

SOCIAL FORESTRY NETWORK

**AFTER UJAMAA:
FARMER NEEDS, NURSERIES AND PROJECT SUSTAINABILITY
IN MWANZA, TANZANIA**

Christian Guggenberger, Patrick Ndulu and Gill Shepherd

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This paper is taken from the final evaluation of the **CARITAS Village Afforestation Project** in Mwanza, Tanzania, conducted by Gill Shepherd in June and July 1989, with the assistance of the project's outgoing and current foresters, Christian Guggenberger and Patrick Ndulu. The evaluation was carried out for IIZ in Austria, who funded the project until 1989. Christian Guggenberger is now working for Austrovieh, Box 16, Ruhengeri, Rwanda; Patrick Ndulu heads the project in Mwanza.

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Introduction: Land-Tenure in Mwanza

Sukuma land-use patterns before the Ujamaa¹ period

The Sukuma of Mwanza live near the south-east corner of Lake Victoria, occupying an area of low hills surmounted by granite outcrops, and separated by wide grassy valleys. In times gone by the rocky hilltops were covered in trees, homesteads and fields were to be found scattered down the hill slope, the seasonally wet valleys were used to grow rice and sweet potatoes, and cattle were grazed on valley edges in the dry season and on hill fallows and hill tops in the rains. The ideal holding was a wedge of land running from hilltop to valley centre.

Because there was ample land, the most valued store of wealth for the Sukuma was cattle, which were and for some still are the substance and the currency of many social and economic transactions.

¹ Ujamaa is an abstract noun formed from the word meaning 'family' or 'kindred' so it translates literally as something like 'familyhood'. Coined by Mwalimu Nyerere, it embodied a national ethic for Tanzania which stressed the sharing in African traditional life: qualities which he hoped to recreate, after the colonial period was over, on a national rather than a family or village basis. It led to the communalization of tasks and responsibilities which had never been anything but individual, and which were more and more deeply resented by people as time went by.

Villagisation and Sukuma adaptation to it

The villagisation of scattered farmers in the early 1970s, mostly in village sites on low hill-slopes with a perennial water-supply, and the creation of collective **Ujamaa** landholdings, involved extensive land reallocation from and to groups and individuals in Sukumaland, and for some, substantial dislocation. The clustering created unforeseen problems, of which one was more concentrated firewood gathering in limited areas, and another was loss of control and management of now remote hilltop, common land and in-field tree resources. Unoccupied, these areas fell prey to urban charcoal burners.

During the **Ujamaa** period it would seem that the rural Sukuma tried to avoid the imposition of irreversible land-use changes, against the day when a return to previous patterns might become possible. To this end they have strongly resisted attempts at large-scale afforestation on open land between villages, for instance, where the preferred land-use is pasture and the option of agriculture in the future. There was of course nothing they could do about the loss of vegetation in areas they had to abandon in the villagisation process.

Their response to the government decision that trees should be communally owned was passive resistance and the determination that until things changed, they would not plant any trees.

Trees and tenure after Ujamaa

The Sukuma have found themselves, for the last year or two, in a situation where they may return, if they wish, to the scattered homesteads they lived in previously. The authorities had seen the inconvenience, for many people, of not living near their fields, and in 1987 gave formal permission for transfers, so long as individuals told local officials what they were doing. Villagers' responses have varied according to the situation they find themselves in.

It seems clear that, while particular forms of land tenure acted as a constraint on tree-planting for the first few years of the project, recent events have changed all that. Farmers newly returned to their farms are eager to plant to strengthen their land rights, while the possibility of tree-growing as a private investment is attractive to those conveniently placed to take advantage of the market.

The Villagers' Views on the Need for a Tree-Project

Despite the Tanzanian Government's concerns about deforestation in the Mwanza district, there was no overwhelming felt need for more trees among rural Sukuma.

Villagers had observed that trees were disappearing, but by comparison with other problems, the lack of tree-cover was a minor aggravation for which in any case they blamed the inhabitants of Mwanza town. CARITAS, the development arm of the Catholic Church in Mwanza, which conducted a 'Listening Survey'² over a year in the district, found that water-supplies, health care and transport were villagers' chief concerns. Trees were only mentioned once.

Villagers' Views on Deforestation and Interest in Tree-planting: Insights from a six-village survey

Two years into the project, in December 1985, a survey was conducted in order to get further insight into farmers' opinions about tree-cover, tree-planting, and the woodfuel crisis. (The data could not be collected sooner for political reasons.) Group meetings were held in the six project villages for the informal collection of data. The results highlighted the problems villagers were or were not interested in tackling through a forestry project.

Local deforestation and its causes

Farmers noted that the rocky hills throughout Mwanza district, once covered in trees, were now almost bare; traditional hardwoods, originally used for building, carving and so on, were disappearing; it was getting harder to find 5-10 cm diameter polewood and timber prices were rising. Firewood collection involved walking for longer distances, and crop yields had decreased - problems farmers attributed to the villagisation programme.

It was the villagers' opinion that deforestation was caused by the explosive growth of Mwanza town, whose fuel needs not only encouraged villagers to make charcoal for sale, but also drew entrepreneurs such as the managers of Mwanza soap factory, who sent their employees out in lorries to cut fuel.³ They claimed that the

² A method in which staff listen to the predominant topics being discussed at bus-stops, in markets, bars, shops, etc.

³ Guggenberger learned from official statistics that indeed, during the previous 20 years, the population of Mwanza region had grown at a rate of 3%. However, there had been an increase of only 1.5 people per sq km in the rural areas, while Mwanza town had grown by 600% to a total of 250,000. 'Problems of increasing scarcity

1984 prohibition on clearing woodland for commercial purposes had not been respected and that the foresters supposed to ensure the act's application were corrupt.

However villagers felt that once all the larger diameter trees had been felled, charcoal cutters would move elsewhere. Then, the remaining thornbush would be left once more for local people only, and would regenerate faster than they could cut it. So lack of firewood would never be a serious problem, and the planting of fuelwood for their own use made no sense. Thus, from their point of view, the most appropriate response to a woodfuel crisis, if there was one, was to cease to supply Mwanza with charcoal from local tree-resources.

Tree-planting before the project began

Individuals who had made a permanent commitment to village or town residence were already planting hedges around their compounds for privacy and to exclude village cattle. A few had planted compound shade trees as long as 20 years ago, and the numbers of old mango trees in the fields bear witness to the fruit-tree planting activities of the Sukuma long ago. On the whole, though, relatively few people had ever planted trees.

Adaptation to loss of tree-cover before the project began

In fact, before the project got under way, many farmers had chosen to make do with lower quality poles and fuel, rather than invest money or labour in obtaining higher quality supplies. They were using sisal poles for construction, and corncobs, sorghum stalks and cowdung for fuel. These responses, however, need to be understood in the context of the **Ujamaa** period, when villager uncertainty about the future made long-term planting investments unlikely. As one individual explained during the evaluation, 'We were like Government officials who only plant tomatoes (because they are annuals) in case they are transferred'.

Villagers' proposals for appropriate project components

of fire and timber wood as considered by the rural population'. Christian Guggenberger, Nyegezi, Tanzania, December 1985. The inhabitants of Mwanza town, though they have caused a great deal of the deforestation without knowing it, experience no fuel shortages because wood is brought in to supply them not only from Mwanza district, but also from the islands in Lake Victoria and from the other side of the lake towards the Rwandan border.

However, village elders and the others who were interviewed for the survey told the project forester that there was certainly room for the project, so long as it focussed on three aspects which, in their opinion, met most people's tree-needs and interests.

- The project should build on the fact that there was an increasing pole problem, with individuals suggesting that they needed between ten and thirty poles a year. However, the interviewed groups stressed that the best solution to the need for poles was the planting and owning of trees privately (**kujitegemea**)⁴. Negative experiences with communal agriculture had made villagers very reluctant to take part in communal woodlot projects.
- They preferred to grow all the poles they needed near the house where trees could be kept an eye on and animals chased off, and where the trees could be used for shade and windbreaks. But houses in villages did not have enough space in their compounds for many trees. Villagers said that, ideally they would go back to their private lands to live, and plant on a bigger scale there.
- The village groups were keen to grow fruit trees and wished to see the project making a priority of on that.
- Elders especially stressed that it was important to ensure the continuity of high value indigenous species, not only by preserving examples of them where they occurred naturally, but also by planting them.

Farmers' Goals

Guarantees required by farmers before they were prepared to raise seedlings or plant trees

From 1983 to 1985, the project had produced all seedlings at a central nursery and distributed them to farmers. But in 1985/6, after the survey, the project decided to decentralize by finding individual farmers keen to raise seedlings themselves for use or sale.

This logical step highlighted further farmer uncertainties mentioned during the survey and it became clear that farmers needed reassurance on several points before they were prepared to raise seedlings or plant many trees:

- that the seedlings were for the owner to do as he liked with;
- that trees planted belonged to the owner including any profit from harvesting and selling them;
- that the trees could be planted where the owner could keep an eye on them himself; and

⁴ **Kujitegemea** means 'self-reliance' and was coined to suggest the independence of Tanzania from the outside world. But by the time this survey was conducted, Tanzanians in Mwanza were using the word tongue-in-cheek to mean that the individual should not rely on government but should make provision for his needs himself.

- that any income from the time, money, and effort invested in the nursery would be entirely for the individual concerned;

The clarification of farmer goals once they had begun to take an active part in the project

By 1986, the changes afoot in Tanzania made working with private farmers much easier. Though initially village committees expressed doubts about private afforestation because they were so uncertain of the legal and institutional implications of the situation, from 1986 onwards people gradually came to believe that **Ujamaa** was a spent force, and that the trees they planted would belong to them. A pattern began to emerge:

- Homestead planting was the commonest form of planting in the project. 'All villagers plant the trees close to their homesteads or at the borders to neighbours. No trees are planted in far or remote areas as is common with food-crops and cash-crops ' we were told. This limited the number of trees which could be planted, however. The compounds in the village were too close for substantial planting; but far away in the fields, trees were vulnerable to browsing and theft.
- Villagers did not want to plant firewood, but were keen to plant fruit and poles and, on the whole, raised them with care.
- Individual farmer tree nurseries sprang up and were far more popular than group nurseries.
- Farmers began asking for more extension help than they had received in their initial training, in order to tackle more effective and ambitious tree-planting.
- As people tried out trees, they became more knowledgeable about which performed well in what circumstances.

Farmers and the market

By the end of the project's first six years, villagers had seen that there was a way of planting trees for private benefit, and that they would not be forced into tree-planting for urban needs. Many were interested in planting on that basis.

For a farmer keen to make some money out of his trees, fruit has proved the best option. Prices in Mwanza are high and rising, and for any farmer who can transport fruit there, it is not worth selling locally. Citrus fruits are especially popular because they are durable and not easily bruised. In the villages, fruit is a luxury apart from home-produced and consumed pawpaw and mango. Citrus fruit seedlings have a certain market, but

those who take them cannot tackle very large numbers and the market in any one village is rapidly saturated since most villagers do not expect to sell enormous quantities of fruit.

Clearly project areas nearest to Mwanza town present far more attractive opportunities for tree products than remoter areas, because of the market factor. Poles have a potentially high value and even seeds can be sold near Mwanza, as can a variety of seedlings including hedging species and ornamentals. In remoter areas, more pole trees than fruit trees will probably be planted since in addition to any cash value they may have, their non-cash economic benefits in boundary assertion and demarcation are important.

Project Structure, Extension and Nurseries

Pilot farmers

Until the project had attracted the interest of a few pilot farmers, it was very difficult for it to move forward. But once it had, it became possible to take groups of other farmers to visit those who had already made a start. Some of these pilot farmers were familiar with leadership roles because they had been catechists or in one case Village Chairman.

Example 1: Silveri R, Ng'wasonge

Silveri is a farmer who is also an unpaid catechist; he is not wealthy, but he has much natural authority. He has ringed his compound/home field with 600 *Melia azederach* trees and can supply his household's entire firewood needs from their side-branches, as well as having a magnificent pole-crop in the making. He is now well-versed in the budding of oranges, and has taught other villagers and sold them orange-tree seedlings. All his neighbours have planted at least 50 orange trees each as a result of his efforts, and he himself made 28,000/- (£140 sterling) from selling oranges in 1988.

The informal diffusion effect - of other villagers copying innovative individuals without the project having contacted them directly - was also noticeable.

Example 2: Daniel L, Usagara

The project was keen to encourage the planting of private woodlots in some cases, and the foresters were delighted when Daniel said he was interested in a plantation of eucalypts. He had made enough money out of irrigated vegetables to own a plough and a cart for taking water wherever he needed it, the land he proposed for trees was spare, and the low labour inputs trees require were an attraction to him.

He took 2,000 seedlings in 1987, but then hesitated and delayed planting them. The project forester threatened him with study visits from groups of farmers to show them how he had wasted his seedlings,

and in the end the trees got planted. Local reaction was initially mixed and some neighbours told him he was wasting his field by putting trees in it. His response has been to say that he sees the trees as a pension. He has also planted closely so that in the short run thinnings are yielding firewood and tomato stakes as well. He has added to the trees in each subsequent year, and now the first local farmers are beginning to copy him.

Intermediaries between project and farmer

Despite some gratifying successes, the problem of project multiplication and continuity was looming large. It was possible to have direct inputs to the activities of only a handful of individual farmers, after all. Thus a key concern had been trying to identify a structure through which to work.

The project was transferred to CARITAS Mwanza at the beginning of 1987, and the Village Afforestation project was formally extended to the whole Archdiocese of Mwanza. In the following year, a hybrid management structure was evolved which had the reliability of the durable and the formal, but yet directly took up the time only of those most involved.

In order for villagers to have dependable links to the source of forestry extension, which in this case was based at, and funded through, the Catholic Church's Development arm, the forestry project was explicitly attached to the centre-to-periphery structures of diocese and parish. At village level, however, planning and execution of activities was carried out independently.

The formation of interest groups

The project had set up a series of meetings of neighbours from particular quarters of villages, which were intended to help recruit more pilot farmers. From these informal meetings 'village interest groups' came into being - fairly small groups of farmers, formed independently of religious affiliation, interested in learning more about seedling production and tree-planting. These villagers could communicate upwards through diocesan structures when they needed to, but be as independent as they chose in the village. Once a group was working successfully and had found its own identity, then official recognition was sought, often by asking the Village Chairman or some other local dignitary to be patron of the group. The groups felt more comfortable with such legitimation, while the elders approached liked to head successful groups.

Interest group organisation

Interest groups would consist of about 15-20 people, mostly men, some of whom ran group nurseries and many of whom ran individual nurseries. The compounds of village individuals (sometimes those of pilot farmers with whom the project had already worked) were used as regular places for interest group meetings such as weekly teaching sessions from one of the project foresters in the early stages, follow-up surgeries' or one-day workshops to benefit all comers. From the project's point of view, group nurseries were preferable, though most villagers chose the individual route. The current project forester finds himself at times in the position of working with only one farmer while neighbours come to listen, but finds, even this simple approach draws in others over time.

Example 1: Busweru interest group

In Busweru, very close to Mwanza town, a group of about 20 was formed. Some members participated in the tending of a nursery of about 4,000 seedlings in the compound of the Village Chairman, while others raised their own nurseries at home and came to meetings simply for advice and information. The main interest was orange trees and pole trees, and between them, they enabled at least another hundred people to plant trees by giving and selling them seedlings.

Example 2: Ng'ombe interest group

In Ng'ombe, (60 km from Mwanza) during 1988, a group nursery raised well over 3,000 seedlings, choosing to produce in the following proportions:

39% decorative trees; *Delonix regia*, *Bougainvillea*; *Jacaranda*;

31% timber trees such *Melia azederach* and *Eucalyptus* spp.

25% fruits - oranges, tangerines, papaya, *Annona squamosa* and *Annona reticulata*.

3% local medicine trees - minengonengo, miarobaini (neem).

2% agroforestry trees - *Leucaena leucocephala*.

These trees, a very different mix from the almost exclusive concentration on oranges in Busweru near Mwanza, show the greater interest in a broad range of rural needs to be found out in Ng'ombe, and would suggest that ornamentals are of more interest to tree-purchasers than the project has perhaps so far realised.

Working jointly with CARITAS

The formation and follow up of the forestry committees and interest groups was carried out to some extent in liaison with CARITAS' other rural development and training programmes. The link provides moral support for the foresters and an excellent partner for discussing village difficulties.

Nurseries

The project's handling of the issue of nurseries is one of its most admirable aspects. Over the years the project has decreased the planned size of its central nursery, and diversified its function, while spreading nursery skills to a widening pool of villagers and steadily up-grading these skills.

When Guggenberger first arrived at the project he set about tree-trials and was ready for the 1983/4 planting seasons with a central nursery at Bukumbi Destitutes' Camp holding about 60,000 seedlings. Having very quickly discovered that the Eucalyptus sp. and Pinus sp. recommended by Government did not do well in the sites available to him, he made an early decision to concentrate on indigenous timber and pole species such as Melia azederach, and also on fruits.

Seedlings were distributed to villagers free in the first year of the project, but successfully sold subsequently. In the second year, the complete lack of petrol underlined the difficulty of running a village tree-planting project out of a central nursery, and the project had to build a donkey-cart in order to transport 45,000 seedlings to the project's six villages.

Accordingly, in the 1985/6 growing season, Guggenberger tried the experiment of training volunteer farmers with their own small nurseries, in addition to running a central nursery. Though early recruitment was difficult, the example of independent and privately-producing farmers attracted villager interest as no activity had previously.

The encouraging results determined the project forester to concentrate on increasing supplies by this means, and decreasing supplies from the central nursery. The small nurseries also proved ideal sites for workshops for co-villagers at which seed selection, seedling production, tree-planting, plant protection, and even grafting could be taught.

In 1986, project and central nursery were transferred nearer to Mwanza town, and central nursery specialization was further developed. Here seedlings could be prepared for bigger-scale purchasers such as government and non-government institutions, as well as urban individuals eager to buy seedlings for hedging and ornamental purposes. Seeds were also collected, bulked and sold.

By the 1986/7 season, with the number of private nurseries standing at 39, the central nursery and its staff were able more and more to take on the role of a research, motivation and training area, while the project

forester worked directly with farmers.

The nursery has conducted research on the germination of difficult or initially unfamiliar species (identifying a method for the germination of *Melia azederach* which farmers could easily use, for instance), and continues to produce seedlings for tricky species like teak. It collects seed for, and germinates, traditional indigenous hardwoods which may not be hard to grow, but for which it is now difficult to get seed. All other work, including citrus grafting of oranges onto lemon rootstock, takes place in the village nurseries, along with the germination of other fruit and pole species.

Villager nurseries vary in size from group nurseries handling 2,000-3,000 seedlings, down to an individual nursery observed set up in a cooking-pot wedged into a tree away from chickens, and consisting of no more than a dozen seedlings. In the 1988/89 season, 72% of nurseries had fewer than 100 seedlings in them, 20% contained 100-1000 seedlings, and 8% contained over 1,000 seedlings.

What has been particularly admirable in the planning of the nursery programme has been the way in which the need to transport seedlings from centre to farmer has been progressively reduced, and every aspect of tree-production demystified. Farmers are taught from the beginning how to select and obtain seed (and how to help the project by locating good examples of highly valued indigenous trees from which seed may be collected); how to mix potting soil for seedlings; and how to build shading and protection for their nurseries. Plastic polypots for seedlings are currently available in the district, but since they may not always be so, farmers have also been taught how to prepare a seedbed in which to sow seed, and how to make polypots out of banana-leaves. If they do not have a water source for seedlings during the nursery period, farmers are taught to raise their seedlings during the rains.

The project has managed to avoid many potential inputs bottlenecks by its healthy low-technical input approach. While Mwanza is not a difficult area in which to grow trees, the project's flexible attitude has done much to help farmers see tree-growing as simple, and not dependent upon the presence of a project. Perhaps the only outstanding problem is that, from the project's point of view, group-owned nurseries are easier to service, while from the farmers' point of view, small private nurseries are the preferred pattern.

Extension and Training

Extension and training have taken place on this project in both a planned formal way, and in various unplanned ways, of which the chief has been farmer to farmer imitation and informal advice.

Formal extension - the forester's personal role in the early stages

It is clear that the project's hardest extension task was the recruitment of pilot farmers in the earliest stages of the project, when there were few privately planted trees to interest and inspire farmers, and a history of coercive and unpopular village woodlots programmes as the sole thing with which to associate tree-planting.

It would seem that the first project forester's personal commitment, his association with the Church (which has generally been seen as a reliable rural development body by villagers) and the fact that information through village meetings and workshops was being made available not just once but regularly, all contributed.

Farmers who had planted a dozen nursery trees the first year, started asking for help with their own nurseries the next. Those who took this risk in the first year (and the risk was that of government reprisal, not merely the risk of wasted time or money) were often, but not always, the educated, or religious figures.

Formal extension - tools

The first project forester began his work in the area with an **exhibition** and with **written publicity** sent to parishes and other bodies. Probably neither of these methods had the impact of his own constant presence in the area, and their omission would have had little effect on the course of the project.

However, more precise materials, produced at a later stage of the project, have been greatly welcomed. These are the series of **leaflets on tree-nurseries, tree-planting, and hedge-creation** produced by the project. A fourth on **grafting** is still being piloted with villagers. These leaflets have been very carefully tested and drawn, to convey the maximum information, clearly, with modest amounts of text.

The project also made a commitment to **study tours** as it called them - taking farmers from villages where little tree-planting activity had yet taken place, to see the compounds, the nurseries and the work of individuals and groups in other villages. Such visits help the project spread from village to village over a wider area than the informal spread described in a succeeding section could possibly do.

Finally, one of the project's strengths has been its personal and continuing contact with farmers. The **follow-up 'surgeries'** happen with sufficient frequency that farmers know they will not be abandoned with their problems, but will be able to see one of the project foresters without too much effort.

Formal extension - training

When an interest group is newly formed, the first teaching offered consists of **three workshops**. In the first, the topic of deforestation and woodfuel problems is raised, and the scope of the project is explained in a general way. In the second, a specific action plan is developed, and in the third practical training is given. Farmers are taught how to select and obtain seed and treat it; how to obtain and mix soil; and how to set up their nursery. These workshops, and their follow-ups, seem to work excellently.

The informal extension of tree-planting by example

Enthusiasm for planting trees seems to have been inspired by a wide variety of stimuli. In one village, for instance, tree-planting got a tremendous boost when the Party Chairman, who had initially disapproved of the project, began to get interested in planting trees himself.

Individuals were encountered during the evaluation who had watched the progress of the project for up to five years before deciding to come and receive training in nursery establishment. Such a person might then be ready to plant large numbers of trees immediately.

One eighty-seven year old farmer saw the project planting trees at a school near his farm, and asked for 3,000 seedlings. Staff could not believe he would plant them and tried to dissuade him, but he planted a treble row of *Casuarina equisetifolia*, *Melia azederach*, and *Delonix regia* all round his field, and told the project that he had done so in order to have something to leave to his children.

Some have cited the visual example of government plantations as the decisive factor which encouraged them to plant trees.

But the outstanding piece of unplanned extension has been the existence of the village nurseries themselves, where villagers could come to look, ask questions of the owner(s), and find that tree-raising did not require great capital investment. Project staff are constantly hearing of new nurseries, which they in no way helped to start, being formed in villages where other work has gone on before.

Conclusion

In conclusion, the aspects of the project which stand out are three-fold.

Firstly the great care taken to establish good links with officials, church and villagers, so that one of the frequent criticisms of NGOs - that they undermine local services and create anti-government feeling - was defused.

Secondly, the low external input approach, with its trust in villagers' capabilities and skills, and its realistic appraisal of the availability of extension staff in the future.

Finally, and most importantly, the small nurseries, and the fact that the project after the first two years entirely avoided the transportation of heavy seedlings out to the farmers from the central nursery, bear witness to a common-sense approach with a high likelihood of sustainability.