Projet Agro-Forestier

The Agroforestry Project (PAF) of Yatenga Province, Burkina Faso has evolved from a successful water conservation project into a project that promotes "integrated land-use management". What are the lessons that can be learned from this project?

In 1979, Oxfam commenced an agroforestry project (PAF) in Yatenga Province. This region has the double problem of high population density (70-100 people per square kilometer) and severely degraded land. Over 50% of the land is under cultivation these days and little or no fallowing is practiced. Much of the remaining land is eroded and encrusted with a hard cap. It cannot be cropped without being improved. Overgrazing adds to the problem. To make matters worse, rainfall has decreased significantly from the long-term average of 720 mm/annum to 440 mm within the last twenty years. Not only is the rainfall low, but it is also very unreliable.

Little enthusiasm for planting trees

The original idea was to promote the use of microcatchments to enable farmers to grow trees for wood. The farmers showed little enthusiasm for planting trees, but were in favour of microcatchments for growing food crops. Fortunately, the project had the flexibility to change its direction, and began to promote rock bunds as a means of increasing crop production. This was a technique traditionally used in Yatenga, but the project introduced the improvement of building them along the contours, using a water level made of a hosepipe and two sticks. Rock bunds require a high initial investment of time and labour to collect and transport the rocks, but once the bund has been established, little maintenance is needed.

Zai, a traditional technique

PAF also promotes various other improved agricultural practices. One of these is the zai method of tillage, a traditional practice of digging a 20 x 20 cm planting hole 10 cm deep during the dry season and filling it with compost. This leads to increased termite activity which, in turn, increases the rate of water penetration when the rains come.

Rock bunds have proved to be highly effective in increasing crop yields in their immediate vicinity. Photo: A. Khan/OXFAM.

Integrated land use management will be possible only if there is a community consensus. Photo: Matthieu Ouedrago/OXFAM.

Millet is planted in the individual holes, which also help collect water and protect the seedlings from wind damage.

Local people convinced of profitability

Rather than relying on food-for-work as an incentive, as is commonly done in the region, PAF did not pay villagers to build the rock bunds. The project did, however, provide information and training, as well as materials and equipment such as water-levels, pickaxes and carts, either free or on loan. Some food loans were also given, most of which were paid back after the next harvest. Despite the lack of material incentives, the rock bunds have been widely adopted. Local people are convinced they repay the input of time and labour by bringing higher yields and increased yield security. The bunds also extend the area under crops by enabling land which had previously been considered useless to be brought into production.

Measuring results

Few yield measurements have been made by the project which is seen as an important shortcoming as monitoring and evaluation are extremely important. Adequate systems of monitoring and evaluation, however, are not available. Improvement of existing methods is urgently needed and the project is working on this.

Measurements made by PAF showed

that the average grain yields in plots with bunds and zai were consistently higher than in those without bunds and zai, ranging from 12% in 1982 to 91% in 1984. The rapid increase in food production provided by rock dams and zai is obviously of crucial importance to the Yatenga farmers.

Training and extension

PAF has been building up its extension programme since 1983. Initially, it relied on the use of the flannel board and other techniques to raise awareness. It then moved on to providing training in rock bund construction. Since it is too costly to provide individual instruction for all farmers wishing to construct bunds, PAF asked villages to nominate representatives who could learn the technique and then pass the knowledge on to others.

PAF avoids the temptation to carry out its extension work independently, and joins hands with three Government services operating in the province. PAF helps train the extension agents of these services, who then collaborate in extension work. Collaboration has led to more widespread achievements, and means that the activities should continue after the project comes to an end. In all, several thousand people have now been trained, covering about 500 villages. Initially, the focus of training and extension work was on male farmers but in 1985 the project began training women farmers in rock bund construction, and women are now included in the extension team.

Attitude to tree growing changed

PAF staff have found that attitudes to tree growing tend to change once the initial activities lead to higher food production. In some villages, farmers are now prepared to plant trees along the bunds if they are provided with seedlings. They are also willing to provide protection for the trees against grazing animals during the dry season. In Longa village of Yatenga Province for example, the use of rock bunds along the contours has been integrated into an approach which concentrates on land-use management. The villagers constructed rock bunds on 70 ha of agricultural land. They also agreed to impose severe restrictions on movement of animals. All livestock are now held in shaded enclosures, and fodder is collected from the cultivated areas. Trees have been widely planted, and natural regeneration is also evident. Neighbouring villages are now copying Longa's example. Seedlings are supplied by the Forestry Department, and guidance in stall feeding is provided by extensionists from the Ministry of Agriculture. The costs of stall construction and other inputs are borne by the villagers themselves.

Mobilizing the community

One of the principal lessons of the project is the importance of mobilizing the community. Although PAF found that the quality of rock bunds on individual land was better than on communal land, it gradually became clear that much of the work can be done effectively only if there is community consensus. If, for example, rocks are not available nearby, collection needs to be organized on a community basis. Similarly, if land is to be protected from grazing, the animals of all farmers must be controlled. The community orientation also helps ensure that the poorer farmers benefit from the project.

Farmer-to-farmer extension

Because of the progress which has been made, there is no longer any need for measures to raise the general level of awareness. People see the innovations in neighbouring villages and discuss them as part of their normal day-to-day contacts. In areas where the innovations have not yet been adopted, PAF promotes exchange and communication through excursions. The villagers are then left to reflect on what they have seen, discuss the issues and organize themselves when they feel ready for action. The farmers know where to find the PAF office. In the final analysis, it is up to them to get together and undertake development activities for their own benefit.

Sustainability not yet achieved

PAF also recognizes that problems remain. There is, for example, the question of uneven distribution of costs and benefits. Rock collection and bund construction make heavy demands on the available labour, particularly on women. Rich farmers are more likely to be able to mobilize and provide food for communal groups to build bunds on their land. The sustainability of the increased yields obtained when using the bunds is another cause for concern. Because higher crop production means greater mineral extraction from the land, there is a danger of long-term depletion unless methods of increasing inputs of organic matter and mineral fertilizers can be put into operation. Thus, recovery of manure from stall-fed animals and encouragement of composting assume critical importance in the longer-term perspective.

Techniques and participation

The project accepts the need to identify and resolve such issues, but is fully aware that the proposed solutions must be acceptable to the local people. Project staff stress that the reasons for its success are not primarily technical. The techniques work because they fit into the local context and meet the farmers' need for low-risk and low-cost strategies. More important than its ability to develop techniques is the fact that, by involving the local people in all stages of project implementation to guarantee that their needs and priorities are met, the project has won their confidence.

Lessons and conclusions

- PAF is an internationally known success story. This is because of its impressive achievements and use of appropriate techniques. However, the special combination of factors which make PAF so successful is not found everywhere in sub-Saharan Africa. PAF's techniques are rather site-specific and therefore need to be adapted when transfered to other sites.
- Participation of villagers in decision making and in implementation of soil and water conservation measures is central to PAF's philosophy and to its success.
- Training and extension are among PAF's greatest strengths. PAF has a well developed training scheme for villagers during which they are taught how to lay out and build the bunds.
- Flexibility in allowing the programme to evolve and change is a feature of the project. Having started as an agroforestry project, PAF achieved considerable success with stone bunding techniques, and is now moving towards village land-use management.
- The main technique, contour stone bunds with zai or planting pits, is simple, relatively cheap to implement and based on traditional techniques.
- The techniques are particularly popular because they give farmers a rapid increase in crop yields, and allow at least some harvest in very dry years.
- PAF is a small NGO project which is able to have an important impact on soil and water conservation by acting together with both government agencies and other NGOs. ■

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