

# Improved fallows and local institutions

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Low soil fertility is one of the greatest biophysical constraints to increasing agricultural productivity and food security in many Sub-Saharan African countries. The use of supplementary inorganic fertilizers has become less affordable for many farmers in countries such as Zambia, following the removal of subsidies on these inputs. In response, the use of improved fallows, also known as fertilizer tree fallows, has been developed by the World Agroforestry Centre (ICRAF) in eastern Zambia over the last ten years, as a sustainable way for small scale farmers to restore soil fertility (see also LEISA Magazine Vol.17, No. 3, October 2001). This technology involves planting nitrogen-fixing, fast-growing trees that produce easily decomposable biomass, and improve soil physical conditions.



Zambian Members of Parliament discuss agroforestry with farmers.

Given the profitability of fertilizer tree fallows and the positive impact of the technology on households and the environment, efforts are being made to scale up the adoption of the technology. These efforts have been hindered by existing practices such as the regular use of bush fires and free-grazing by livestock during the dry season, among other reasons. The absence of private property rights over land means that livestock are allowed to graze freely in the fields during the dry season. Often, these animals are owned by wealthier farmers. The livestock usually deposit their dung in the *kraals* of their respective owners rather than in the fields where they have grazed, so poorer farmers do not gain from the grazing. The livestock destroy trees by browsing the leaves or physically trampling over the plants. This has been a major discouragement to tree-planting and the widespread adoption of fertilizer tree fallows. These problems are not restricted to fertilizer tree fallows alone but also affect other sustainable practices for soil fertility management like conservation farming, because the maize stover is often grazed by free-ranging animals or destroyed by fire.

## Respecting customary institutions

ICRAF, in collaboration with the Ministry of Agriculture and Cooperatives, World Vision International and other NGOs

promoting agroforestry technologies in Zambia, joined forces to form the Consultative Workshop on Agroforestry. In 1996, two meetings were held to share information on the state of improved fallows among partners and discuss approaches through which local communities could be involved in enabling the adoption of the technology. During these meetings, the threats posed by fires and uncontrolled grazing practices were highlighted and discussions focused on what could be done to reduce the threats. One suggestion made was to involve the customary chiefs who have traditionally used their authority to ensure social conformity in the area. Although the powers of the traditional authorities have changed compared to the pre-independence era, chiefs are still much respected and do hold sufficient powers to enact by-laws and appropriate sanctions through the traditional hierarchy of leadership. Two major traditional authorities were identified in eastern Zambia, being the matrilineal system for the *Chewa* ethnic group and patrilineal system practiced by the *Angonis*. In each of the two systems, the highest level of authority is the paramount chief. Below him – this function is always held by a man – are the senior chiefs, each of whom is in charge of a group of chiefs. Next in rank to the chiefs are the headmen, who are individually responsible for the welfare and administration of a single village. Chiefs, senior chiefs and paramount chiefs hold and preside over court sessions related to issues concerning the traditional affairs and people within their respective domains. They are assisted by a council called *indunas*, made up of selected representatives of the various communities under the jurisdiction of a chief. The *indunas* serve as advisers to the chief on administrative matters and are the spokespersons of the chiefs in their respective communities.

This local administrative setup was considered to be a good entry point for policy interventions regarding fire and uncontrolled grazing. The two paramount chiefs and their senior chiefs were approached, with the aim of showing them the existing and potential benefits of agroforestry. Such efforts included open forums for exchange of ideas as well as field tours during which the chiefs could observe the performance of maize, the staple food in the region, under improved fallow, and discuss with local farmers about their experiences with this technology. The result of the series of meetings, coupled with what the chiefs saw and heard regarding the performance of fertilizer tree fallows, was that in 1997 new rules were created by the chiefs for their respective ethnic groups. This was done in consultation with the *indunas* who were also responsible for informing their communities, chiefs and village headmen about the provision of the new rules. The by-law on grazing requires livestock owners to herd their animals during the dry season to minimize damage to other farmers' fields. The by-law on the use of fire prohibits indiscriminate setting of bush on fire during the dry season to avoid accidental or deliberate burning of trees and maize stover in fellow farmers' fields.

## Impact of by-laws

An evaluation carried out in 2001/2002 showed that five years after the introduction of the new by-laws, there is a reduction in the two constraints mentioned above, particularly in problems associated with free grazing. The evaluation highlighted three issues: the need for increased awareness about the by-laws; taking the economic interests of a broader range of stakeholders, particularly livestock owners, into consideration in the implementation of the by-laws; and continued policy dialogue with the chiefs to provide feedback on how the by-laws are working. Farmers who practice improved fallows are very

pleased with the by-laws, but livestock owners regard the by-law on grazing to be unfavourable because it restricts the animals and requires extra labour for herding the animals during the dry season. An immediate reaction to the findings has been to increase the range of fodder producing tree species in the improved fallows, so that the competition for feed by livestock during the dry season is reduced. These trees could also ensure that economic interests of livestock owners are well taken care of; this is very important because they often influence the implementation and effectiveness of the by-laws on the ground through their wealth and social status.

In addition to the evaluation, policy dialogues were held in the communities, to achieve a consensus on the implementation of the by-laws and to enhance adoption of improved fallows. Various stakeholders participated, including traditional chiefs, village headmen, research and development organizations, farmers who practice improved fallow and those who do not, teachers and area councillors. Highlights of the evaluation were shared during four village policy dialogues and a provincial level policy dialogue in the years 2002 and 2003, and ways to deal with the problem of livestock browsing and fire were agreed upon (see Box). Some of the actions suggested by village communities have been carried out, as well as some actions requiring external assistance. Formal documentation of the by-laws is still a challenge because the high level of

### Initiatives identified during policy dialogues to minimize fire and grazing

#### Actions that should be carried out by the village communities themselves

- Regular meetings to be convened by the headmen for group discussions
- Convene regular group discussions involving local community, tree-planting farmers and non-planters through the headmen to monitor agreements reached during the policy dialogues
- Embark on farmer-to-farmer visits in each village to share ideas
- Agroforestry farmers to make fire breaks in their fields
- All farmers to educate their children about the dangers of fires
- Livestock farmers to start animal herding for those who have not yet been doing so
- Initiate committees comprising agroforestry and livestock farmers to monitor progress on the implementation of the bylaws

#### Actions requiring assistance from outside the farm communities

- Government backing of the by-laws through a formal enactment
- Government should work closely with schools so that the pupils learn about the dangers of fire and the importance of agroforestry to the community
- Government and local leaders should sensitize and teach the people through mass media about the bylaws
- By-laws should be formally documented, issued by the chiefs and distributed to village headmen
- Agricultural institutions to provide appropriate fodder plants to livestock farmers
- Encourage farmer study tours to see how livestock and trees co-habit in other areas
- Publicize the by-laws through radio and other mass media

illiteracy among farmers may make it difficult for many of them to read the documents themselves.

### Lessons learnt

Several lessons have been learnt during the development and implementation of by-laws, including that:

- an existing traditional structure can serve as an entry point for policy intervention;
- collaborative efforts of several partners, such as technology developers, NGOs interested in promoting sustainable agriculture practices and government agricultural organizations, ensured that issues on agroforestry came from multiple voices and helped to strengthen the case for the by-laws;
- continuous review of how the new by-laws function is important, as is the willingness to modify them when required;
- there should be a readiness to build consensus (as far as possible) among different stakeholders within the community that is affected by the by-laws.

These experiences show that existing local policy and institutional arrangements will affect the adoption rate of a technology. The distribution of the benefits (or costs) associated with the technology will vary amongst the various social groups within communities. The evaluation study and related experiences demonstrate the importance of policy dialogues among stakeholders and how the development of appropriate local institutions has the potential to be combined with formal national policies to enhance the adoption of improved fallows and other soil fertility management options in Zambia.

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