

TOWARDS A FARMER-CENTRED EXTENSION SERVICE: THE CASE OF ULUGURU MOUNTAIN AGRICULTURAL DEVELOPMENT PROJECT, (UMADEP) MOROGORO, TANZANIA¹

D.F. Rutatora² and A.Z. Mattee²

ABSTRACT

Uluguru Mountain Agricultural Development Project which is based in the Department of Agricultural Education and Extension at Sokoine University of Agriculture, uses a combination of Participatory Rural Appraisal (PRA), Participatory Technology Development (PTD), Farmers' Groups and Farmer to Farmer extension approaches. Experience in the use of these approaches shows that farmers in collaboration with extension workers have developed activities which address location specific problems, generated appropriate technological innovations that are sustainable and take into account the socio-cultural and economic milieu of the communities. In addition, this has led to the formation of the farmers' groups which facilitate learning, decision-making, and adoption of agreed innovations.

1. INTRODUCTION

Since colonial period to date, Tanzania has been putting much emphasis on modernization of agriculture, and agricultural extension was (as is today) seen as a means for achieving this objective. Heavy investments were made in the agricultural sector because of the fact that the majority of Tanzanians (over 85%) live in rural areas and rely on agriculture for their employment and livelihood. Besides, agriculture is the backbone of the Tanzania's economy providing over 50% of Gross Domestic Product (GDP) and more than 70% of export earnings (World Bank and Ministry of Agriculture and Cooperatives, 2000).

Agricultural extension in Tanzania has been and still remains almost entirely financed by the public sector. Over time the focus of extension has been on transfer of technology that made the government to adopt systems and/or approaches to extension that have been mere extrapolation of approaches in donor countries and have essentially been supply driven, top down and

¹ *This paper is based on the experience with Departmental project called Uluguru Mountain Agricultural Development Project (UMADE).*

² *Associate Professors in the Department of Agricultural Education and Extension, Faculty of Agriculture, Sokoine University of Agriculture, Morogoro, Tanzania.*

manipulative. The adopted systems/approaches never took into consideration farmers' issues, problems, needs and their involvement. In addition, they never undertook systematic investigation of what farmers expect from extension and of the role it should play. As a consequence, they ended up promoting and disseminating recommendations that were incompatible to local circumstances (Moris, 1991).

Despite the introduction of the farming systems approach to research and extension and the current Training and Visit (T&V) system of agricultural extension, smallholder farmers are still being perceived as the recipients of new or improved technologies generated through scientific research paradigms (Rutatora and Wambura, forthcoming). Table 1 provides some of the extension approaches that were used by the Tanzanian extension service over the years.

Table 1: Some of the extension approaches attempted in Tanzania over time

Extension approach	Focus	Extension methods	General outcomes
Focal point	High potential areas in the northern and western parts of the country	Use of force rather than persuasion	Negative reaction on the part of farmers
Progressive	Extension resources focused on early adopters, usually, the richer, more educated who had larger than average farms	Individual and group	Good responses from the few farmers
Transformation	Establishment of a series of capital and management intensive village settlement schemes	Regimentation Administration	Creation of a class of favoured farmers. General resentment by those left out
Improvement	Gradual upgrading of existing rural small holdings through extension and credit programs and improvement of marketing all aimed mainly at progressive	Individual Group Mass	Increased rural class differentiation which was contrary to country's ideology of socialism Not successful in low and medium

Extension approach	Focus	Extension methods	General outcomes
	farmers		potential areas of the country. Too slow to suit the aspirations of the country's leaders
Frontal	A reconsidered approach that came with the Arusha Declaration Extension agents were instructed to use the "group approach" rather than working with individual farmers	Group methods	Signs of increasing over-adoption of innovations such as tractor ploughing, fertilizer application or using feed concentrates that may not pay under the existing cost price conditions
Training and Visit (T&V)	Transfer of technology through unified extension system. Regular contact between farmers and extension staff Continuous training of staff, strengthen research extension – farmer linkages and regular supervision of staff etc.	Individual (contact farmer approach) Adoption plots Later contact group approach adopted	Farmers awareness of specific technical messages Less emphasis has been placed on capacity building of farmers Single line of command professionalism

Literature reveals that from the very beginning extension services in Tanzania were offered through what has been termed the banking (Freire, 1970), top-down (Kauzeni, 1989), empty-cup or directive (Keregero, 1991) approach. All too often extension services have been structured and operated on the assumption that farmers are largely passive, ignorant, illiterate, and they are unable to improve or to integrate new farming practices into their established agricultural systems (Rutatora & Rutachokoziwa, 1995).

In view of the above, it appears to be a fact that existing extension systems and/or approaches whether in their original or modified forms have not provided sufficient flexibility and have not been of benefit to the smallholder

farmers. Many of the largest government systems have neglected the opportunity to organise farmers' groups, empower their clientele, press for equity, accountability and demand sustainability of fields and streams. As such much criticism has been centred on agricultural extension due to its failure to make significant impact on smallholder agricultural systems.

According to Moris (1991) and the Mid Term Review of the National Agricultural Extension Project Phase II (NAEP II, (AMC, 1999) failure of past extension approaches is due to

- Poor involvement of farmers
- Lack of relevant technological messages
- Inappropriateness of contact farmer methods
- Inadequate identification of farmer problems and feedback of farmer's requirements into research agenda.
- Poor research-extension-farmer linkages
- The fact that public sector budgets are too stretched to support a large number of extensionists adequately in the field

Recent observations reveal that several NGO and farmer-led initiatives have, over time, supplemented extension delivery of the public extension service with cost sharing, and have, in a way, managed to address the problems or issues mentioned above.

In the past, the government discouraged private sector entry to provide extension services in crops or agricultural enterprises of their interests but now the government is encouraging such steps (MAC, 1997). The government has recognised that in most cases, a single extension system (public extension) may not be the only option. Rather, there is a need for flexibility and the adoption of multiple approaches to extension. This kind of thinking has also directed attention to the potential for sharing the task of delivering extension services with the private sector, civil society, NGOs and other interested parties like Sokoine University of Agriculture (SUA).

This article, therefore, attempts to bring to light how a farmer-centred extension service can be enhanced by looking at the experience of the UMADEP based at SUA.

2. SUA'S EXPERIENCE WITH FARMER-CENTRED EXTENSION SERVICE UNDER UMADEP.

2.1 Background

The rationale behind SUA's involvement in extension is clearly stipulated in the Act which established it. Historically, SUA's field extension activities have developed rather slowly compared to training and research activities (Maeda & Mphuru, 1989 and Rutatora, 1998). However, the major thrust came after the inauguration of the University in 1984, when the University was called upon to observe its corporate social responsibility by committing itself to providing sound solutions to Tanzania agriculture and rural life (Nyerere, 1984). SUA is therefore required to be practically oriented in its teaching and research and to be actively involved in the dissemination of its research results to the general public.

The Uluguru Mountain Agricultural Development Project (UMADEP) which is a research and extension project based in the Department of Agricultural Education and Extension, Faculty of Agriculture, SUA, was initiated in 1993 in order to address the above concerns and the major problems facing farmers in the Uluguru Mountains of Morogoro Region. The overall aim of UMADEP is to consolidate the rural society in its complexity to constantly play an active role for its betterment in the changing overall socio-economic environment. Specifically, UMADEP aims at:

- Improving (in a sustainable manner) the productivity of the labour of smallholder farmers in the Uluguru Mountains
- Associating, through a long term communication process, SUA to the rural communities in order to promote the emergence of a smallholder farmers' movement
- Training change agents (farmers, students, professionals) to develop a methodology that constantly links action to reflection.

UMADEP is basically a community-based research and extension project which employs a multidisciplinary approach working in partnership with government extension officers and farmers.

It takes a whole farm – approach to organised, positive change in rural areas. It is based in the Mgeta and Mkuyuni Divisions on the slopes of Uluguru Mountains. The project area is famous for the production of temperate and tropical fruits and vegetables such as cabbage, cauliflower, peas, beans, peaches, pears, mangoes, citrus, bananas and pineapples. The majority of the

farmers in these areas are engaged in small-scale horticultural production for commercial purposes.

UMADEP strongly believes and advocates participatory approaches to research and extension with a view to increasing farmers' participation in the project, motivating them to learn and change and providing them with appropriate and/or environmentally sound advice. Participatory approaches, involving farmers in their own development and using their indigenous knowledge, have been argued as an alternative to conventional extension approaches (Rogers, 1996; Rutatora & Rutachokoziwa, 1995 and Lassalle & Mattee, 1995).

According to Ki-zerbo (1992) the success of rural development efforts hinges upon successful marriage of any new and external knowledge with the farmers' indigenous knowledge. Ki-zerbo forcefully argues for an endogenous development in Africa, which starts from and recognises the local capacities of the people.

Participatory development is seen as something that involves various activities that have to be carried out in concert to support and complement each other. However, the various activities will have to enhance the following processes that are necessary in an endogenous development:

Observation: The basis of local development is its environment – physical, social and economical. Observation of that environment is the first activity where farmers and professionals interact.

Organisation: The development process is also a motion that needs actors. The farmers are the main actors but they have to organise themselves so that they can negotiate as equal partners with other professionals and policy-makers.

Innovation: Rural societies are constantly being challenged with new problems and constraints that innovations can solve. Innovations may be technical or social. They constitute an area where farmers and professionals play different but complementary roles.

Collaboration: For the success of any innovation, professionals from different groups must define common objectives and have a clear understanding of their individual roles as being complementary to the development process.

Communication: In order to collaborate, an exchange of ideas and experiences are necessary amongst a particular group, or between one group and another. This requires communication (Lassalle & Mattee, 1995:178).

2.2. Farmer centred extension strategies adopted by UMADEP

A farmer-centred extension service may best be described as “A multi-directional communication process between and among extension staff and farmers, involving the sharing, sourcing and development of knowledge and skills in order to meet farming needs and develop innovative capacity among all actors, in which farmers have a controlling interest; are ‘centre-stage’ are the protagonists and play a key role in technology development and delivery; and involving farmers in training other farmers and trainers, and in sharing, sourcing and transferring knowledge and skills” (Scarborough *et al*, 1997:4).

In order to enhance a farmer-centred extension service, UMADEP operates using a combination of strategies such as Participatory Rural Appraisal (PRA), Participatory Technology Development (PTP), farmer groups and farmer to farmer extension approaches which are described below:

2.2.1 Participatory Rural Appraisal (PRA)

Unlike the public extension service which espouses the one way transfer of technology, UMADEP approaches rural development interventions from a different perspective. As a matter of principle, PRA is conducted in various villages in the project area, for the purposes of:

- Introducing ourselves to the communities
- Establishing rapport with the community
- Mutual learning about the situation in the villages, in terms of problems, potentials, resources, needs and interests of the farmers
- Establishing a framework or plan for development actions
- Seeking commitment from the communities, and
- Identifying starter activities and who might participate in such activities (Mattee, 1998:74).

PRA in general allows professionals, students and farmers themselves to understand the reality of the farmers’ conditions, problems and the like, from the technological perspective, the socio-cultural and political milieu of the farmers and their farm families.

As a result of PRA, various activities have been identified in the project area, for implementation by different groups of farmers, in collaboration with

UMADEP and government extension staff. Such activities include savings and credit, input distribution, dairy goats, production of fruit tree seedlings, furrow irrigation, fish farming, sugar cane production and processing of brown sugar, fruit processing, tree planting, bee keeping etc. Currently, there are 35 farmer groups altogether involved in various activities in the two Divisions.

2.2.2 Participatory technology development

In order to involve farmers in the development of appropriate solutions to their problems, it was deemed necessary to establish a trial demonstration plot in each of the Divisions. The plot reflects farmers' fields. The plot is used as a forum where farmers and professionals meet and discuss the required technical changes. Several innovations such as tomatoes, local varieties of vegetables, new exotic varieties of fruits and vegetables are tried on the plot.

The major purpose of these plots is to learn about new possibilities and to assess their appropriateness for the area. This learning is for all parties concerned including professionals (researchers from SUA), the field extension staff and the farmers. Thus the demonstration plot is used as a classroom or natural laboratory where farmers can learn new ideas and practices, can observe the results and can discuss the merits and demerits of any new idea or practice. The plot also acts to focus community attention on the fact that the local farming system can be and should be improved.

Various technical innovations have been adopted by farmers in the project area, by learning from what was introduced on the demonstration plot. For example, it is estimated that as of last season, a total of 1800 farmers were growing tomatoes as a new crop in the area. In addition, 1200 farmers have taken up green beans as a new crop, 1250 have adopted new improved (peach and apple) fruit tree varieties, and more than 30 farmers have taken carnation flower production as a new cash crop. Several other innovations such as planting pine apples in contour lines, fruit tree pruning techniques, grafting and budding of fruit trees, and others have also been adopted to varying extents by those who have participated in extension activities at the demonstration plots or have observed those who have already adopted.

2.2.3 Farmers' groups

Generally, it is now recognised that farmers' groups can be instrumental actors in most rural development ventures. Through groups, it is believed that farmers can increase their political and economic power to influence policy

decisions, and to propose plausible solutions to their problems. In addition, farmers' groups are seen as multipliers of innovations as they facilitate the diffusion process and allow more farmers to be reached.

In agricultural extension, farmers' groups are being increasingly recognised as potential intermediaries between extension agencies, and the farmers. For example the National Agricultural Extension Project (NAEP II) having realised the weaknesses of the contact farmer approach has opted for contact farmers' group approach.

UMADEP thus encourages the formation of groups, whereby for each group, members can pursue their own interests, there can be group learning, decision-making and action, and mutual encouragement in adopting various innovations. Farmers' groups plan their own projects that are discussed in the network meetings. The overall aim is discussed in the context of the complementarity of the project activities with projects implemented by other groups. Besides, the group also submits its budget comprising their needs, own resources and request for financial assistance. Before a project is considered, the group has to fund 25% of the budget from its own resources. As mentioned earlier, the project is currently working with 35 farmers' groups. Experience in working with these groups in the project area, shows that, in order for such groups to be instrumental in the technology generation and dissemination process, three basic factors must be recognised:

- Diversity of farmers' groups – to take into account the diversity of interest on the rural community,
- Linkages between different farmers' groups – to take into account the global interest in the rural areas,
- Recognition of the independence of each group in running and managing its affairs without uncalled for interference.

2.2.4 Farmer to farmer extension

The function of the UMADEP in the rural areas is not so much to transfer knowledge, technology, practices or information (as espoused by past and existing public extension approaches), but rather to facilitate the identification, retrieval and integration of various elements so that new, locally embedded and sustainable practices may emerge. This implies mobilizing a variety of social actors as sources of relevant knowledge, experiences and information, and helping them focus upon specific problems in particular situations.

One of the major sources of relevant knowledge, experiences and information are the farmers themselves. Thus an important part of the UMADEP strategy is to facilitate the sharing and exchanging of such knowledge, experiences and information, in various ways such as:

- **Farmers' exchanges:** Farmers' exchange is whereby a group of farmers from one location visits a group of farmers in another location, after which the host group also pays a return visit to the guest group. The major difference between farmers' exchange visits and study tours, is that during such visits, the farmers being visited act as hosts, by inviting to their homes the guests, with each family hosting a guest farmer for the duration of the visit. This allows an indepth exchange of experiences, a critical examination of the situation found in the host community and building up of strong bonds of friendship and solidarity.

In addition to staying in other farmers' houses, joint farm visits, general meetings, social events and individual discussions on the theme of the visit are conducted in order to steep the hosts in the experiences of the local people. After the visit the group reports back to their villagemates, on what they have observed, and together decide on what could be tried.

Such exchanges have been done between farmers from the Uluguru Mountains and farmers in other Regions (e.g. Iringa, Tanga, Arusha, Kilimanjaro, Mara etc), but also between various groups in Mkuyuni and Mgeta. Usually such visits have been organised by farmers themselves, depending on the interest of the group which is undertaking the visit. Such exchanges have been made, with respect to dairy goat keeping, soil conservation, fruit processing, savings and credit, as well as fruit tree nurseries. In each case, farmers were able to see for themselves what other farmers were doing and to examine the context in which this was happening and to see similarities and differences between them.

Farmer-to-farmer extension, in which farmers are the primary extension agents, is probably the most common form of farmer centred or farmer-led extension service. It involves farmers undertaking extension activities, with or without the support of extension staff.

The major role of the extension staff in such an exchange is to facilitate, to make logistic arrangements and to co-ordinate the programme. The actual exchanges between the group, are left to the visitors and their hosts. In order to sustain such activities cost sharing is essential. That is, farmers have to pay directly for some of the services they receive (e.g. bus fares,

purchase of relevant reading materials, meeting costs of drugs for their livestock etc).

- **Local and National Networks:** Both local and national networks have been established. In order to further the sharing of experiences amongst farmers, and to increase their collective capacities, farmers' groups have formed networks. Besides, various local networks have federated themselves into the Network of Farmers' Groups in Tanzania or *Mtandao wa Vikundi vya Wakulima Tanzania* (MVIWATA) in Kiswahili. Detailed description of these networks can be found in the project documents and existing literature (Mattee, 1998:78).

Observations made over the years reveal that farmers' groups and their networks have proved to be effective in:

- Facilitating communication among researchers, extension staff and farmers
- Facilitating communication amongst farmers themselves, including within communities, as well as between communities. A process of sharing knowledge and experiences is thus created.
- Facilitating the creation of dynamism and momentum for action on those programmes which have been agreed upon by group consensus. As such this has resulted in concrete actions being taken by farmers.

3. CONCLUSIONS

The basic processes which farmers go through during participatory rural appraisal, participatory technology development, working groups and farmer-to-farmer extension are meant for empowering farmers. Having been empowered, farmers feel free to engage themselves in various project activities and are capable of solving their problems. Empowerment helps farmers to develop a sense of autonomy, ownership and independence and are able to view the success or failure of a given project activity as their responsibility rather than the responsibility of experts or outsiders. This is seen as the cornerstone for a farmer-centred extension service.

The project believes that small farm development is extremely complex and involves a great deal more than just technical issues, and that there is no single discipline or methodological approach that can adequately address the range of biological, cultural and political-economic processes that surround small farm development. With the active involvement of all stakeholders

(scientists from different disciplines, extension officers, students and farmers), it was possible to get a true and holistic picture of the farmer circumstance and to come up with realistic technologies.

Experiences from the project reveal the following conditions of multi-disciplinarity (Mattee, 1994:113).

- Clear definition of roles for each member of the team
- Mutual recognition, respect and appreciation of each members' role as being complementary to the whole process of technology development, dissemination and utilisation.
- Different professionals in the team must be able to communicate with each other in a two-way flow of information so that the message being transmitted is not distorted or misunderstood.

In short, experience in the use of these approaches shows that farmers in collaboration with change agents have developed activities which address situation specific problems, generated appropriate technological innovations that are sustainable and take into account the socio-cultural, economic and resource base of the village led to the formation of farmer groups to facilitate learning, decision-making, and adoption of agreed innovations. In each case issues of access, independence, sustainability, participation and effectiveness were given due consideration, of course, these were taken care of by the project design.

Experience from UMADEP shows that farmer to farmer extension activities can be very effective in not only stimulating farmers and their families to adopt innovations but more importantly in creating dynamism among farmers in trying new ideas, new practices and new approaches. Through PRA, PTD, farmer exchange programme and other community based participatory activities, farmers assume a lot of responsibility in seeking information and solutions to their problems. In addition, they become responsible for success and failure and are continuously motivated to look out for new opportunities which they can try out in their own situations. With participatory approaches, the role of extension staff is limited to facilitation.

From the text, it is clear that interactions among researchers, students, farmers and extension agents and shifts from conventional to participatory technology development are essential if one is to address small farmers' issues. In addition, it is possible with this approach to enhance (on a sustainable basis) the process of technology utilisation by the farmers, as they know for sure what their contributions are. Introduction of partial cost recovery from clients

is seen as an important part of the mechanism by which extension becomes more farmer-centred. That is, if farmers are paying directly for the service they receive they have a measure of control over those providing it. In other words, this assists in addressing issues of ownership, accountability and sustainability.

Experience gained from Mgeta and elsewhere, shows that there is no standard approach or methodology for successful implementation of a given project. That is, each community is unique and each must develop its own best way of defining and meeting its problems.

Lastly, but not least, the Department of Agricultural Education and Extension, under which UMADEP is housed needs more than ever before, to collaborate with the government agricultural extension service. Their active participation in policy formulation and implementation of programmes will give them an opportunity to identify real problems felt by farmers, observe closely the application of new technologies in the field and understand the real needs of the farmers.

REFERENCES

FREIRE, P., 1970. *Pedagogy of the oppressed*. The Free Press – N.Y.

KAUZENI, A.S., 1989. *Effective extension service: The Tanzanian experience*. Swala Publishers Dar es Salaam.

KEREGERO, K.J.B., 1991. Foundations of extension practice in Tanzania. *Journal of Continuing Education and Extension*, 1(1):1-15.

KI-ZERBO, J., 1992. Le developement des en tele. In Ki-zerbo (ed). *La natte des autres, pour un developement endogene en Afrique CODESRIA*, Dakar 1 – 21.

LASSALLE, T. & MATTEE, A.Z., 1995. Towards sustainable rural development using the participatory approach: The case of Mgeta farmers in Morogoro Rural District, Tanzania. In: Forster, P.G. and S. Maghimbi (eds) *Tanzanian Peasantry: Further Studies*, Averbury/Ashgate, Hull, 170-197.

MAEDA, E.E. & MPHURU, A.N., 1989. *Sokoine University of Agriculture: Twenty years of the Faculty of Agriculture*. SUA, Morogoro, Tanzania.

MATTEE, A.Z., 1994. *Sustainable agriculture: Its implications for training, research and extension at Sokoine University of Agriculture*. Proceedings of the Sokoine

University of Agriculture Convocation 1st Workshop on Sustainable Agriculture and Conservation of the Environment, SUA, Morogoro, 102 – 115.

MATTEE, A.Z., 1998. Farmer to farmer extension in natural resource management: An example from UMADEP, Morogoro. In: Isinika, A.C., I.H. Kawa, S.M. Neke and R.M. Wambura (eds.). *Proceedings of the workshop on extension services delivery systems: Experiences and lessons from Morogoro region, Tanzania*. Sokoine University of Agriculture. Pp 73 – 81.

MINISTRY OF AGRICULTURE AND CO-OPERATIVES, 1997. *Agriculture and livestock development policy*. Government Printer, Dar es Salaam.

MINISTRY OF AGRICULTURAL AND CO-OPERATIVES, 1999. *Mid-Term review for the national agricultural extension project Phase II*. Dar es Salaam

MORIS, J.R., 1991. *Extension alternatives in tropical Africa*. Overseas Development Institute, London.

NYERERE, J.K., 1984. *The Inauguration Speech for Sokoine University of Agriculture*. Morogoro September 26, 1984 (Mimeo).

ROGERS, A., 1996. Participatory training: Using critical reflection on experience in agricultural extension training. In: *Training for Agriculture and Rural Development 1995–96*. FAO – Rome.

RUTATORA D.F., 1998. *Experiences of the Sokoine University of Agriculture on Extension: The case of the Department of Agricultural Education and Extension*. Proceedings of the Workshop for Extension Officers in Morogoro Region, Sokoine University of Agriculture, Morogoro, Tanzania, August 14 – 15, 1997, 118 – 133.

RUTATORA, D.F. & RUTACHOKOZIBWA, V., 1995. An overview of the dissemination and utilisation of agricultural technical information in Tanzania. In: Foster, P.G and Maghimbi, S. (eds) *Tanzania Peasantry: Further Studies*. Avebury-Ashgate, Hull, 145–169.

RUTATORA, D.F. AND WAMBURA, R.M. (forthcoming). Improving the relevance and effectiveness of agricultural extension education in Tanzania: A case of Farmer Field Schools (FFSs) as one of the alternative extension approaches. *Tanzania Journal of Development Studies*.

SCARBOROUGH V., KILLOUGH, S., JOHNSON, D.A. & FARRINGTON, J., 1997. *Farmer led extension*. Intermediate Technology Publications London.

WORLD BANK AND MINISTRY OF AGRICULTURE AND CO-OPERATIVES, 2000. *Agriculture: Performance and strategies for sustainable growth (Draft Report)*. Dar es Salaam, Tanzania.