

Introducing new crops in a conflict situation: Gender roles and innovation

Roger W. Sharland

The ongoing war in southern Sudan and the widespread relief effort has resulted in a growing dependency in many communities on relief food. Air drops and other sources of relief food have increasingly become a major coping mechanism and an important component of many food economies. Within this context a number of agencies have been seeking strategies to increase food security through agricultural production.

Differences in food economy

Of the six food economy zones in southern Sudan, the main differences in the basic economy can be seen between the Equatorial tribes on the southern border and the agro-pastoralist tribes of the flood plains. The latter has a long tradition of agricultural production that is secondary to the importance of livestock in their lives, while the former depends almost exclusively on agricultural production. In the past couple of years, many areas of Western Equatoria province have returned to normal agricultural production, while the agro-pastoral areas to the north have remained relief dependent.

Searching for strategies

As part of my input to household food security strategy, I have examined what has enabled Equatoria to return quickly to food security while Bahr el Ghazal has remained relief dependent. One important factor identified in maintaining household food security in Equatoria has been the prevalence of fruit trees, especially mangoes, and the widespread cultivation of root crops (cassava and sweet potatoes) as well as the more traditional grain and oil seed crops. Although introduced into the food economy within the last century, root crops are now part of the established cultivation system of most Equatorial tribes.

Most of the agropastoralist Dinkas, who traditionally rely much more on their livestock for household food security, grow neither cultivated fruit trees nor root crops, and are much more vulnerable in their agricultural production. The disruption of the war over the last fifteen years has led to many changes including the loss of livestock and changes in the gender balance of the population, which has in turn led to large sectors of the population taking on new roles. This in turn seems to have led to an openness to try new ideas and technologies, including new crops.

Introducing new crops

During the 1999 planting season small amounts of planting material for fruit trees and root crops were introduced to a number of farmers in the Maluakon area of Northern Bahr el Ghazal. In January 2000, I facilitated a short workshop with those involved in the agricultural work and women from the local community. A very clear message from the workshop was that with the high population of livestock in the area these new crops cannot be grown in the same way that they are further south in Equatoria, and that local adaptations need to be made with local farmers. The main adaptations relate to three issues, namely the slightly shorter rainy season, and therefore longer dry season, the seasonal flooding that is common to that area and the roaming livestock, particularly in the dry season.

Adapting planting methods

Farmers are used to protecting their annual crops from livestock during the growing season, but both fruit trees and root crops

need extra protection. This has led to trying out a new method of production of the root crops, cassava and sweet potatoes, especially in relation to the availability of planting stock. In Equatoria, annual new plantings are made from vines and cuttings obtained from the sprouting of plants that have survived the dry season. Planting material is plentiful and maintaining of stock or nurseries is not required. One of the adaptations made in Maluakon relates to maintaining the planting stock throughout the longer dry season when the livestock completely destroy any exposed plants. With cassava, some farmers have protected part of the area planted with stock proof fencing to provide the next season's source of cuttings. With sweet potatoes, a system of developing nurseries near water holes, which facilitates rapid growth due to well-manured soil, is being tried out for fast multiplication of vines.

New crops and gender roles

Of particular interest during the workshop were the gender roles in relation to the new crops and who to target with teaching. The different roles and division of labour in the production and

Contributions

Combating the consequences of flooding with farmer's innovation and experimentation

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The article reports on the devastating floods that occurred in Mozambique and adjacent regions during February 2000. It focuses particularly on the post-disaster period and the adaptations required from farming communities. Subsistence farmers in the Nzhelele region showed considerable potential for restoring their ecological balance by experimenting with new technologies and by taking preventive measures. The flooding disaster re-emphasised the need to avoid overgrazing and to protect natural vegetation. Such measures will improve farmers' resilience and their capacity to recover and sustain their livelihoods.

Foundation of traditions for drought mitigation with self sustainable agri-horticulture system in arid zone

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After 8 years of experimentation the author developed a highly drought resistant, low-external-input agroforestry system based on Jujube (*Ziziphus mauritiana*) intercropped with annual grain legume crops, mainly green gram (see photo). It takes three years to develop fully but income is generated from the first year.

The system has been found to be sustainable with a rainfall of between 200-400 mm/year, provided the rainwater in the field is conserved and nutrients taken out of the soil with the harvested crop are returned in the form of manure. Experience showed that, on an area of one hectare, the system was able to meet the needs of a family of four that had four goats or sheep.

processing of the traditional crops, the different tools used and the preferences of men and women were discussed. This helped to gain an understanding of the gender issues involved in traditional cultivation, and how they could affect the wider introduction of new crops.

Thereon, we looked at the work involved in the production of new crops, which included not only root crops and fruit trees, but also swamp rice. In the case of root crops, particular attention was given to the work involved in protecting them from livestock and in fence building. The division of labour that emerged was based on local knowledge and experience and proved very different from the assumptions based on how the crops are grown further south in Equatoria.

Men's crops and women's crops

Both cassava and sweet potatoes were seen to be crops that require the input of both men and women if traditional roles are to be followed, with sweet potatoes considered more of a male crop and cassava more of a female crop. This is opposed to the experience of the Equatorial tribes, where cassava is the one crop that men frequently cultivate on their own. Division of responsibilities was less in relation to the nature of the crop and its produce (which is very significant in Equatoria) and more in relation to the type of tools used and the type of labour input.

For both crops, men's input was considered very important for the cutting of wood and building of fences to protect them from

livestock, but what followed showed a significant division of labour. Sweet potatoes was seen as a crop with more male input because it is grown elsewhere in Sudan on mounds that require either a spade or the east African hoe to dig them, both tools more often used by men. It was also agreed that men should plant the vines, and as it is considered a cash crop that men should harvest it too. The work for cassava involves weeding which is more a woman's role, and the planting of the cuttings was also seen as a more female role, in contrast to that of the vines of sweet potato. For both crops women took on the responsibility of guarding the crop.

Assumptions challenged

The conclusion of this discussion was in contrast to what would be the normal practice in Equatoria. What we would have assumed is that the responsibility for cassava planting material should rest with the men and sweet potatoes with the women. The participants helped us to see that responsibility for cassava should be with the women and that of the sweet potatoes with the men, and that planting materials brought in should be divided accordingly. This is an interesting example of using farmer experience in relation to traditional crops in determining how an innovation can best be introduced from outside. ■

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How farmers, local NGOs and Government are fighting erosion on the island of Flores, Indonesia

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The mountainous island of Flores is seriously affected by soil erosion. In the article soil conservation programmes carried out since the 1950's are discussed. Planting of contour hedgerows of Lamtoro (*Leucaena Leucocephala*) was very successful until 1986 when a major pest of Lamtoro made its appearance on the island - the psyllid *Heteropsylla cubana*. These jumping lice aggressively destroyed all the established leguminous hedgerows planted over a 20,000-hectare area. The very important lesson learned from this devastating invasion was that large-scale propagation of one exotic species is not to be recommended. The risk of pest outbreaks that cannot be naturally controlled are too high. Presently, a new approach has been developed. This focuses on sustainable agriculture as a whole and not just on erosion control. In this approach 'interception terraces' and the establishment of protective leguminous hedgerows of such species as Turi (*Sesbania sp.*) and Gamal (*Glyricidia sepium*) are promoted. It appears that the farmers and NGOs have found a good and effective way of fighting erosion. However, given the huge area, progress (about 1000 ha in the 1998-1999 rainy season) is still too slow.

Rebuilding agricultural resilience: broader issues in rehabilitating rural livelihood systems

by Phil O'Keefe, John Kirkby and Andrew Collins, ETC UK, 117, Norfolk Street, North Shields, Tyne and Wear NE30 1NQ, UK. Email: office@etcuk.demon.co.uk. Humanitarian assistance to mitigate natural disasters and, increasingly, complex political emergencies has increased twelve-fold from 1990-96. The challenge is not only to provide relief but to rebuild rural livelihood systems and to restore the resilience of agriculture. This is more easily said than done as the culture of humanitarian intervention is significantly different from participatory development practice. Emergency agriculture is



Jujube – green gram agri-horticulture. Photo: AK Sharma

much more developmental than humanitarian. There is a need to i) end the relief phase; ii) encourage restoration of local management of agricultural resources and to restore marketing systems, and iii) to increase resilience by upgrading the quality of inputs, especially improved seed varieties and blood stock lines. Emergency agriculture, to be successful, must capture immediate production opportunity. Humanitarian assistance has become much more professional, not least with the establishment of minimum standards in disaster response. Emergency agriculture, however, is not a part of these standards and remains the forgotten child of humanitarian assistance. Based on existing experiences the basic principles of emergency agriculture have to be thought through. This is what the authors have attempted to do.

The full articles can be requested from the authors or from ILEIA.