoum press, offering to provide financial assistance for tree planting on small private farms. The ERC's grants would help pay for seedlings and, in cases where the farmers were devoting extensive land to planting or constructing nurseries, would provide additional partial capital assistance for tree propagation. The initial response to the advertisement was strong, with 9 farmers placing grant applications within the 15 day period specified. Afterwards, the ERC's offices continued to receive a small, but steady stream of new farmer applications, which was maintained until the author's departure in October 1985.

Poor initial results

While the advertisement succeeded in establishing farmer interest in the ERC grants programme, the resulting grants were less successful in establishing and replicating small farmer forestry activities. At a meeting of 21 August 1984, after the disbursement of 10 grants, with 15 applications pending, the ERC foresters reported that only 4 farms had begun tree planting. Farmers were keen to receive financial assistance, but they were not showing equal enthusiasm for project implementation. Drought conditions were partly to blame, as low river levels had left many farms without sufficient irrigation water for any form of agriculture. However, one year later, after greater rains had remedied this problem, the tree planting situation on these farms had not improved substantially.

During the August meeting, the ERC Director noted that, if the goal of this grants programme was to set an example for other farmers to follow, then, rather than giving out more grants, the ERC should

freeze new applications until more progress was made on the initial projects. He queried whether further financial assistance in the Khartoum area for such projects would be useful, since the ERC was also supporting local nurseries (see next section), and providing free seedlings to farmers through grants might discourage others from going to the nurseries to purchase seedlings. Indeed, the continuing influx of new applications seemed to indicate the farmers' enthusiasm for a free handout of any sort, rather than a desire to support farm forestry, if the subsequent slow planting-out rate was anything to go by. The ERC suspended the consideration of further small farmer grants in the Khartoum area, although it continued to support a small number of new small farm forestry projects in other regions.

Grants the wrong mechanism for encouraging innovation

A major problem with the small farmer programme appeared to be that, in this case, the grants device provided the wrong message to farmers. It had been assumed that a small financial input would remove whatever reluctance had retarded farmers' inclusion of trees in their agricultural systems. Instead, the farmers, feeling that they had been awarded a prize, tended to sit back and wait for the ERC foresters to deliver it to them. The ERC foresters noted that farmers were difficult to contact, and did little work on their projects when the foresters were not present. This was in sharp contrast to the attitude of the Um Inderaba people, who would travel for hours over rough roads to come to Khartoum to obtain new funds, or to ask questions about technical problems.

In a sense, forestry, as promoted through this system, was external to, and not interactive with the farmers' own practices. It was a gift from outside, something the ERC foresters would arrange for the grantees - and not an invitation to participate in the development of a new agroforestry technology. The farm forestry projects that showed the best results, on the other hand, were those in which the farmers, in their grant applications, made a commitment to undertake more than just tree planting activities - in particular, those farmers that asked for help to start their own tree nurseries. SREP farmer nursery

projects in Khartoum province and in the Blue Nile province counted among the few successes in the 18 farm forestry grants.

Government nursery assistance: most funds, poorest results

Some 50 per cent of all SREP forestry grant funds disbursed by October 1985, approximately LS 115,000, supported large, centralized nursery development, with over LS 80,000 of this involved in the expansion and rehabilitation of two nurseries in the Khartoum area. The ERC forestry advisory committee had noted, quite logically, that, in order to encourage local farm forestry activities, the farmers needed an available and reliable supply of seedlings. The two Khartoum area nurseries, Moghran, controlled by the provincial government, and Soba, controlled by the Central Forestry Administration and Forestry Research Centre, contained ample land and staff, but provided few seedlings for the public due to shortages in water, nursery materials, and transport. ERC grants were awarded both nurseries on 15 December 1983.

Neither nursery succeeded in increasing both seedling production and seedling sales and distribution to area farmers. The Soba nursery did not even begin work on renovating its facilities until April 1985, after the ERC threatened to withdraw its grant funds. The Moghran nursery expanded annual seedling production from 40,000 to over 150,000 seedlings in its first year, but it did not manage to transfer many of these to farmers. Most were issued free to local youth groups in a single, bulk transfer that took place in order to rid the seedling beds of overmature seedlings and make room for new plantings. ERC foresters could not find any evidence of the successful planting of any significant amount of the youth groups' seedlings, and it was assumed that most had died.¹⁰ The ERC grant enabled the Moghran nursery to repair one of its small lorries to assist in forestry promotion and seedling sales, and to produce large road signs and other

¹⁰Personal communications, Hamza Homoudi, Khalafalla Sid Ahmed, and Jim Adams (ERC foresters).

promotional materials to further farmer and public education in the benefits of forestry. However, ERC staff noted that the repaired vehicle was seldom used for the proposed activities, and the signs, completed in 1984, still lean against the nursery building, awaiting movement to nearby roads.¹¹

Grant progress hampered by larger institutional problems

The ERC had encountered a problem far larger than physical and financial difficulties in its work with the government nurseries. Their position and role within the Central Forestry Administration itself discouraged the sort of public interaction that the ERC sought to achieve. The nurseries had been established to provide seedlings for local Forestry Administration and government needs, and their work was still devoted to this internal service function. Working with local farmers might be a good idea, but it was not the job of the nursery foresters.

The nurseries were decaying because declining financial support from forestry budgets did not enable them to maintain facilities and irrigation systems. The ERC tried to provide a financial incentive to make them focus upon community seedling sales by asking senior Khartoum government and Forestry Administration officials to allow the nurseries to put seedling sales proceeds into a revolving fund, so that greater sales would provide better finances for coming years. However, although informal agreements to do so were obtained, this seemed to have little effect on grant performance. Considering the political instability of Sudan between 1983 and 1985, during which time the Nimeri government fell and all central and provincial government ministers and senior officials were replaced, the nursery managers may not have had much faith in the power of such agreements, in any case.

¹¹Personal communication, Brad Tyndal and Mary Clarkin of the Dissemination Unit, July 1985, and subsequent personal communication from Jim Adams, 6 March 1986.

In order for the nurseries to make a greater contribution towards the expansion of forestry on agricultural holdings, a fundamental change in the Forestry Administration's policy regarding their roles would be needed: to attract and support farmer involvement in forestry, the nurseries should adopt a more outward-looking, service-oriented attitude.

ERC Dissemination Unit support for fuelwood/forestry activities

The ERC involved the Dissemination Unit in assisting its fuelwood/forestry activities from the unit's formation in January 1984. Initially its work consisted of the publication of studies of forestry issues in the Northern and Kordofan regions by advisory committee members, and of two information brochures on tree planting and shelter-belt design.¹² These publications helped increase public awareness of the ERC forestry programme.

As the programme itself progressed and it became evident that the most promising work was occurring in the agricultural scheme forestry and village forestry sectors, the Dissemination Unit concentrated its efforts on informing and encouraging project participants in these areas. The Unit used publications to demonstrate to farmers and villagers that they could play a major role in shaping forestry work in their areas, and that raising trees and planting shelterbelts and woodlots were tasks they could take a lead role in designing and implementing. Workshops and seminars provided more intensive and 'hands-on' introductions to these same topics, and helped in improving contacts between forestry professionals and local farmers and community organizations. These three types of activities are described in more detail below.

¹²Abdel Aziz Bayoumi, Kamal Osman Khalifa, and Ali Ahmed Saleem, Study for the Establishment of Forestry Plantations, Shelterbelts, and Canal Plantations in the Northern Region (Khartoum: Energy Research Council, February 1984); B A El Hassan, M O El Sammani, and M Suliman, Village Biomass Needs (Khartoum: Energy Research Council, July 1984); ERC Dissemination Unit, "How to Plant Trees" and "How to Construct Shelterbelts", pamphlets, Khartoum: June 1984 (periodically updated and re-issued).

New publications

The Dissemination Unit's reports on forestry during 1985 centered around the theme of agriculture-forestry integration. Two studies looked at the potential for forestry inclusion in irrigated agriculture, the first for the Khartoum area, and the second for the irrigated sector as a whole. A third study, by Derek Earl, looked at potential agriculture-forestry interaction on the rainfed schemes of the mechanized farming sector. All reports were circulated to both Forestry Administration and agricultural scheme offices throughout the regions where potential projects could be formulated.

The Unit also prepared articles for local Arabic and English language newspapers and magazines on ERC forestry activities. These described the novelty of its measures such as initiating village-run nurseries, and agricultural scheme-operated forestry projects.

Workshops

The Dissemination Unit was also able to run two workshops at which information coming from the Project's field experiences could be spread more widely. The first of these, the Nursery Workshop, held in February 1985 offered training in nursery construction, seedling raising and seed collection at the Forestry Administration's Moghran nursery in Khartoum. Participants ranged from individuals in current village and farm forestry projects to party members from the Sudan Socialist Union (then the country's sole political organisation). While knowledge transfer at the workshop itself remained difficult to assess, the existence of the workshop stimulated a lot of wider interest in the Northern Sudan in village and farm forestry.

Later the same year, in August 1985, a second more high-level meeting was organised, the Agriculture-Forestry Integration Seminar, (AFTAH). Fifty leading agriculture, forestry and irrigation experts from the Sudan met to discuss the removal of obstacles to the greater integration of their specialities. While AFTAH highlighted several areas of institutional friction, it also opened the way to better future

cooperation. The ERC director stressed that he did not wish to receive applications for funds from forestry authorities, but from the agricultural schemes themselves who would in turn enlist the services of local foresters as required. This would ensure that the agriculturalists would play an active role in the new technology development, and it would encourage the movement of forestry personnel into a more interactive and service-oriented role with them.

AFTAH results: significant new project interest

Since the end of the AFTAH seminar, seven large agricultural schemes have applied for and received SREP grants to initiate or expand forestry activities on their lands. The ERC has brought 2 new foresters onto its staff to assist in the support and monitoring of its rapidly expanding work in this area. The Central Forestry Administration acting director pledged his full support in providing foresters from his staff to support the schemes in their new grant projects.

Conclusion: the role of institutional innovation in increasing villager participation

What, has been the key to social forestry success in the ERC fuelwood/forestry programme? Neither the species nor the methods it employed were new to forestry science or to the Sudan. However, the most successful projects it supported through SREP grants all involved an innovation in the relationship between forestry and agricultural authorities, whether on the large schemes or at village level - innovation that put farmers into a more prominent role in project development activities.

In the village forestry area, SREP grants, through putting funds directly into the hands of village authorities, gave those authorities a new control over forestry measures that inspired them to devise (with technical assistance from ERC foresters) and advance afforestation measures even under the most adverse physical circumstances. Even in the generally poorer-performing grant project areas of farm

forestry and government nursery support, those individual projects in which farmers acquired the greatest responsibility for seedling production and plantation design, and in which foresters adopted a less-dominating, more advisory role, made the greatest progress. In the ERC's work with large, irrigated agricultural schemes, SREP grant-based projects put foresters directly under the authority and direction of agricultural managers, as opposed to previous work that segregated lands and authority into agricultural and forestry spheres.

The more innovation there was in the relationship between foresters and local project participants the more innovation occurred in project implementation. When participants were allowed to determine the types of forestry practices they wished to implement, and the location and manner in which these practices would be implemented, they responded with a greater participation in and commitment to the successful implementation of their projects.

The forestry work the ERC has initiated has significant potential for forest resource development in Sudan, if it can be replicated on a larger scale. The incorporation of forestry programmes into irrigated agriculture scheme design holds particular promise. It has been estimated that, by planting trees on canal banks, marginal lands, and 5 per cent of present agricultural lands (in the form of shelterbelts and border plantings) within the irrigated sector, over 30 per cent of urban fuelwood demand and over 10 per cent of total fuelwood demand in central Sudan could be provided on a sustained yield basis. At the same time, the positive environmental changes that accompany afforestation, shelter from hot, drying winds and increased moisture retention, could lead to improved crop performance. The Egyptian experience with shelterbelt plantings has demonstrated such beneficial effects.

The main obstacle to achieving such goals is not technical capability; it is institutional isolation and rigidity. Sudanese forestry authorities need to re-integrate their work into general agricultural development efforts, and seek to get local people more involved in designing and implementing their own forestry projects.



Agricultural Administration Unit

Regent's College
Inner Circle
Regent's Park
London NW1 4NS
Tel: 01-935 1644