Centre Technique de Coopération Agricole et Rurale ACP-CEE
Technical Centre for Agricultural and Rural Cooperation ACP-EEC
CTA

Agricultural Extension in Africa

Proceedings of an international workshop

Yaoundé, Cameroon

Wageningen Agricultural University
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Pays-Bas

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January 1994

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INTRODUCTION

The current trends in global agricultural development are driven by economic liberalization and privatization policies, as well as growing ecological concerns. They are also the result of the participation of "new" actors such as farmers' organizations and NGOs. Consequently, institutional support to sustainable agricultural development may be considered to be in a state of flux.

Old and new institutions alike need to review their scope and policies, build new partnerships and design new strategies. In order to avoid "reinventing the wheel", such strategies will need to be based on evaluations of earlier experiences and will have to rely upon available local and national resources in order to be sustainable.

In light of these changes, extension must review its role as a support tool for farmers in sustainable agriculture as well. Over the past two decades, many efforts have been directed towards improving the performance and impact of extension in agricultural and rural development. Many African countries have had considerable experience with the Training and Visit system (T&V) supported by the World Bank, and with adapted versions of this system.

Over the last few years, the T&V system has been assessed critically (see for example Schwarz and Kampen, 1992, World Bank Technical Paper no. 164). A unified extension system apparently cannot respond adequately to widely varying agro-ecological conditions, complex industrial and environmental requirements and economic and socio-cultural differentiation among rural populations. Consequently, other alternative and promising extension approaches are being developed by governmental as well as non-governmental organizations.

At a regional seminar held in Libreville in 1991, during which the agricultural information needs of Central African countries were discussed, and at a meeting of the *Comité Régional d'Evaluation et de Suivi des Activités d'Information Agricole* in Bujumbura, Burundi 1993, the recommendation was made to organize an international workshop to discuss the experiences required in agricultural extension and the challenges faced in the current economic climate.

As a direct response to this request, CTA organized an international workshop in Yaoundé, Cameroon, from 24-28 January 1994, in collaboration with ECCAS (Economic Community of Central African States), the Ministry of Agriculture, Cameroon and the Department of Communication and Innovation Studies of The Wageningen Agricultural University in the Netherlands.

This workshop on agricultural extension aimed at enhancing the exchange of experiences with respect to mainstream and new alternative extension approaches using different means, including visualization and discussion, and analysis by officials who are directly involved. New solutions were sought for improving the management, performance and impact of agricultural extension services.

During the workshop, one of the participants, Dr Tchala Abina from Cameroon, said "*Cameroon appears to be a laboratory with respect to extension approaches. The existence of different, sometimes even conflicting approaches reveals the current extension problems in our country. Efforts to combine the different approaches reflect an eclectic attitude and is to be appreciated, because there is not one single beneficial extension approach available*".

His conclusion was subscribed to by many other participants and emphasized the value of the workshop. A joint learning process on how to improve agricultural extension will start by evaluating national experiences with extension in the light of current problems and demands, and sharing these experiences amongst relevant specialists.

OBJECTIVES OF THE WORKSHOP

The objectives of the workshop were:

- To exchange experiences on mainstream and alternative extension approaches.
- To become familiar with current scientific thinking and available research on agricultural extension issues examined by guest speakers. Some of these issues were presented in plenary and others in small working groups.
- To examine ways of building up and strengthening relations between the agricultural extension service and other actors like research, farmers' organizations, education, input suppliers etc.
- To make an action plan for the establishment of a structure to facilitate the exchange of information on extension experiences.

MAIN ELEMENTS OF THE WORKSHOP PROGRAMME

The programme included presentations by invited speakers on several aspects of current agricultural extension systems in Africa. All subjects were discussed within the context of economic liberalization and the participation of "new" actors in agricultural development in Africa. Poster sessions illustrated experiences from countries represented at the workshop. The posters were based on prepared in-country surveys.

Field visits to two locations, where two different extension approaches are being applied (Training and Visit, and *auto-promotion des groupements*) were followed by working group discussions on: the role of agricultural research and training in extension; networking; financing extension services; the role of farmers in agricultural extension and research; monitoring and evaluation and the role of women in agricultural extension and research.

IN-COUNTRY FIELD STUDIES AS PART OF THE INDIVIDUAL PREPARATION FOR THE WORKSHOP

In order to identify and compile the different experiences with mainstream and alternative extension approaches to be discussed during the workshop, each participating African country was asked to draft an in-country survey as a part of their preparation. The role of extension services and that of other relevant actors in agricultural development have been described and analyzed in these surveys, so as to permit a qualitative comparison.

Guidelines based on an AKIS perspective were used for the preparation of these in-country surveys. Emphasis was placed on how the different actors operate in actual development practices, not how they should work. The surveys proved to be an excellent framework for discussions during the conference. Reports of the country surveys and a description of the AKIS systems are published in Volume 2 of these proceedings.

WORKSHOP PARTICIPANTS

A broad spectrum of actors was invited in order to bring different perspectives on sustainable agricultural development into the discussion. Approximately 80 participants from 16 African countries and six European countries, and a number of international and regional governmental and non-governmental organizations debated the changing role of extension.

About 50 national representatives from Sub-Saharan African countries participated; 45 were from Central Africa, 24 of whom were from national extension services, nine from research institutes, five from training institutes and seven from farmers' organizations. Seven representatives from extension services in other Sub-Saharan African countries were also present. A complete list of workshop participants and their addresses appears at the end of this book.

KEYNOTE PAPERS

THE CHANGING ROLE OF AGRICULTURAL EXTENSION

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Abstract: The paper provides an overview of recent thinking about the role of agricultural extension. Such "thinking" is important because it determines investment in extension, the design of extension institutions and their links with other institutions, the training and deployment of staff, and the expectations regarding the effectiveness of extension as a policy instrument. Using concrete experiences, the paper identifies major contradictions between what happens on the ground and conventional wisdom about extension. The paper then presents four approaches that illustrate the new role of extension: village groups for participatory technology development, local organizations for improving socio-economic positions, platforms for sustainable natural resource management and agricultural technology systems for technology innovation. These approaches are captured by a novel and coherent perspective on agricultural innovation and knowledge management: the ***Agricultural Knowledge and Information System (AKIS).*** *AKIS emphasizes the creation of articulated networks of actors who can be expected to work synergistically to support innovation in a given domain of human activity. A participatory methodology for the* ***Rapid Appraisal of Agricultural Knowledge Systems (RAAKS)*** *has been developed on the basis of AKIS. AKIS is the framework for the issues raised in this volume and RAAKS is the methodology that has been used for the case studies presented.*

FORMATIVE EXPERIENCES

I got my first job by simply raising my hand after the professor had asked the class who wanted to go to Nigeria to work as a rural sociologist. I was to spend four years there, first studying Yoruba farmers struggling with the need to rehabilitate their cocoa plantations, and later working for Everett Rogers' USAID Diffusion of Innovations research project in what was then called Eastern Nigeria.

After getting my PhD, I spent two years in Kenya with the government's Special Rural Development Programme. Our team was involved in promoting the diffusion of hybrid maize among smallholder farmers in Nyeri District in Central Province. I have been involved in Benin of late, supervising the experiences of others. I would like to begin my presentation by relating some of my formative experiences while working in these countries.

WHAT RURAL PEOPLE'S KNOWLEDGE CAN DO

Let me begin with the Adja Plateau in Benin (Brouwers 1993). In recent years, the Adja have actively adapted their farming system to the changed circumstances brought about by rapidly deteriorating soil fertility and rising expectations.

Given the nearly total absence of government activities to develop agriculture in the area in the past, with the exception of the promotion of cotton production to generate export earnings, Adja farmers have done a remarkable job in developing an "oil palm fallow", an agroforestry system that uses the multipurpose oil palm to restore what the Adja call "comatose soils". The Adja can support a much higher population density than with traditional agriculture With this new system.

Young oil palm seedlings are planted in the fields with food crops. Palms are regularly pruned during some eight years of mixed cropping with annuals, producing leaves and stalks for burning, thatches, feeding goats, etc. Afterwards, the field is left to the densely planted palm trees and becomes a *palmerai* for a number of years. Meanwhile, the fruits are gathered for palm oil, and leaves are collected for fuel, animal fodder, etc.

Lastly, the palms are cut down and tapped for palm wine which is distilled into *Sodabi*, a well-known and lucrative local spirit. (Mr Sodabi fought in the French army during World War I and learned distilling from his French colleagues). After cutting down the trees, the debris is left in the field and crops are planted among them. Then the cycle starts again.

The adaptation of farming practices by the Adja is based on what they call *adokpo*. This word can be translated by "trying that which you have never tried before". Practising *adokpo* is quite normal among Adja farmers, though with varying intensity. All in all, my first formative experience leads me to conclude that African farmers are perfectly capable of adapting complex farming systems to changing situations through experimentation, without any support from the government.

Spontaneous diffusion and the interface between farmers and government

The second formative experience was my discovery, as a young man from Holland, that the very large export of cocoa from Nigeria was not only based entirely on the production of local farmers, but especially that cocoa had spread through Western Nigeria from the start of the century entirely autonomously without the assistance of a single extension worker. However, the original trees of the Amelonado variety, which had been planted under a thick forest canopy, had begun to grow old. Swollen shoot disease had struck and brown pod was becoming a serious problem.

When I arrived, I witnessed the government's first efforts to get involved in cocoa rehabilitation through planting Amazon cocoa in the absence of forest cover, involving subsidies, spraying against blackpod, etc. My overwhelming impression was one of a mismatch between eager and proud farmers trying to maintain their money-making crop and a government machinery trying to sustain a lucrative source of funds for the newly independent political leadership. I began to understand the basic contradictions between governments and farmers and the complexities of making both benefit from "interfacing".

The power of local organization

In what was then Eastern Nigeria, I became aware of the tremendous power of local organizations. I used to spend my weekends in a village, Umuabi, where I studied everyday life. The men had their secret society, and the women had their own society, which had a male secretary because no woman could write. The secretary was not allowed to open his mouth. Then there was the Village Progressive Union, which imposed taxes for building schools and other amenities. Most money was collected by the "Sons Abroad", the village people with jobs in distant towns. People who did not pay their village taxes were ostracized.

One particular event impressed me for life. The village had an honourary chief, a retired mining official who had used his knowledge of the world to help many villagers. He was the representative of the village in the county council. However, he misused this position and tried to steal a government scholarship for his own daughter.

The village discovered this and immediately called the chief to order. It organized a public competitive examination to determine who would get the scholarship. The chief's daughter came in second. The daughter of a poor widow came first. She got the scholarship. When I asked why the chief was still an honoured man, I was told that everybody in his position would have tried the same thing, except that he did not get away with it. For me, this was a lesson about power and countervailing power, checks and balances and the capacity of local organization to create a decent democratic society. For me, local organization is a key resource for development.

The innovativeness of smallholder farmers

I then went to Kenya. We did very intensive quantitative research there on the adoption of various innovations promoted by extension as part of a development programme of agricultural change, especially among the so called "laggards", the smallholder farmers who are supposed to be backward. We learned several lessons. The first was that, given a good programme, smallholder African farmers can be incredibly fast and innovative. In a mere two years, between 1971 and 1973, the number of hybrid maize adopters in Nyeri District increased from 30% to 75% (Ascroft *et al.* 1973, Röling 1988).

Zero grazing was diffusing rapidly against the wishes of government, which was afraid of overproducing milk. The Kenya Tea Development Authority had created a programme that was taken up by a very large number of smallholder farmers to benefit from tea production, to such an extent that the bulk of Kenya's export tea was no longer produced on the plantations of Liebig and Brook Bond but by smallholder farmers. Women played a key role in all this. I understand that now that farm sizes have decreased because of population pressure, and men in the area have moved to towns in search of work, leaving all farming to the women.

Good farmers generate good extension

I consider one part of our research in Kenya particularly revealing. We had studied innovation by sub-location and could, therefore, determine the level of the average "innovativeness" of farmers in each sub-location. The sub-location was also the area of work of a Village Level Extension Worker. We therefore tried to find out whether the quality of the extension worker was related to the level of innovativeness of his sub-location. We determined the quality of the extension worker by interviewing him, weighing his education, asking several of his superiors to rate him, etc.

Lo and behold, we discovered that the level of innovativeness in a sub-location was clearly related to the quality of the extension worker! We then found out something very interesting: extension workers were transferred about every two years, while sub-location innovativeness was a much more durable phenomenon. This could only mean one thing: good extension workers were appointed to good sub-locations! We checked with the managers: sure enough that is exactly what happened. Farmers in "good" sub-locations would complain and create a fuss if they got a bad extension worker, so they got good ones. It was a tremendous lesson. Good extension did not generate good farmers: good farmers generated good extension!

I have since then firmly believed that the best way to increase the effectiveness of extension services is not only to give them more cars, training and so on, but especially to increase the countervailing power of farmers to influence them. This is not a popular idea, nor is it easy, but I am still convinced that I am right.

In Nigeria, we used to have "Village Organizers" of the Ministry of Rural Development who mobilized and organized farmers for rural development purposes. Of course, this led to farmers making greater demands on the Ministry of Agriculture. I can tell you that the Ministry of Rural Development did not survive very long.

The mixture of conditions for agricultural development

The success of hybrid maize in Nyeri was not only a question of good extension, but especially of a mixture of conditions that I have come to respect greatly. Firstly, hybrid seeds of the right type and packaged in appropriate small bags were available everywhere. Secondly, fertilizers could be bought all over in KFA stores. Thirdly, prices were such that, on half a hectare, the use of hybrid maize would give enough extra yield to pay for the inputs and leave something extra for the farmer. Of course, it depended on the weather a great deal.

Given bad rains, the number of extra bags might not be enough to repay the input loans that we had provided. We worked with smallholder farmers who often could not grow more than half a hectare of maize. During our work there, we saw fertilizer prices rise and maize prices drop to a point where the smallest-scale farmers could no longer afford to grow hybrid maize. As the years went by, the lower limit of the farm size at which one could grow the crop went up increasingly. Meanwhile, the average farm size decreased from 2 ha in 1970 to 1 ha in 1985 because of population pressure.

The lesson I learned is that the key to agricultural change is not just extension, but the mixture of conditions that one can expect at the farm level. Moreover, with our focus on hybrid maize and other high external input crops, we were clearly barking up the wrong tree because we did not provide realistic options for the increasing mass of smallholder farmers.

The actual "mixture" of conditions that needs to be anticipated differs according to the situation and one's power to change conditions. If one only controls communication through deploying extension workers or village mobilizers, one must limit oneself to technologies and strategies for change that can work under the prevailing conditions. If one feels one can manipulate those conditions, or work with agencies that can, one might design technologies or strategies that include irrigation, marketing channels, input distribution, the availability of credit or effective farmer organizations. It is my experience that invariably technologies are introduced that assume conditions that farmers cannot create on their farms, or that only farmers with large operations can create.

Traders in extension?

The final experience has to do with the trading instinct. My overwhelming impression as a development tourist in Africa is that people love to trade. Little Nigerian girls start with one cigarette and expand their trade, until, by the time they are fifty, they command a whole fleet of lorries.

In Benin, a colleague carried out very interesting research (Von der Lühe 1991), which shows how the trading instinct can work in agricultural development. Extension workers were in charge of distributing fertilizers for cotton, while farmers wanted to use it on their food crops. Meanwhile, extension workers had to create village experiment plots to work with farmers on new ideas.

It was very difficult to get the demonstration plots going since the farmers were not interested in anything the extension workers had to offer. This proved a real problem for the extension workers because their

superiors came to inspect the plots. You can imagine what happened: a deal was struck. If extension workers delivered fertilizer for food crops, farmers would make nice demonstration plots which were proudly shown to supervisors. Everybody was happy. Of course, this trade was not very efficient from a development point of view and only occurred as a result of artificial barriers.

This also reminds me of the Kenyan Junior Animal Health Assistant who had a very novel extension approach. An old man came to him with a sick cow. Medicines were duly prescribed but the old man did not want to buy them. He went away and applied herbal remedies instead. After some time, the JAHA visited the old man and saw that the cow was clearly dying. He offered to buy the cow. The old man was happy to get something for it because he could also see it was going nowhere. So the deal was struck. Back home, the JAHA applied his medicines and the cow recovered quickly. When the old man heard of this, he complained bitterly that the JAHA had cheated him. But the JAHA laughed and so did everybody else. The JAHA had thus made his point.

Ever since having had these experiences, I have been wondering how to use the basic trading instinct of farmers and extension workers for sustainable agricultural development. Can this idea be applied to privatizing extension and making it more widely accessible?

FOUR APPROACHES THAT EMPHASIZE THE CHANGING ROLE OF AGRICULTURAL EXTENSION

These formative experiences are directly relevant for our understanding of the changing role of extension in agricultural development. In the present section, I would like to discuss the implications of my formative experiences for the way we think about extension. In doing so, I will try to take into account the lessons learned from the case studies and papers written for this seminar. I will describe four approaches which are, I believe, central to the changing role of agricultural extension (see also Moris 1991):

- Village groups for participatory technology development.
- Local organizations for improving socio-economic positions.
- Platforms for sustainable natural resource management.
- Agricultural technology systems for technological innovation.

Later on, I will try to combine these approaches into a framework so that they do not remain isolated points. I will end my presentation by focusing on a number of extension issues for the seminar to consider.

Village groups for participatory technology development

Many experts agree that we have gone the easy way. We have deployed centralized agricultural research capacity and technology delivery mechanisms to develop blanket recommendations for individual crops and uniform technology packages to cover large "recommendation domains", i.e., areas that we assume to be sufficiently homogeneous to warrant such an approach. We are increasingly faced with the realization that this approach does not take into consideration the complexity and diversity of local farming systems that have been developed to provide livelihoods in the highly variable conditions which characterize most rainfed agriculture in Africa (Chambers 1991). We have neglected minor crops.

We have ignored intercropping as a basic farming practice. We have focused on productivity instead of household food security over time. We have disregarded the fact that farmers do not manage individual crops but complex livelihood systems. We have focused on men and neglected the (increasingly) major role women play in food production in Africa.

In addition, the increasing inability of smallholder farmers to access the inputs necessary to benefit from highly responsive varieties, such as hybrid maize, has led to a greater realization that the use of inputs warrants major attention in looking for solutions. The easy optimism that Low External Input Agriculture would be a feasible alternative is currently tempered by the realization that location-specific solutions require deploying differing mixes of external and local resources for soil fertility management and largely use natural processes for the prevention of pests and diseases, including science-based solutions such as resistant varieties and products of biotechnology.

Though scientific research is, therefore, seen to play a major role, strategies dealing with the diversity, complexity and variability of African rainfed agriculture have, from the start, incorporated **reliance on farmers' own knowledge and on their innovative capacity as experimenters and researchers** (Chambers and Jiggins 1987). These developments in our perception of the problems that need to be tackled have given rise to questioning the prevailing linear institutional frameworks for research and extension. Can centralized research institutes and T&V-type extension systems deal with local specificity, diversity and complexity? Can they sufficiently process the diverse information about local farming systems?

The answer that seems to emerge is that centralized systems appear to continue to be necessary for such purposes as fundamental research, but that, in addition, we need to develop **decentralized networks of trained agronomists and other generalists to work intensively with local groups of farmers in developing technologies for adapting complex local agroecosystems**. Gubbels (this volume) provides a successful example of this approach. In some countries, efforts are made to develop T&V farmer contact groups in this direction (Venkatesan, this volume). In its various guises, the approach is called **Participatory Technology Development** (PTD) and methodologies are being developed for it (e.g. Jiggins and De Zeeuw 1992).

In short, the first thing we see in looking at the changing role of agricultural extension is a decentralized knowledge system in which highly skilled generalists work with groups of local experimenters, much like the network of *adokpo* groups that Brouwers (1993) tried to develop among the Adja.

Local organizations for improving socio-economic positions

I spent five years in a project called "The Small Farmer and Development Cooperation". The objective of this project was to identify the ways in which the Dutch Directorate for Development Cooperation could effectively contribute to improving the lives of smallholder farmers in developing countries (Röling and de Zeeuw 1983, Röling 1988). We looked at the literature, made case studies of various projects in developing countries ourselves and consulted a wide range of key informants.

The main conclusion of this project was that the key ingredient for smallholder farmer development is the ***organization of smallholder farmers***, which develops joint understanding of problems, mobilizes local resources, assembles the mix of essentials for innovation, and creates a powerful voice for making claims for support and for exerting countervailing pressure on powers that seek to exploit and oppress them. Consequently, we found that an effective intervention should comprise ***five elements***: mobilization;

organization; training; tangible opportunities (e.g., marketing, credit, technical innovation, infra-structural development) and system management.

We speak of *system* management because an effective intervention requires ***all*** elements. Providing tangible opportunities alone, for example through an irrigation scheme, is usually not a sufficient condition for improving the lives of smallholder farmers, especially women. Without the other elements, mobilization, organization and training and irrigation development usually remain wasteful exercises (Uphoff 1992). The same holds true for virtually any other type of technical intervention.

The same applies for the other elements. It does not help much if one mobilizes and organizes farmers into small and active groups if there are no tangible opportunities to be seized. People soon get fed up with meeting if it serves no purpose. Similarly, farmer training schemes in the absence of tangible opportunities and lack of effective organization usually do not make much of a development impact.

We are thus talking of a "system". The problem is that government organizations usually only focus on creating tangible opportunities through technical interventions and on government organizations realizing some national objective, such as food security, improving the balance of trade, satisfying the most powerful voters (usually not smallholder farmers), etc. If one adds to this the bureaucratic structure of most GOs and their focus on control and hierarchy, one realizes that there are some major contradictions between the interests of GOs and smallholder farmers.

That is why, in most countries in the world, the job of mobilization, organization and training, and often provision of credit and marketing, are in the hands of NGOs whose mandate is explicitly to improve the lives of their clients. But NGOs with their small resource base and inability to access a wide variety of specialized expertise, are usually not very good at technical interventions.

Hence, a ***tripartite arrangement***, involving farmer groups and networks, GOs and NGOs, is usually required for effective smallholder farmer development. In other words, technological innovation, and the involvement of research, extension, and commercial agents, supports one element: creating tangible opportunities. The other elements are better seen as the contribution of NGOs. In my experience, government employees are not very effective as mobilizers and organizers. They can be good at technical expertise, or delivering technology and providing technical and farm management advisory services, but they are weak in **facilitating group processes**, be it for purposes of participatory technology development or for smallholder farmer organizations.

NGOs have thus far not been as effectively deployed in Africa as in Latin America and Asia. A considerable amount of money is available internationally for support to NGOs because there is general agreement among donors that local organization is a necessary condition for improving the situation of smallholder farmers. In countries such as India, successful partnerships have been established between GOs and NGOs, e.g. for the non-formal education of rural women.

Platforms for sustainable natural resource management

Development interventions can have different, often inconsistent, objectives (Conway 1985). For the hungry, the main objective is ***food production***. To ensure food at all times, such as in a year when drought strikes, the farmer accepts less efficient production during good years because he grows drought-resistant crops which are not responsive to optimal conditions. However, when one is concerned with producing more food on the same land, one focuses on ***productivity***, the efficiency of production. The same holds true if one wants to compete with other countries in the international market.

Equity becomes an important objective if one is interested in improving people's livelihood, for example because elections are approaching (increasingly important in Africa, given the general trend towards democratization). Finally, ***sustainability*** becomes a central objective when land use leads to the deterioration of the resource base and the continuity of human life is threatened.

Technological innovation is usually thought of as a prerequisite for increasing productivity. The need for taking into account equity and sustainability is also increasingly realized by politicians, development administrators, donor agencies and farmers themselves. In the present section, we will provide a perspective for taking into account sustainability. In a previous section, the focus was overwhelmingly on equity through the empowerment of smallholder farmers through mobilization, organization and training.

The extension workshops organized by the World Bank in Abidjan and Accra in 1993 (Venkatesan, this volume) made it clear that the important problems that are arising everywhere in Africa with respect to Sustainable Natural Resource Management (SNRM) are not easily tackled by extension as it exists today. SNRM requires focus on higher levels of system aggregation than the farm (e.g. a watershed, valley bottom, village territory or *terroir*), it requires longer time horizons than the growing season and focus on groups of stakeholders in natural resources (e.g. villages or groups of villages).

SNRM forces us to again take a systems perspective. However, this time it is a double systems perspective, combining both a hard and a soft system. In the first place, sustainability forces us to look at the ***agroecosystem***, which we consider to be a hard system: it operates according to natural laws; it can be modelled in computers; there are limits to its carrying capacity and it seeks homeostasis or equilibrium at levels of biomass productivity, which are determined by its biodiversity and the availability of minerals, energy, water, etc.

We are becoming increasingly aware of the importance of ***managing entire agroecosystems*** at different levels of aggregation, with a view to maintaining their productive capacity. In French, one calls this *gestion du terroir* if I am not mistaken.

In effect, the actors who have stakes in the agroecosystem, whether they be different categories of farmers, the Ministry of Forestry, nomads, tourists, or the electricity board, and who are ***interdependent***, in that the activities of one actor affect the outcomes of the other, need to come together for the integral management of the agroecosystem that is threatened. These actors need to form ***a platform*** for dealing with the agroecosystem in question (Röling 1994). A platform is a soft system made up of people who constitute a system if they share goals, develop a common understanding of the problems they experience, realize their interdependence and develop joint agency to do something about their problems. This requires negotiation, accommodation, conflict resolution, joint learning and consensus.

In the end, the difficult problems of SNRM therefore require soft solutions on platforms of stakeholders. Thus the third point one sees when one looks at the changing role of agricultural extension in Africa is the ***platform/agroecosystem combination for SNRM***. SNRM assumes the active facilitation of platforms.

Agricultural technology systems for innovation

Technology is often defined as "applied science". That is, technology is seen as the outcome of scientific research. In fact, there is a very strong tendency among people who have been educated in universities in the west to look at science as the source of all innovation. As a result, they think of extension as a tool

to transfer the products of scientific research to farmers. This makes it necessary to create a one-way speedway between agricultural research and extension.

Sometimes T&V has been understood as the following: first, research develops a technology, then it trains SMSs in this new technology, the SMSs train VLWs and the VLWs train contact farmers, who pass on the chunks of information to follower farmers. This is called the ***linear model*** or the Transfer of Technology model of agricultural innovation. One of the key changes in the role of agricultural extension in Africa is the realization that the linear model is a load of rubbish, and is only useful to convince international donors to provide support for agricultural research. Farmers are not passive receivers of the ideas of scientists: they are active researchers and experimenters themselves.

Much of what scientists develop is not relevant in farmers' conditions. This is not to say that scientific agricultural research has no role to play in agricultural innovation. On the contrary, it has a very important role to play. However, science is not the source of innovation. What is necessary is an active involvement of farmers to help researchers and extensionists determine what is useful and relevant, and to contribute their own knowledge and experimental capacity. Scientists are among those who contribute to a dynamic interaction between themselves, farmers, extension workers, traders and companies. Innovation emerges out of the interaction between these actors. Innovation is a creative response to a disaster or an opportunity, and usually both at the same time.

The way in which we approach the management of agricultural innovation, or the design of institutions to serve it, will obviously differ a lot. To replace the linear model, and especially the linear design of institutions involved in promoting agricultural innovation, the changing role of extension and applied research in Africa has led to the emergence, in many countries, of a new approach, which we label the **Agricultural Technology System** or **ATS** (Röling 1990).

The ATS differs in many important respects from the linear model. While the linear model assumes a sequence (i.e., first research generates, then extension transfers and finally farmers use technology, while no one is responsible for the whole process), the ATS looks at research, extension, farmers and other relevant actors as one ***whole*** that requires system management for optimal effect. Whereas the linear model assumes that farmers are passive receptors of innovations developed by scientific research, the ATS approach explicitly recognizes that farmers are active technology developers in their own right.

One therefore sees efforts throughout Africa to include farmers in technology development through Farming Systems Research and Extension (FSR/E) projects and On-Farm Research, (OFR). The linear model assumes that scientists can determine "beneficial innovations", so that a one-way street from research to farmer is all one needs. However, the realization of the enormity of the failure brought about by this arrogance has led the ATS approach to recognize the importance of information about farmer needs and conditions.

Efforts are now being made in many countries to involve farmers in planning research and extension programmes. I understand that in Mali, an experimental project is about to start that will give control over 30% of the budget for agricultural research to farmer organizations, as a device for making research more accountable to farmers.

Towards integration

Agricultural extension can be understood to mean "the work of government village-level extension workers and the institutions employing them". But it can also be taken to mean: "the communication

interventions required for agricultural development". I use the latter broader meaning, which should be clear by now. That means that I explicitly also include the potential contributions of NGOs and commercial agencies in my concept of extension, and that mass media, mobilization work, village theatre, etc. can play a role, in addition to the farm visit and demonstration.

The four approaches presented highlight the changing role of agricultural extension in its broader meaning. Table 1 presents the key features of the approaches we have discussed thus far. The table makes a number of important points clear. Firstly, each of the approaches comprises a soft system (the human actors involved) and a hard system (the natural resources, land, or the conditions required to satisfy human objectives).

Table 1. Four approaches that underpin the changing role of agricultural extension in Africa

"SOFT SYSTEM"	"HARD SYSTEM"
PTD Groups of local farmers facilitated by trained agronomists and other actors, resource linkage to ag. research, NGOs, etc.	The highly diverse, variable and risk-prone environments, and complex farming systems in rainfed areas.
EMPOWERMENT Tripartite arrangements involving small-scale organizations of local people, NGOs, GOs and others to mobilize, organize, train and provide opportunities for the rural poor.	The "mix" of essential conditions required for uplifting the socio-economic conditions of rural communities.
SNRM The groups of stakeholders in an agroecosystem, their facilitators, and the resource linkage to science and policy support.	Threatened agroecosystems at different levels of aggregation, which require integral management for their sustained use.
ATS Centralized networks of actors involved in agricultural innovation, including active farmer groups participating in priority setting and technology development.	Areas of recommendation.

Important interactions occur between the hard and soft components. Interdependence among the actors can become visible depending upon the nature of the hard system. Information about the hard system plays a key role in determining the activities of the actors.

Secondly, the soft system in each of the approaches can be seen to have two aspects that are crucial for extension: (1) the small group of local rural people, farmers or "clients", and (2) the networks of different actors, be they research, extension, client groups, NGOs or GOs or commercial agents. Extension plays a crucial role in both:

(1) The small ***groups of clients***, which are a key feature of each approach, require the ***facilitation*** of group processes. Such facilitation has never been considered the task of conventional technical extension, but in the changing role of extension, facilitation seems to be a key activity.

(2) The ***networks of actors*** require ***knowledge management*** to achieve a certain degree of synergy and enhanced performance. We will look at knowledge management in the following section. Suffice it here to say that the different actors in such a network, be it a facilitated platform for SNRM, the parties involved in tripartite arrangements for empowerment, or the actors in an ATS, usually have conflicting goals, different views of the problem, etc. An important new role for extension is to achieve harmonization between the various players.

These two new roles have something in common: they make demands on our capacity to facilitate processes in groups, be they actor networks, platforms, local organizations, or farmer groups, so as to allow the groups to carry out collective actions.

Such processes involve creating rich pictures of diverse views and interests of the actors involved, negotiation and accommodation to create shared objectives, common appreciation of problems and mutual interdependence, joint learning about local systems and contexts, brainstorming and finding solutions to develop alternatives, and shared monitoring systems to allow joint learning.

It is my firm conviction that extension, but not necessarily conventional government extension services, increasingly needs to focus on these tasks. It is the experience of this development tourist that African rural cultures are very sophisticated in exactly these communication tasks because interpersonal skills are a key resource for survival in economies of affection. The challenge is to mobilize this indigenous capacity for purposes of modern development.

KNOWLEDGE MANAGEMENT AND THE AKIS PERSPECTIVE

We have developed a new ***perspective*** to underpin knowledge management for such approaches to the changing role of agricultural extension as presented in Table 1. The new perspective guides decision-making about the design of, investment in, and staff development for, the institutional frameworks for innovation. We call this perspective the **Agricultural Knowledge and Information System or AKIS.**

Research carried out by the Department of Communication and Innovation Studies at the University of Wageningen (e.g. Röling 1992, Engel 1994) has shown that using the AKIS perspective can lead to important insights and practical improvement. An AKIS can be defined as the articulated network of actors (individuals or organizations) expected to work synergistically to support innovation in a given domain of human activity.

As previously mentioned, AKIS is a perspective that makes one look at things in a special way. In the first place, one sees the ***differentiated actors***, who can be farmers, traders, extension workers, researchers, specialists, farmers' organizations, processing factories, marketing organizations, and others, depending on the situation. The judgement about the actors that one needs to consider as part of the AKIS

is based on the assessment of the potential role of each actor in creating the "mix" of conditions for - sustainable innovation. The system boundary is not fixed.

Secondly, one considers whether these actors in actual fact make up an ***articulated whole in which the contributions of each adds to the contributions of the others***. That is what we call synergy. A system has emergent properties that cannot be explained from the constituent parts. Thus farmers alone can do something. Extension alone can do something, research alone can do something, as can NGOs, commercial companies, etc., but what we want is their synergy, their active differentiation, articulation, integration, linkage and coordination, so that it all adds up to innovation. That is why AKIS is a ***perspective***. It is like a diagnostic framework, a window, with which to compare an actual situation.

Thirdly, one will therefore see ***to what extent the actors in actual practice do not make up a system***. In fact, the actors who could make a contribution to innovation are usually engaged in bureaucratic battles, ignore each other, hate each other, misunderstand each other.

One sees that few linkages exist, that each is rewarded for doing something different, and that a shared conception is lacking. One sees researchers believing that they are the source of innovation and making no effort to anticipate farmers' needs, extension workers who are oriented towards their bosses instead of their clients and farmers who have no voice in determining the programmes that affect their lives. In short, ***the AKIS perspective reveals many "disorders" and pinpoints the need for intervention***.

AKIS makes things visible. It is a tool that focuses one on ***differentiation*** and ***integration*** between tasks, on ***linkages*** and ***communication*** amongst actors and on mechanisms for their ***coordination***. It is a tool that forces one to take a holistic approach and allows one to analyze the strengths and weaknesses of that whole system. All in all, AKIS is the basis for ***innovation management*** because as a shared perspective, it allows the actors involved to develop a joint ***mission*** to agree on ways of improving the workings of the entire system, or at least to agree on the causes for the system's malfunction.

These theoretical insights have led to the development of a participatory tool for applying the perspective to practical situations ***by the actors in the system themselves***. This tool is called the "Rapid Appraisal of Agricultural Knowledge Systems" or RAAKS.

SOME ISSUES FOR THE SEMINAR

In conclusion, I would like to raise a number of issues which seem crucial for the changing role of agricultural extension in Africa.

1. How can we set up effective knowledge systems comprising all actors capable of creating essential conditions for innovation at the farm level? It seems that such systems will need to be highly decentralized to take into account local diversity. By not limiting these conditions to communication, but including also other conditions, one creates a more realistic opportunity for bringing trading skills and privatization to bear on agricultural development.

2. How can we best combine the capacity of scientific research with local knowledge and capacity to experiment? Such PTD requires decentralizing the deployment of scientists instead of concentrating them in a few centralized institutions. The highly diverse nature of African agriculture seems to require a decentralized network of farmer learning groups, supported by applied scientists,

instead of a streamlined "science-practice continuum" to create a super highway for research to farmers.

3. How can we effectively mobilize the African capacity for self-organization for development? The difficulty in establishing effective NGOs in rural Africa seems incongruous, given the tradition and effectiveness of community organizations. It seems essential to develop ways to mobilize these local capacities more effectively.

4. Given the differential but complementary strengths and advantages of GOs and NGOs, how can we develop effective ways of combining government capacity to develop tangible opportunities and NGO capacity to mobilize, organize, train and manage local organization? That is, how can we create strength out of combining what each does best?

5. How do we build effective platform/ecosystem interfaces into efforts to build local organization? Can *amenagement du terroir* be effectively carried out by local development organizations?

6. How can we create effective capacity for facilitating group processes and knowledge management?

7. How can we use the rural African predilection for trade for constructive purposes in extension? A key advantage of trade is that it gives power to the buyer. So, if we can make farmers buyers, and extension sellers, this immediately leads to greater client orientation. The problem is to make sure that such arrangements do not lead to the monopolization of extension by a few rich farmers.

Furthermore, one needs to maintain some public control because there is merit in trying to achieve national goals, even if local farmers have other ideas. One approach is to give local farmer organizations control over part of the government budget for extension, making them partly responsible for paying salaries and operational funds. This could also greatly improve the cost-effectiveness of investment in extension and applied research.

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THE ROLE OF RESEARCH AND TRAINING IN AGRICULTURAL EXTENSION

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Abstract: *After following the development of research in Senegal since 1961, starting with simple topics and ending with production systems, we will now explore the evolution of extension systems, particularly the current situation, in which great emphasis is placed on the Training and Visit system. In our analysis of the relationship between "research" and "training-extension-farmer", we emphasize the necessity of considering the rural farmer the main partner. His knowledge and know-how should be applied in all relevant research and extension policies in order to establish a reliable agricultural knowledge and information system. Farmer organizations must also play a decisive role in the implementation of an effective rural development policy. The key to success still lies in the frequent meetings between researchers, extension agents and farmers who must analyze the problems, set research priorities, establish extension topics and evaluate their impact together.*

INTRODUCTION

Man has been primarily a hunter and gatherer for two million years, as long as he has been on earth. He only began to practice agriculture 10 000 years ago. In modern human societies, the percentage of the active population that lives from agriculture has declined progressively with the increase in the level of development. This percentage rarely exceeds 8% in highly industrialized countries, whereas it is over 60% in many developing countries.

The way in which agricultural research is currently organized and systematized is a relatively recent development: it is only about a century old (70 years old in francophone Africa). Progress has been made in the field of agriculture mainly over the past 50 years, with the distribution of inputs, seed selection and the dawn of motorization. High yields of around 100 quintals (100 kgs) are common in highly developed agriculture. However, the countries must then let their land lie fallow to prevent a fall in prices and the expensive accumulation of excess stock due to the ensuing overproduction.

Moreover, the potential for creating different varieties using plant biotechnologies is unprecedented, and plans are already underway to distribute transgenetic varieties. The equally unprecedented technological boom has occurred parallel to a deterioration in the physical and biological environment, which obliges us to reassess production systems and emphasize the importance of sustainable agriculture.

The technological gap between the farmer in Western Europe or North America who works on a computer, and the illiterate Sahelian farmer, is so wide that it is difficult to discuss the relationship between research, training and extension on a global basis. We will thus limit our reflections to countries of Sub-Saharan Africa, with an emphasis on the situation in Senegal.

In the analysis that follows, I use the term "agricultural research" rather than "agricultural research and training". This is due to my own personal experience in Senegal, where agricultural research is conducted in institutions that are distinctly separate from training institutions, although some researchers teach in both establishments. It is important to mention, however, that the ultimate objective of any scientific research is that it should be disseminated and used. This means that in order for research to fulfil its role as the motor of development, the researcher, who possesses this knowledge, must participate

directly in training extension agents and farmers. I have attempted to arrange the topics discussed in this paper cohesively. They are as follows:

- A brief review of developments in agricultural research in Senegal.
- A brief summary of the development of the agricultural extension system in Senegal.
- The *Programme National de Vulgarisation Agricole* (National Agricultural Extension Programme [PNVA]) in Senegal.
- The development of linkages between research and extension: The role of research in extension activities.
- The role of farmers in agricultural research and training: An increase in farmer participation.
- Strengthening links between farmers, researchers and extension agents: Constraints and possibilities.
- Comments and conclusions.

THE DEVELOPMENT OF AGRICULTURAL RESEARCH IN SENEGAL: A BRIEF REVIEW

The first seed of agricultural research in Senegal was sown in 1921, at the National Centre for Research in Agronomy in Bambey. At first it focused primarily on the groundnut, then, in 1935, it expanded to include food crops, followed by animal products. Research was first thematic: selected varieties, mineral and organic fertilization, growing techniques, growing and harvesting materials and animal health (vaccinations).

In the 1960s, researchers started to examine on-station farming systems (a combination of on-farm factors, taking into account equipment, labour and surface area). Experiments conducted on farms managed by research teams in several locations were first conducted on a thematic basis.

Starting in 1969, it was considered necessary to test production systems on-farm in agricultural research, in order to study all the socio-economic constraints linked to the development of production systems. This activity increased during the 1970s. Since then, we have witnessed the development of systemic research in all agro-ecological zones, with particular emphasis on the sustainability of agriculture within the framework of desertification control. Economic problems (production costs, and product marketing and processing) were particularly taken into consideration, due to the fact that subsidies ceased in 1981.

A BRIEF SUMMARY OF THE DEVELOPMENT OF THE AGRICULTURAL EXTENSION SYSTEM IN SENEGAL

Until 1964, agricultural extension with regard to technical topics was within the scope of the Departments of Agriculture, Livestock and Forestry. Requests for seeds, material, fertilizer and pesticides were made through farmer organizations (cooperatives, organized groups of farmers) with the assistance of

representatives from international cooperation agencies and the support of aid organizations working in rural areas (banks, agencies responsible for obtaining and distributing inputs).

The technical subjects dealt with in extension were simple: the appropriate sowing date, the use of selected varieties, regular weeding and hoeing, low doses of fertilizer, fungicides, harvesting, threshing, etc... The groundnut was given the most priority, since it is the main cash crop.

Regional rural development organizations and implementing agencies were established between 1965 and 1980 (specializing in a particular animal or plant product). These organizations employed over 10 000 agents. Major quantities of material and inputs were distributed annually, and at times have amounted to 100 000 T of fertilizer, 150 000 T of groundnut seed and 100 000 units of material for use in animal traction (especially bovine). Major topics, such as the use of large doses of fertilizer, are discussed thoroughly during the extension process.

The government began to reduce its participation in 1981, putting an end to input subsidies and greatly decreasing production credit (this marked the end of the agriculture programme). The staff training programme was thus reduced (cutting the size of some training organizations, and eliminating others completely). At the same time, the farmers' responsibilities increased, and they formed organized farmer groups. NGOs thus began to play an increasingly large role in extension.

THE NATIONAL AGRICULTURAL EXTENSION PROGRAMME (PNVA) IN SENEGAL

Based on experiences in Senegal until 1985 in agricultural research with regard to the research-extension linkage and extension, it appears that:

- The farmers' knowledge was used increasingly in research, and major innovations were developed regarding the creation of varieties (groundnut, cereals, cowpea), growing techniques for various species, local and introduced varieties of forest species that are adapted to different agro-ecological zones and animal pathology (development, production, and distribution of various vaccinations).

- Pre-extension efforts to disseminate this knowledge throughout the experimental network, together with development efforts, unfortunately did not have the time to produce the results anticipated, as the network was discontinued in 1985.

- Insufficient linkages between research and extension made it difficult to develop an adapted research programme based on diagnoses made with the farmers and extension agents. In addition, successive adverse climatic conditions and the effects of the economic crisis created further obstacles.

- There is a lack of coherent strategies for disseminating technological innovations, due to the fact that extension is now divided between several independent players (regional development organizations, NGOs), whose orientations reflect the considerations of different donors.

- Efforts and resources are scattered due to the different agricultural extension methods used and the absence of direction. The lack of sufficient resources and the failure to harmonize the long-term vision and the extension methodology adapted lead to scepticism in the field.

Extension reforms were made in 1987 for all of the foregoing reasons. This resulted in the implementation of a National Agricultural Extension Programme (PNVA), whose main objectives were:

- To encourage the generation of technologies adapted to the farmers' needs, and
- To harmonize extension approaches by encouraging the different partners to operate on the same conceptual basis.

The PNVA aims to:

- Harmonize long- and medium-term extension methods and approaches, in order to ensure more coherence and the utilization of the most efficient practices in the field through regular dialogues between the different participants in rural areas.
- Help ensure the continuous training of the different players in the extension process in order to improve their efficiency and to render extension more productive.
- Strengthen linkages between research and extension by improving the coordination between research institutions and organizations responsible for implementing activities in the field. This includes the design and management of research-development programmes, the training of extension agents, and the joint evaluation of these programmes by researchers and extension agents.
- Help organize a literacy campaign for instructors through the appropriate institutions.
- Ensure that women and young people are better integrated in these activities.

The PNVA is based on the Training and Visit system. It currently operates in the 10 administrative regions of Senegal with 530 agents, including 385 principal extension agents (PEA) and 41 specialized technicians (ST). The other 104 deal with supervision and coordination.

The PEA form the basic elements of the strategy. They work with contact groups of farmers (CG). Each contact group consists of 8 to 12 members and each PEA works with 16 to 24 contact groups. The specialized technicians are responsible for the diagnosis, training and technical monitoring of the PEA, and conducting trials in rural areas together with researchers.

THE DEVELOPMENT OF LINKAGES BETWEEN RESEARCH AND EXTENSION: THE ROLE OF RESEARCH IN EXTENSION ACTIVITIES

The link between research and extension was first established through meetings during which researchers presented results and proposals for extension topics, and the extension agents discussed the technical problems that had been encountered. The multilocational experimental programme that had been developed by the research sector was implemented by extension agents who were members of the extension services.

Trials were established in different locations in the rural areas. The demonstration plots (fertilizer, varieties, growing techniques) were designed and established through extension activities in rural areas.

Confronted with the problems of conducting experiments in different locations in rural areas (destruction caused by stray animals, theft, etc.), the research sector created and managed its own support system for multilocational experimentation, using either its own agents or available extension agents. These research support structures also ensured that pluriannual trials would be conducted regularly over a period of four to five years or more.

Multilocational research/extension experiments are visited either separately or jointly. These experiments first focused on simple topics, then on more complex ones, followed by farms and finally production systems. Extension agents and services initially created a barrier between farmers and researchers, but subsequently contact between researchers and farmers became more direct and unconstrained, namely through the "experimental units". These direct contacts enabled researchers to develop a better understanding of the technical and socio-economic constraints that the farmers face.

Additional research was conducted that was associated with the supervising agencies' different development projects. Researchers and extension agents held fruitful meetings in the field at that time, which helped researchers gain a better understanding of the situation. The agricultural research sector is also making a considerable effort to disseminate information and results through brochures, open-door days and radio and television broadcasts. The T&V system has proven to be an important method for productively integrating the collaborative efforts between research, extension agents and producers.

The strengthening of linkages between research and extension is greatly facilitated by the creation of joint research-development technical committees at the national level and in each agro-ecological zone. These committees are responsible for analyzing the results of research programmes and the rate of adoption of the recommendations of the preceding season and for defining the research programme for the following year. They also clarify the respective operational and financial responsibilities of agricultural research, extension agents and the Department of the National Extension Programme (NAVP).

Extension agents, researchers and farmers regularly make joint field visits. Conclusions drawn from these visits are used to concentrate efforts on priority problems. The funding of research programmes, as they have been defined together, and the joint visits, is ensured by the NAVP, which thus helps increase the participation of research in extension activities. The direct and joint involvement of the various players in research-extension-production limits deadlocks and facilitates the design and dissemination of appropriate solutions to the different problems encountered.

It should be noted that the obstacles to progress in agriculture are not only technical. They are rather of a sociological, economic and political nature. Only permanent dialogue between researchers, extension agents and farmers will enable them to be overcome, or better still, eliminated. Inhabitants of rural areas can then adopt a more global approach, and research can focus on the farmers' priority problems. Researchers and extension agents can also then participate actively in the diagnosis-experimentation-dissemination-evaluation process.

Training is encouraged throughout the research-extension-production chain: researchers learn a great deal through contact with extension agents and farmers, and participate in the training and retraining of technicians specializing in extension. They also ensure the retraining and ongoing training of the main extension agents, who supervise the farmers directly through farmer contact groups.

Farmer training is organized around demonstration plots where the recommendations are actually applied. The rapid and massive adoption of a recommendation is strongly linked to its relevance, its simplicity, its appropriateness with regard to the resources available to the farmer, its "observability" by the greatest number of farmers and the advantages it provides. The training of extension agents and farmers is a

continuous and regular process. For extension agents, it includes periodic retraining, being updated on specific designs, fortnightly sessions and monthly workshops.

THE ROLE OF FARMERS IN AGRICULTURAL RESEARCH AND TRAINING: AN INCREASE IN FARMER PARTICIPATION

Local farmers use technologies that have been developed throughout the centuries and are the result of both their own research and outside innovations. Farmers have always made their selections being fully aware of the interactions between varieties and the ecological environment; they have identified fodder species and medicinal plants and have a rudimentary knowledge of animal pathology and understand production systems, which generally preserve soil fertility (intercropping, extensive groundnut cultivation on poor soils).

However, farmers only communicate their knowledge to the humble and patient, who show them some humility. Researchers and extension agents would benefit considerably by learning from traditional technologies before proposing innovations. The farmer may even contribute to the training of the extension agent and the researcher through his knowledge of the environment and traditional technologies, if he is in the right psychological frame of mind to do so. Extension should organize and encourage exchanges in all directions.

The farmers' experience must be taken into consideration when proposing innovations. He almost always makes changes before adopting a technology, based on his level of technical knowledge and socio-economic constraints. How many technologies proposed by research stations has the farmer rejected purely and simply because they did not correspond to his concerns (sorghum - green manure, end-of-cycle ploughing in Northern and Central Senegal)?

For the farmer, the process of innovation is ongoing, although it is sometimes scattered. Thus, frequent meetings in the field between researchers, extension agents and farmers encourage communication and interaction and lead to a complicity between the groups which contributes to progress. Any extension system that does not promote these meetings lacks relevance and efficiency. One goal of extension will ultimately be to obtain the logistic and financial resources to organize such meetings in the field.

The farmer's ongoing training raises his level of technical knowledge, improves his capacities to analyze and synthesize, stimulates his critical spirit and facilitates dialogue. Functional literacy could serve as an essential support tool in this context.

Experience shows that the farmer's potential for progress is linked to his general level of education. It should be emphasized that a top-down approach should no longer be used for training rural farmers. "Horizontal" information exchanges between the three categories of players, researchers, extension agents and farmers, are part of the overall picture.

Moreover, horizontal exchanges between groups of farmers are highly beneficial and more efficient due to their comparable levels of perception of the situation. They are less frustrating and more interactive, thus more enriching. Extension should promote visits/exchanges between farmer groups, and should take care of the necessary logistics. This type of farmer participation in the training of their counterparts deserves special attention.

STRENGTHENING LINKAGES BETWEEN FARMERS, RESEARCHERS AND EXTENSION AGENTS: CONSTRAINTS AND POSSIBILITIES

The main constraints in the linkages between researchers, extension agents and farmers in rural development are above all cultural, simply because of the very different backgrounds of each of the players. Each must therefore display a great deal of humility and patience as well as openness, to enable psychological barriers to be overcome, thus ensuring productive communication between the parties in order to constantly adapt to changing situations.

The role of training is essential in helping to overcome cultural differences and in facilitating information exchange. Each participant has something to teach the other. Training sessions and workshops are occasions for creating and developing synergy and complicity between the participants, with the ultimate goal being to raise the rural farmer's level of professionalism so that he may take greater responsibility and become more autonomous in the decision-making process for the management of his rural activities. Sociology is extremely important in this context.

Frequent contacts between the parties, which run parallel to all the actions, information exchanges and technology transfer, require logistics, didactic materials and resources. These resources constitute the second category of constraints. It is up to public and private donors to play the role of catalyst by providing enough financial support for these resources.

The persistent scarcity of financial resources during these times of economic crisis should inspire more imagination and creativity as well as a sense of organization in order to reduce operating costs. The extension system should not stagnate: it should be constantly revised and adapted to socio-economic and financial constraints.

Adverse ecological conditions may create hostile factors that reduce or eliminate the increase in productivity that should result from the application of the proposed innovations, causing widespread discouragement among extension agents and farmers. It is difficult to master ecological conditions, especially in rainfed agriculture, but it has proven indispensable to teach farmers about the importance of ecosystems and the necessity of taking action to halt their deterioration, or to improve them, namely by combatting deforestation and increasing reforestation operations.

Any policy dealing with energy or the promotion of sources of energy other than wood in rural areas can indirectly benefit extension. Moreover, it helps maintain the ecosystem's production potential. The rural farmer can only adopt a technology if it is within his means.

An agriculture policy creates a framework for establishing costs, marketing systems, supplying rural areas, selling and preserving and processing agricultural products. It is thus an essential factor in the development and promotion of rural products. It also consequently determines extension's chances for success and has an effect on the linkages between researchers, extension agents and farmers.

Any political policy that does not manage to motivate the rural farmer through an increase in his income can only have uncertain results. It is thus the government's role to define and support an adequate agricultural policy. This is not always easy in many countries of Sub-Saharan Africa due mainly to the limited markets and the disparity between the exchange rates, thus making it necessary to aim towards integrating economies on a sub-regional or regional basis.

COMMENTS AND CONCLUSIONS

This rapid analysis of the development of the different agricultural research topics and agricultural extension methods, and their organization in Senegal, has shown a constant adaptation of the two systems to ecological, socio-economic, cultural and financial conditions.

The converging development of the two systems (which implies that they co-exist) into a tripartite system (research-extension-farmer) has constantly created an interactive synergy between researchers, extension agents and farmers through frequent meetings that enable greater communication, and lead to complicity, which is important in analyzing problems, developing and implementing the most appropriate solutions and evaluating results. All players are dynamic and are both transmitters and receivers of information (cognitions).

The concrete and practical training of all participants, both vertically and horizontally (between farmers for example) in both directions, is the motor of the entire machine. The key to this motor is the simultaneous contact between the three categories of players. The tripartite system varies as much in time for one country as it does in space from one country to another at the same time. The tripartite system should increase the farmer's level of awareness and render him autonomous in his capacity to make decisions.

Are traditional methods, and those based on the Training and Visit system a panacea? It may seem less productive to diverge from the most modern methods of social communication, which is why it seems advisable to increase the use of audiovisual methods in extension. Multimedia teaching could indeed find fertile ground in agricultural extension. Literacy campaigns also deserve more attention.

Finally, no stone should remain unturned in the effort to make agriculture in Sub-Saharan 'Africa more productive, competitive and sustainable in order to enable Africa to feed itself, to develop its industries, and to have more influence on international dialogue, while integrating African economies.

In the development and implementation of any agricultural extension policy, thus of promoting progress in agriculture:

- There is never any single solution; each participant must formulate the most appropriate solutions to the problems encountered locally.

- No situation is ever definitively reconciled; one must always strive to improve it.

Consequently, research must be conducted locally at all levels (researchers, extension agents, farmers). Moreover, the essential role of dialogue and communication between the different players from the same country, and between countries must be emphasized, which is the theme of this workshop.

LINKAGES BETWEEN RESEARCH AND ITS PARTNERS IN AFRICA: A BRIEF SUMMARY OF THE ACTIVITIES OF ISNAR

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Abstract: ISNAR, one of the international research organizations of the CGIAR, has devoted a great deal of its resources since 1987 to improving linkages between research, extension services, farmers and farmer organizations. Following a brief presentation of ISNAR, the author will review three studies that have been conducted within this framework, and describe future activities. He will summarize the main results of the studies, emphasizing the following aspects:

- *The need to adopt a global approach.*
- *The definition of an appropriate strategy to ensure linkages.*
- *The choice of linkage mechanisms.*
- *The management of the linkages.*

Lastly, the author will discuss three essential conditions for strengthening these linkages.

INTRODUCTION

It is widely recognized that the linkages between research and its partners, namely extension services and farmers, are rather poor (Eponou 1993, Ekpere and Idowu 1990, Williams *et al.* 1988). It is also acknowledged that this is one of the main reasons that the agricultural technology systems in Africa are inefficient. Even the investment of great sums of money in technology generation and transfer cannot improve this situation. Although this was not openly discussed a few years ago, there is no longer a single seminar or workshop on agricultural development where the problem of linkages is not raised. Moreover, it is also recognized that if this situation continues, no significant progress can be expected that could grant farmers - especially the most impoverished - access to technologies that are either improved or at least better adapted to their needs.

The International Service for National Agricultural Research (ISNAR) is one of the organizations that has been dedicating a great deal of energy and resources to solving this problem for a number of years now. The objective of this paper is to briefly summarize past, present and future efforts in this area. To understand why ISNAR devotes so much energy to strengthening the linkage between research and its partners, it is perhaps important to understand the organization's role in the research development process in Africa.

ISNAR: THE ORGANIZATION AND ITS MISSION

ISNAR is one of the International Centres for Agricultural Research (ICARs) of the Consultative Group for International Agricultural Research. Its purpose is to strengthen National Agricultural Research Systems (NARSs) by helping them to establish and manage their policies, their organizations, and their research programmes efficiently and effectively, in order to achieve their goals, which are to generate

and transfer relevant technologies to farmers. Although it has a global mandate, ISNAR devotes 40% of its resources to Sub-Saharan Africa and has been active in almost every country in the region. To achieve its objectives, ISNAR has set up three programmes, each of which plays an essential role:

- Research Policies and Strategies.
- Organizational and Resource Management.
- Design and Management of Research Programmes.

Two services, *Collaboration with NARS and Training*, and *Information Systems Management* support the programmes so that they may identify the needs of the countries as best as possible and respond to them effectively and appropriately.

The programme *Design and Management of Research Programmes*, whose objective is to help define and implement relevant quality research programmes, is responsible for activities revolving around the linkages between research and its partners. The main components of this programme are (ISNAR 1992):

- The organization of research programmes.
- The design of programmes, establishment of priorities and budgeting.
- Linkages with outside sources of knowledge and new technologies.
- Management of scientific information.
- Linkages between research, technology development and users.
- The monitoring and evaluation of research.

It should be noted that to ensure the quality of research, the staff of this programme also concentrates on the linkage between research and "other sources of knowledge", namely training organizations, private research institutes and ICARs.

LINKAGES BETWEEN TECHNOLOGY USERS AND RESEARCH: RELEVANT ACTIVITIES

The strengthening of the linkage between research and its partners has always been the object of some concern at ISNAR. It already appeared in the organization's first strategy as one of the 12 critical factors that required urgent action. It was granted priority status in 1986, prompted by national-level research directors and donors.

Ongoing or past activities

Three specific studies have been conducted by ISNAR on the foregoing topic since 1986, including:

- Research - Technology Transfer Linkages (RTTL).

- On-Farm Client Oriented Research (OFCOR), and
- Linkages Between Research and Farmer Organizations.

The specific objectives of each of these studies were:

- To analyze and understand the current situation.
- To formulate directives that should enable the managers of the technology system to establish and administer the linkage more efficiently.
- To finalize the approaches and mechanisms for system diagnosis in order to identify and solve potential linkage problems.
- To develop training methods to be used by ISNAR and NARSs.

The three studies have been conducted based on an analysis of true cases that were selected because of the different situations that they represented. They have given rise to productive collaborations with national researchers, which enabled an internal appraisal to be done within the NARS concerned. ISNAR also solicited the help of specialists and directors of institutions from both the north and south who were interested in the subject and lent their support as researchers or as members of the steering committee to guarantee the quality of the results.

LINKAGES BETWEEN RESEARCH AND TECHNOLOGY TRANSFER

This study was conducted at the explicit request of national research directors. It was requested during the course of a seminar organized by ISNAR in 1986 in which about 30 national research directors participated. They had identified the linkage between research and technology transfer services as being one of the main reasons for the weak performance of their research systems.

ISNAR began the study in 1987 in response to their request, with the objective of identifying and analyzing the factors that influence the quality of linkages, and to make recommendations for national research directors. ISNAR carried out the study in collaboration with national researchers from seven selected countries, and also appealed to prominent individuals working in related fields to assist in conducting the investigation efficiently.

Three African countries, Côte d'Ivoire, Nigeria and Tanzania were among the seven countries selected for the study. Two or three case studies were carried out in each country. Some Asian and Latin American countries also participated. The results of this study are available and have been widely disseminated through various series of publications (Eponou 1993). They have also been presented at conferences, seminars and workshops and have been incorporated in the assistance that ISNAR provides to NARS. In order to increase the effects of this study, ISNAR is currently developing training methods which it will make available to NARS and others upon request.

OFCOR

The OFCOR study, which was begun in 1986, was also conducted in response to an urgent problem that had been encountered by most of the national systems that had added a "Field-Based Research" component to their programmes. It was important to them to institutionalize this approach, which many systems considered to be the linkage mechanism par excellence between research and its partners.

OFCOR aimed at providing directors of research with effective and relevant recommendations regarding the establishment, organization and management of field-based research programmes. Among the components of this study was the linkage between these programmes and on-station research and between research and farmers.

Like the RTTL project, this study was also conducted in collaboration with researchers from national systems. It emphasized that the steering should be the responsibility of those who best practised the approach. Senegal, Zambia and Zimbabwe were the three African countries selected among the nine covered by the study.

The results are available and were disseminated through publications, seminars and workshops (Merrill-Sands *et al.* 1989). Training methods were derived from it and some of these methods, like those of RTTL, were used in courses such as Training on Production Systems Research by ICRA, which is offered every year in Wageningen in The Netherlands and in Montpellier in France. Direct assistance was also provided at the request of certain countries, to help strengthen their field-based research programmes.

THE LINKAGE BETWEEN RESEARCH AND FARMER ORGANIZATIONS

The last study, which is still in progress, was inspired by lessons learned from the first two studies, namely the necessity of establishing a direct linkage between researchers and farmers to increase the relevance of technologies generated by national research systems.

It should be noted that the aim is not to substitute this linkage for the one that currently exists between research and extension, but rather to strengthen the latter by adding an additional component, as is the case in countries where research and extension are effective. The study is being conducted in Burkina Faso, Ghana and Kenya because of these countries' experiences with farmer organizations and NGOs. The results will be available soon and will be disseminated in the same way as those of the first two studies.

FUTURE ACTIVITIES

The future activities of ISNAR in this area can be summarized as follows:

- To consolidate the results obtained by testing them in collaboration with national administrators of agricultural technology systems, and making them available to potential users; a plan of action has been drawn up to achieve this goal.

- To assist the countries that wish to strengthen the linkages in their systems, depending upon the resources available, and

- To conduct complementary studies to increase our own understanding of the problem or to cover specific aspects that require more reflection.

  This is the case for example of the role that farmer organizations can play at different stages of their development, e.g. providing linkages for the management of natural resources, or demonstrating the implications of the linkages between research and its partners.

SOME LESSONS LEARNED FROM THE STUDIES

The analysis of the different cases that were carried out during the three studies enabled several lessons to be learned, some of which are briefly summarized here. These lessons also inspired some observations with regard to developing a strategy for strengthening linkages.

The need to adopt a global approach

For various reasons, there is no global approach for generating technologies and making them available to farmers, namely because the research and technology transfer components do not feel that they are part of the same system. This is manifested by the absence of a common mission shared by the actors of the two components and by that of a joint and/or individual responsibility.

One sometimes has the impression that the system has no true leadership (Röling and Seegers 1992). Consequently, there is sometimes competition for access to resources; conflicts or friction may arise; methods of evaluation may be used that are incompatible with the systems' objective and there may be enormous differences in the status of the staff members, etc.

Certain studies explain this situation by the fact that research and extension services are often located in different ministries (World Bank 1987, Williams *et al.* 1988), but our study has shown that the situation is not very different even when they answer to the same ministry. The problem is the perception, not the administrative or physical location (Eponou 1993, Merrill-Sands and Kaimowitz 1990).

The definition of an appropriate linkage strategy

The term linkage strategy implies all the actions necessary for ensuring the continuous flow of information, knowledge and resources between the various actors or components of a system (Eponou 1994). There are four series of problems at this level.

The first is related to the linear vision of the process of technology generation and transfer and its consequence, the passive role of the farmers in the process. Research is seen rather like the only thinking part of the process and if there are problems, it is someone else's fault, e.g. the inability of extension to do its work and the farmers' conservatism. The same strategy is used for all technologies and all clients, whereas several strategies are actually necessary to be able to take into account the specific characteristics of the various technologies and clients and the different approaches to extension that are applied.

The second strategy is linked to the absence of true farmer participation. In fact, when the farmers are involved, they are used more like "instruments" than like true players. In some cases, one involves them without any real conviction simply to satisfy donors. In that case, since their "participation" is seen as an end in itself, the type of participation and the use that is made of the information that they provide are not important.

The third strategy is related to the expected effect of adopting the "Training and Visit" approach, and the introduction of field-level research, on the linkage between research and its partners. There are more mechanisms in the systems in Africa and one should expect an improvement in the linkages between research and its partners. In actual fact, it doesn't matter because these approaches do not solve the fundamental problems and in some cases even create their own series of problems.

Finally, the concept of "reorganization" as a solution to problems of linkages is being exploited. The merging of research and extension, the decentralization of either one or both, the creation of special units and changes in the extension models, are given as solutions without having done any serious analysis of the true causes for the absence of an effective linkage between research and extension. Sometimes a solution is adopted that has had positive results elsewhere.

The choice of linkage mechanisms

Several problems are related to the linkage mechanisms, including:

- There are numerous mechanisms for transferring information obtained from research to farmers via systems of transfer, but there are very few or sometimes no mechanisms for transferring information from farmers to research simply because the system does not appreciate the importance of feedback.

- Scientific publications and annual reports are considered the ultimate linkage mechanisms between research and extension.

- Most linkage mechanisms are purely consultative, with no decision-making power, so that the decisions made have no effect. For example, the research sector may choose whether or not to incorporate the recommendations made by the technology transfer services and the farmers who are in its programme, and it does not have to answer to anyone with regard to the way they implement these recommendations. In certain cases, one has the impression that linkage activities are simply routine or are an end in themselves.

- Research and/or extension services often set up mechanisms without having the resources required. They only rarely evaluate each other's capacity to provide the human and financial resources that a given mechanism requires.

Managing linkages

There are many problems with the management of linkages, such as funding, the way in which the mechanisms are used or the representation of the components (Eponou 1993, Ewell 1989). The following problems should also be mentioned:

- The financial resources for the linkages are often lacking because the activities are not budgeted, or if they have been budgeted, they are the first to be cut as soon as the system has financial problems.

- Serious problems may arise during linkage activities due to the organization and placement of the different actors in the system. This reduces the efficiency of the mechanisms. For example, sometimes the information sought cannot be supplied because the participants in one of the components do not belong there, and are not equipped to provide the services required.

- Lastly, in some cases, one does not know who in the organization is responsible for the management of linkages and there is no set up for monitoring and evaluating their effectiveness.

STRENGTHENING LINKAGES: SOME OBSERVATIONS

Given the nature of the problems in most systems, the following are among the conclusions that have been drawn:

Changes are needed at all levels of the system

In most cases, changes must be made at all levels to improve the linkages between research. Many problems in fact originate at the level where policy and strategy-related decisions are made. Changes should thus be made at this stage, or those made at the operational level alone will not bring about any significant improvement. For example, it is at this level that the problems of a global approach, leadership and the sharing of a common goal can be solved.

New institutional cultures are necessary for the system's structures

In some cases, a new institutional culture and system of values should be established. One aspect that must be addressed is the mutual perceptions that the staff of each component has of the other, and of the farmers.

Research and extension must be seen as mechanisms that are at the farmer's disposal and not the other way around, as is currently the case. This means that the staff does not only have a job: they have a mission to fulfil. This cannot be done without establishing mechanisms that ensure the transparency and the responsibility of the staff at all levels and without exerting constant pressure regarding policies and on farmer organizations to ensure that they achieve their goal, which is to make relevant technologies available to farmers.

The need for analysis within the framework of agricultural technology systems

The systems do not need models for generating and transferring technologies. They need instruments for analysis that enable an efficient diagnosis to be made and solutions to be found that take into account available resources, relevant factors, and the people who are capable of using these instruments. This is essential because there is no miracle solution and all systems must seek the best strategies for serving their clients, with their diverse socio-economic conditions and technological needs. The national

technology systems must thus give greater priority to developing a systems analysis capacity within their framework.

CONCLUSION

It is essential to strengthen the linkage between research and its partners in the agricultural technology system for most African countries. The studies conducted by ISNAR have shown that this is a true challenge for those in charge of national systems in certain cases, given the nature of the problems and changes to implement.

ISNAR will continue to assist the NARS in that area over the coming years, and will conduct other studies in collaboration with NARS and other structures in the north and south. Nevertheless, the solution depends to a great extent on the will of national-level managers to change, and there are indications, such as the numerous workshops and seminars that have been organized over the past few years, that the process of changing is well underway.

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AGRICULTURAL EXTENSION IN CENTRAL AFRICA: AN INTRODUCTORY PRESENTATION OF THE MAIN PROBLEMS

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Abstract: Burundi, Cameroon, Central African Republic, Congo, Gabon, Rwanda, Sao-Tomé and Principe, Chad and Zaire have contributed to this introductory presentation on the problems of agricultural extension in Central Africa. Most of these countries use different approaches to agricultural extension, to which they all attach great importance. There are a number of NGOs and farmer associations in the region (although there are fewer than in West Africa), but they are either hardly or not at all integrated into the extension process. The research and training sectors also participate very little in extension activities. In fact, research and training programmes fall far short of meeting the farmers' needs. Moreover, the considerable duplication of effort and incoherence in the various sectors is due to the lack of coordination between research, training and extension institutions and farmer organizations. In addition, the human and financial resources earmarked for extension are insufficient. Funding for extension, which comes mainly from outside sources, is inefficiently allocated (i.e. donors are inflexible in the way in which they provide funds). Further obstacles to the extension process are: poor road infrastructure, problems in marketing agricultural products, inaccessible agricultural credit etc... Extension services can be made sustainable within the framework of the current moves towards economic liberalization by: increasing the participation of farmers and their organizations in the management of research, training and extension activities; raising the technological level of the farms; strengthening the linkages and improving interactions between the different actors involved in the extension process; revising the donors' conditions for funding extension programmes and encouraging the national funding of extension activities.

AGRICULTURAL EXTENSION IN CENTRAL AFRICA: THE MAIN PROBLEMS

INTRODUCTION

The purpose of this summary of the national activities of Central African countries is to illustrate the main problems of agricultural extension in this sub-region for discussion at the workshop on Agricultural Extension in Africa. Contributions from Burundi, Cameroon, Central African Republic, Congo, Gabon, Rwanda, Sao Tomé and Principe, Chad and Zaire have been used for the paper.

The following aspects will be covered:

- The role of extension in the region's agricultural and rural development.
- The participation of different actors in agricultural extension.
- The relevant capacities, knowledge and technology available for developing sustainable agriculture in the region.
- The human and financial resources allocated to agricultural extension.
- The obstacles faced by agricultural extension.

- The attempts made to sustainably continue extension services within the context of economic liberalization.

THE ROLE OF EXTENSION IN THE REGION'S AGRICULTURAL AND RURAL DEVELOPMENT

The role of agricultural extension in developing countries has been the object of much debate and criticism among decision-makers and various players in the agricultural development sector over the past 20 years. In Central Africa, the agricultural policies of different countries place great emphasis on agricultural extension, both for technology transfer and the improvement of human resources. There are several approaches to extension. The main ones are:

- Traditional agricultural services (individual and group approaches), which are practised by all the countries of the sub-region.

- The integrated agricultural and rural development approach, which is implemented at project level, either throughout or in part of a region, and includes all essential activities: social, economic and cultural. This is the case of the ONDR and SODELAC in Chad, and the SOCADA in Central African Republic.

- A monocrop approach (per product), which is sector-specific: cotton, rice, cocoa, etc.

- The participatory approach, a strategy that attempts to put grassroots-level communities at the centre of the development process, where they play a decisive role. Burundi uses principally this method, as do Cameroon and Chad.

- The Training and Visit system of the World Bank. All countries of the sub-region use this method with the exception of Gabon.

In Cameroon, there is also the *chantier-école* approach (which has been used since 1992) and the research-development approach. The former consists of encouraging farmers who have been trained in technical innovations to foster the self-promotion and autonomous thinking of target groups. This approach is used by the *Service d'Appui aux Initiatives Locales de Développement* (Support Service to Local Development Initiatives [SAILD], which is an NGO. There are also many donor-driven approaches.

AGRICULTURAL EXTENSION: THE DIFFERENT COMPONENTS

Farmer organizations

Generally speaking, there are fewer NGOs in Central Africa than in West Africa, and their participation in extension is more recent. In Chad, about 20 NGOs participate in rural development (e.g. SECADEV in the sub-prefecture of Bokoro). In Rwanda, local and international NGOs compete to implement programmes that are first discussed with extension services (this collaboration is currently being

established in the Kibungo Prefecture). In Zaire, the CDI-BWAMANDA and the National Extension Service (SND) collaborate in Southern Ubangi (especially in the technical training of supervisors).

Several NGOs in Cameroon participate in agricultural extension (e.g. SAILD). This type of participation is still rare in Congo, Central African Republic and Gabon, although some NGOs in Congo, such as ONVD, do participate in training young students in Boko-Songho. There are also numerous farmer associations in addition to the NGOs, both of which should be better integrated into the extension process.

Research in agronomy

Research results are most valuable when they are made available to farmers who can utilize them. One of the limiting factors in agricultural development is the fact that results are not conveyed to potential users. In addition, research programmes often do not at all reflect the farmers' actual needs. The same disturbing observation holds true for all countries: research plays a very small role in extension activities, and does not reach the farmer level.

In Cameroon, instructors at Dschang University are conducting research in the village of Bafou together with farmers and development workers using the Research-Development-Training approach (RDF). They finalize and test technical and organizational innovations on-site, which aim at eliminating the constraints identified at the rural level.

Training

This subject was rarely addressed in any of the case studies presented by the various countries, and when it was, it was often in the context of establishing the Training and Visit system within certain NGOs (e.g. the case of Congo as already indicated, among others). The training offered in the training institutions does not take into consideration the agricultural development programmes of the country. Moreover, agricultural extension is often not part of the teaching curriculum.

There is also a lack of coordination between the different players (farmer organizations, research, training and extension institutions). It has often been found that each one has his own method and his own policy of implementation in the same area, among the same target groups. It also seems that the participation of several different ministries (which is an institutional problem) is at the root of the difficulties in coordination that have often been observed.

CAPACITIES, KNOWLEDGE AND RELEVANT TECHNOLOGIES AVAILABLE FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT IN THE REGION

The national extension system in Zaire is currently experimenting with the "CAP" study (*Connaissances, aptitudes et programmes* [Knowledge, Aptitudes and Programmes]), which is part of the CIVIT (*Campagnes intensives de vulgarisation pour l'introduction de thèmes* [Intensive Extension Campaigns for Introducing Topics]). Also in Zaire, where the CDI-BWAMANDA is introducing soybean in the sub-region of Southern Ubangi, farmers, extension agents and researchers are making significant contributions.

In the Mvouti District in Congo, farmers and extension agents participate in the identification phase, in agronomic research and in research regarding adaptation. Farmers participate during the experimental phase; extension agents and farmers disseminate results and the research and extension sectors participate in monitoring and evaluation.

THE ROLE OF HUMAN AND FINANCIAL RESOURCES IN EXTENSION

Human resources

There is an insufficient number of supervisors at the grassroots level in Rwanda. In Chad, the SECADEV has 82 agents, 27 of whom are women, for 23 494 members, or one supervisor for every 286 farmers.

Again in Chad, the Improved Extension System (SVA) of the National Livestock Project has 30 extension agents for 500 groups of contact breeders, or 2500 to 3500 breeders (between five and seven people per group of breeders) or a ratio of one extension agent for every 83 or 116 breeders.

There are over 500 supervisors in Congo, which corresponds to one supervisor for every 300 active farmers. About 200 supervisors are lacking. Moreover, the tendency of the structural adjustment policy that is currently being implemented in most of the countries of the sub-region is to reduce the public service.

There is thus the risk of having too few extension agents. At the qualitative level, it is unfortunate that the extension agents lack the technical capacity to find solutions to the farmers' agronomy-related problems (e.g. Central African Republic and Zaire).

Financial resources

Most extension projects of the sub-region are currently receiving outside funding, especially from the World Bank. This poses the problem of the continuation of extension activities when the loan is terminated or suspended.

Such is the case in Congo, where the PNVRA (*Programme National de Vulgarisation et de Recherche d'Adaptation Agricoles* [National Programme for Extension and Research on Agricultural Adaptation]) has been suspended due to macro-economic problems (non-payment of interest to the World Bank).

In Zaire, the suspension of financial assistance from the Belgian Ministry for Cooperation to the CDI-BWAMANDA in 1992 forced this institution to restructure the scope of its activities. The donors' lack of flexibility in the way in which they administer funds should also be noted. Judging from the limited resources at the country level and the dependence on outside sources, future funding for agriculture and extension in the sub-region is very hypothetical.

OBSTACLES TO EXTENSION

In addition to the problems indicated in the foregoing, the extension system is faced with the following obstacles in the sub-region:

- Road infrastructure is lacking, especially in forested countries (Gabon, Congo, Zaire, Southern Cameroon and Central African Republic).
- It is often difficult to market agricultural products, which makes farmers hesitant to adopt new innovations.
- Agricultural credit and other agricultural inputs are often inaccessible.
- The availability of agricultural land is limited: e.g. Rwanda, Burundi and Western Cameroon.
- Organic waste for compost in the Sahel is insufficient (the case of Chad and the northernmost part of Cameroon).
- Physical (soil structure, erosion) and chemical deterioration (soil impoverishment).
- Shifting cultivation in connection with slash and burn cultivation.

ATTEMPTS TO ENSURE THE SUSTAINABILITY OF EXTENSION SERVICES WITHIN THE FRAMEWORK OF ECONOMIC LIBERALIZATION

The numerous attempts to ensure the sustainability of extension services within the context of economic liberalization include:

- Increasing farmer participation and that of their organizations in the management of research, training and extension.
- Raising the technological level of farms.
- Strengthening linkages and interactions between the different actors involved in the extension process.
- Improving management-level training in the extension system.
- Revising donors' conditions for financing extension programmes and
- Encouraging national funding for extension activities.

CONCLUSION

Many obstacles still hinder the development of agricultural extension in the sub-region. We have only presented some of them here.

To overcome these obstacles, it is essential to:

- Strengthen the participation of the different actors in the agricultural extension system.
- Increase capacity, knowledge and technology and adapt funding to agricultural extension.
- Improve human resources management.

These are all essential to ensure the sustainable development of agriculture, which must increasingly face new demands.

THE WORLD BANK'S EXPERIENCE WITH T&V IN AFRICA: ISSUES FOR THE FUTURE

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Abstract: Small-scale extension initiatives in Sub-Saharan Africa (SSA) have been supported by the World Bank since about 1970, when it began financing integrated rural development projects (IRDP). In the early 1980s, the Bank shifted its emphasis from IRDP to the development of national institutions. This means that instead of supporting research and extension efforts as part of IRDPs, the Bank began to support national extension and research systems. This paper examines the experience of the World Bank with the implementation of extension projects in Africa modelled on the T&V system of extension, and discusses present and future issues such as: extension management, technology development, human resources development, natural resource management, capacity building, involvement of the private sector, NGOs in extension and the use of mass media and modern communication facilities. The paper also gives the main recommendations of the extension workshops held in Accra and Abidjan in January 1993, at which the main participants were senior research and extension officials from Sub-Saharan countries.

INTRODUCTION

Small-scale extension initiatives in Sub-Saharan Africa (SSA) have been supported by the World Bank since about 1970, when it started financing integrated rural development projects (IRDP). A typical IRDP contained a number of components besides extension, such as rural roads, agricultural research, inputs and markets.

In the early 1980s, the Bank shifted its emphasis from IRDP to the development of national institutions. This meant that the Bank began to support national extension and research systems instead of research and extension efforts as part of IRDPs.

The Bank-supported reorganization of national agricultural extension systems in Africa started with Kenya in 1981 with a pilot project based on the Training & Visit (T&V) system of extension, followed by a regular project in 1983. Since then, Bank-supported extension projects have been started in about 30 countries.

Parallel to the support for extension reforms, the Bank has also assisted agricultural research programmes in some 20 countries in Africa through support to the National Agricultural Research Systems (NARS), which are mostly publicly funded. However, many NARSs enjoy a higher degree of autonomy and operational flexibility than the national extension systems.

The Bank's decision to go beyond extension and research and pay attention to management improvements in other agricultural services, such as seeds, credit, marketing etc., led to the Bank's Agricultural Services Initiative (ASI) in Africa starting in 1987. However, the Bank's involvement with strengthening management capacities in these additional areas is still in its early stages.

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EXTENSION MANAGEMENT ISSUES[2]

Training and Visit in Africa has been focusing on the improvement of the performance of public sector extension services through management reforms. Experience thus far with the implementation of T&V in Africa has brought many issues to the fore, which can be broadly classified into:

(i) *technical issues* relating to extension and research, particularly technology development; (ii) *organizational issues*, such as extension and research management systems, and the management framework for research-extension linkages; and (iii) *financial issues*, such as financing the costs of extension.

The underlying assumption of T&V is that by tackling the organizational issues, such as linkages between extension management systems and research-extension, it is possible to address the technical ones.

T&V is essentially a management system that emphasizes regular visits to farmers by extension staff, periodic training and strong linkages with research. In many countries, the introduction of the T&V extension system was accompanied by changes in the traditional ways of providing extension services to the farming community. In most African countries, agricultural extension services were languishing for a long time; inadequate operating funds resulted in lack of mobility leading to a lack of field orientation.

Funds were provided under the Bank-assisted extension projects for the training, mobility and housing of the extension field staff, almost for the first time in many years. This suddenly stimulated widespread interest in extension, and expectations, sometimes higher than what could be met, were raised. The old extension systems, which T&V replaced, have been very slow in changing, and many of their weaknesses have continued, particularly their lack of field orientation. This has manifested itself in too few field visits by senior project staff, and a poor understanding of supervision and extension management.

An extension system with regular field visits and training, with sole emphasis on increasing farmers' adoption of technology, has been new to most countries, where extension was principally thought of as either an "inspectorial" service (e.g. Sudan and some West African francophone countries) or as a deliverer of credit or scarce inputs (e.g. Nigeria, Ghana, Tanzania and Malawi). The concept of an extension system as a provider of information, particularly technology, is only now being appreciated by most senior civil servants and policy-makers.

The recently concluded evaluation of the impact of T&V extension in Kenya and Burkina Faso, undertaken by the countries under the supervision of Prof. Evenson of Yale University, indicated that T&V has been successful in Africa in promoting the development and propagation of relevant technologies to farmers. The Kenyan study examines the impact of T&V extension on the basis of data from a random sample of Kenyan farmers. It shows that 66% of the sample farmers, deriving their main income from agriculture, reported receiving extension advice since the introduction of T&V. The majority of these recipients rated this advice as being applicable, and indicated that they had never been advised by extension before T&V was introduced.

The proportions of small-, medium- and large-scale farmers, and of farmers from male- and female-headed households, who received extension advice were also the same. For the Kenyan data, the range estimated by the study for the rate of return on the additional investments in expanding the present T&V-

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[2] This section and the following one on "Technology Development Issues" are partly based on the deliberations at the extension workshop at Lilongwe in February, 1991. See Venkatesan and Schwartz (1992).

based extension system has a mid-point of 350%, and a lower limit that has a high probability of being at least 160%.

In Burkina Faso, based on a random sample of some 3600 farmers drawn from all 12 regions, the evaluation shows that the introduction of T&V has increased the adoption of improved practices. It shows that while all farmers have benefited, those belonging to T&V contact groups[3] have benefited more, reaping crop yields 25% to 30% higher than the others.

Thus, insofar as only 21% of the sample farmers reported being T&V contact group members, the evaluation suggests that expanding the membership of these groups can have a favourable payoff. The rates of return estimated for investments in the expansion of the present T&V extension system range from 86% to 187%.

The evaluation also shows that the average annual expenditure on extension per farm family declined by almost 30% after the adoption of T&V as the national system, compared to the period preceding its introduction in Burkina Faso.

TECHNOLOGY DEVELOPMENT ISSUES

In most countries in SSA, simple, low-cost extension recommendations were available for extension to start on when T&V was introduced. Even where they were not readily available, extension has been able to improvise recommendations, based on farm trials, to suit the prevailing farming systems, as the Nigerian experience will testify. Through organizational reforms, T&V has so far been successful in exploiting the present slack in the delivery of technology and other agricultural services; in other words, it has been able to "mine the slack".

The fact that in the past, the NARSs in Africa were not able to produce sufficiently relevant technologies for African farmers in a sustained manner has been blamed on a number of factors, namely poor transfer of technology to farmers, lack of inputs, poor prices and lack of credit. Various organizational remedies have been attempted, such as the training of scientists and improving farming systems research (FSR), but they were not sufficient enough to sharpen the relevance of the technology available to farmers in many African countries. The principal reason why such remedies did not result in the development of appropriate technologies for farmers and in their adoption is the fact that they were mostly "inward-looking" i.e. directed towards the research system as a closed universe: they did not put farmers at the forefront of action.

The main long-term challenge now is how to make public sector extension and research systems respond to the farmers' needs in a sustained manner; and more specifically, how to ensure that the National Agricultural Research Systems (NARS) in SSA engage themselves sustainably in the generation of technologies that farmers would find relevant and useful.

It is necessary to set in motion a cycle in which the "pull" factor from the consumer end (i.e. farmers) would make the deliverers of technology i.e. extension and research, "perform". This is precisely what

[3] A salient feature of T&V has historically been regular visits by the frontline extension staff to the fields of contact farmers. The system relies on the diffusion of information from contact farmers to other farmers. Groups have increasingly replaced farmers; in many countries in SSA frontline extension staff visit "contact groups".

T&V set out to achieve, on the assumption that frequent, periodic field visits would create an awareness among the extension staff of farmers' problems, and that strong linkages with research would transform this awareness into the generation of relevant technology by research by instilling an "outward-looking" attitude among researchers. The Bank's experience so far in SSA has shown that extension reforms should be accompanied by reforms in the research-planning process to produce the desired results.

Strengthening the linkages between research and extension at various levels has proved to be the most difficult aspect of T&V to understand and implement. Several training workshops have been held by the Bank in order to assist the countries to better understand the many facets of this linkage.

Under the T&V management system, the interaction between research and extension takes place at many levels. The most important is the "monthly workshop" called by various names in different countries, where researchers interact with the extension subject matter specialists (SMS). This is a key forum, as much of the feedback from the field takes place here. Communication at these workshops is expected to be "two-way", with researchers "listening" to the SMSs instead of "lecturing" to them.

Secondly, there is the "on-farm adaptive research" programme jointly planned and executed by the research and extension staff with the active involvement of farmers, where the on-station research findings are tested under various "real-life" situations. In some countries these are called "farm trials". This involves continual collaboration between researchers, extensionists and farmers in the development of "steps in technology" viz. the different stages of technology refinement to suit local conditions, risk factors and farmers' resource endowments.

Thirdly, the researchers and extension staff are expected to conduct joint diagnostic studies, so that the planning of research programmes would be relevant to farmers' needs. These elements of the REL are expected to transform an "inward-looking" system into an "outward-looking" one.

In addition to the difficulty in understanding the *technical* aspects of technology development there are also *organizational* issues to be addressed, owing to the fact that historically, research and extension were handled by two different institutions with different cultures in most countries in SSA. Researchers have traditionally been used to "hand down" recommendations to the extension staff on field days. The latter in turn used to carry these recommendations to farmers and "tell" them what to do. Now there is a totally different way of doing business, with both the research and extension systems expected to be responsive to the needs of the client. This can be explained with the help of an example.

Farmers in the Ethiopian highlands grow teff and wheat. At wheat-planting time, as recommended by the Holetta Research Station, they are generally busy harvesting the teff crop. Teff not only provides them with their staple food, it also stores well and fetches good prices. It is therefore not surprising that they do not adopt the research recommendation regarding the wheat-planting time. No amount of mutual blaming between research and extension will help until they recognize the farmers' constraints and come up with a solution. What is needed is an attitudinal change, which is what the re-engineering of the research and extension systems attempted under T&V hopes to achieve.

HUMAN RESOURCE DEVELOPMENT ISSUES

The continual training of staff is an essential part of T&V. Under T&V, two categories of training are important. The first category of training viz. training, which is part of the dynamics of the system,

includes the "fortnightly" training of frontline extension staff by the SMSs, and the "monthly" workshops in which the researchers and the SMSs participate[4].

The proper functioning of T&V depends on the effective training of frontline extension staff, resulting in raising the level of their diagnostic and communication skills, and SMS workshops, which provide a continual feedback to research from the field and help keep research focused on farmers' problems.

The second category of training is the short-term training for the extension field staff, SMSs and the extension managers, both in-country and abroad. Considering that prior to the introduction of T&V, the extension staff did not receive much training, it is necessary to identify the areas, both technical and managerial, where short-term training is necessary for each category of staff, and prepare a training plan for each country, indicating the places where the intended training could be obtained.

Project staff need intensive training on how to:

- Diagnose field constraints and opportunities, bringing them to the attention of the research system and making it respond to them.
- Analyze whether the research being conducted at the research centres are in line with farmers' priorities.
- Conduct periodic training sessions for frontline extension workers.
- Conduct monthly SMS workshops, and formulate extension recommendations, that are relevant to farmers' needs, for different agroclimatic zones and levels of farmers.
- Prepare the extension programme for an administrative unit.
- Get farmers to understand and implement in their fields the extension messages that they have decided to try.
- Identify the skills to be imparted to farmers and incorporate such skills in the extension programme.
- Analyze the reasons for the farmers' adoption or lack of adoption of the extension recommendations.
- Record the feedback received from frontline extension workers and use this to plan further modification or refinement of extension recommendations.
- Supervise the performance of the SMSs and other extension staff.
- Plan and implement on-farm trials; and
- Prepare the agenda for the research-extension committee meetings at various levels and follow up the implementation of the decisions at these meetings.

[4] Although the words "fortnightly" and "monthly" are used here, they are in fact held less frequently in many countries, often monthly and quarterly, respectively.

In addition to the foregoing, there could be many innovative ideas that some countries are trying to implement through the extension system. These include: advising seed growers on seed production, testing newly developed farm implements, terracing and soil conservation, adoption of vegetative soil and water conservation methods (e.g. vetiver grass), farming systems research (FSR), etc. There is a need to transfer relevant information from one country to another.

The organizational improvements brought about by T&V have given extension staff a clear work programme and the continual training under the system has given them confidence in their ability to assist farmers. Many of them have developed a sense of pride in their work for the first time in many years.

These factors have mainly been responsible for the high level of morale among the T&V extension staff, despite poor salaries and working conditions[5]. It is important to address the problem of improving the conditions of service of extension and research staff in most African countries if this level of morale is to be sustained.

The view that is rapidly becoming fashionable both within and outside the World Bank would appear to be that while this is a critical issue, the solution lies in the eventual privatization of as many agricultural services as possible, including extension. It is doubtful that the privatization of research and extension can be achieved in African countries on any significant scale in the near future, particularly for food crops. It would therefore be realistic to accept the fact that most research and extension in Africa will continue to be dispensed by the public sector for a long time to come, and to focus on improving the conditions of service of the staff in these sectors.

EXTENSION AND NATURAL RESOURCE MANAGEMENT

The responsible management of natural resources depends upon community action and T&V's emphasis on groups, particularly in the Sahelian countries, has resulted in farmers taking many measures in this direction, such as row planting along contours, composting, "diguettes"[6] and various soil and water conservation measures.

Despite these efforts, there is a feeling among extension staff that extension's contribution to natural resource management is not appreciated, and that the ministries concerned do not consider extension an instrument for realizing their objectives. This issue was addressed at the extension workshop at Abidjan held in January 1993:

"The participants pointed out why it was difficult to integrate natural resource management (NRM) with extension. First, staff working in natural resource management projects and those in field extension differed in their perspectives (entire watersheds as against farmers' plots) and had different time horizons (several years as against single seasons). NRM approaches the problem from the point of view of the whole village, or even a group of villages, whereas extension approaches it from the level of contact farmer groups.

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[5] The tremendous enthusiasm of the field extension staff in Zaire and Uganda defies any attempt to connect performance on the job with salary and working conditions.

[6] These are "terraces" started in Burkina Faso by a local OXFAM project and continued under the Bank-supported extension programme; they now cover nearly 200 000 ha., up from only a few hundred hectares in the 1980s.

The impact of NRM messages, which have implications for the long-term, do not also lend themselves easily to assessment by the monitoring and evaluation units of extension (which report on the rate of adoption by farmers of extension messages over the last crop season).

"It was observed that often, research and extension structures lack the competence necessary to study the wider environment in which farmers operate. Where this competence does exist, it does not always receive the political and financial support necessary for NRM programmes to be implemented. Yet, natural resource management is an indispensable factor if sustainable agriculture is to be promoted.

"There was no resolution of this issue. The group merely concluded that research and extension should take natural resource management into account so as to generate extension methodologies to motivate farmers for community action, and to develop and disseminate appropriate technologies for the management of individual farms, as well as for community resources.

Since extension in Africa now largely works through farmers' groups, it should be possible for it to motivate them for community action to preserve their shared natural resource base. More discussions are needed on how, precisely, the extension and natural resource management projects could collaborate with one another, or coordinate their activities, given the complementarity of their objectives and approaches." (Bagchee 1993).

EXTENSION BY NGOS AND THE PRIVATE SECTOR

The Bank-assisted research, and more specifically extension projects, focus on public sector systems. The main question posed by them is: how to make public sector research and extension systems more responsive to farmers? As mentioned earlier, the key tool employed by them in achieving their objective has been organizational reforms, particularly extension management reform, to be followed by a reform of the research planning process.

It is increasingly being felt that farmers require information regarding various aspects of farming, including marketing, prices etc. and that the public sector extension system, even after it is reformed along T&V lines, would not be capable of providing all the information that farmers might need.

Some of the more effective providers of such information are NGOs, farmers' organizations and the private sector. It is also felt that the latter are more accountable to farmers than public sector extension, and are more capable of developing technologies relevant to their needs.

There is no doubt that public sector extension agencies should not be the sole source of information to farmers. In fact there are many instances of successful collaboration in the field between the public sector extension services on the one hand, and NGOs, farmers' organizations and the private sector on the other. The fruitful collaboration in Ghana and Zambia between the Global 2000 organization and T&V is one example.

In the early stages of the organization of a National Extension Service (NES) in Zaire, it became quickly apparent that a single national service would be difficult to manage due to administrative and logistical reasons. The NES invited local NGOs and private cotton companies to provide extension services in their areas.

There are many successful examples of private sector extension in SSA, such as the Kenya Tea Development Authority (KTDA)[7], British American Tobacco (BAT), East African Industries, cotton companies financed by the *Compagnie Française pour le Développement de Fibres Textiles* (CFDT) (which are gradually moving to the private sector), and some companies that produce specialty goods such as beer, sunflower oil and vegetables (mainly for export) having their own extension services. In some countries, input dealers provide information to farmers regarding the use of their products. For example, some private sector chemical companies in Kenya are very active in providing information to farmers about different pesticides and herbicides.

The private sector has a comparative advantage in areas where farmers demand a level of specialized service, generally for cash crops, not provided by public sector extension. Such a high-quality extension service for cash crops could have a positive spill-over effect on other crops because farmers improve their general farming skills, and apply their knowledge to their whole enterprise. But the fact that the private sector is providing extension services in some specialty areas (mainly in single commodities) is no argument for not retaining extension as a public service, particularly for crops and farmers who might not be touched by private sector extension.

Public policy should therefore encourage private sector extension wherever such initiatives are forthcoming. Public sector extension should continue side by side, focusing on farming systems (which the private sector is prone to ignore), extension for women and youth and resource-poor regions and farmers and generally for commodities neglected by the private sector.

This issue was discussed in the extension workshops at Accra and Abidjan held in January, 1993 and attended by the research and extension officials from the countries in the SSA. It was felt that:

"If the privatization of extension services is contemplated, it should start from the cash crop/commodity side, and not from the side of generalized extension for food crops, small-scale and integrated farming systems. In fact, privatization efforts should start with input distribution services, particularly seed production and distribution, rather than from research and extension services." (Bagchee 1993)

The public extension service should keep a watchful eye on private sector extension, particularly when such extension is provided by fertilizer or pesticide companies, to ensure that the extension advice given is not harmful to the environment. This is especially relevant when it involves the distribution of inputs at subsidized prices.

The *main issues for the future are*: identification of the *areas of coordination* between extension provided by the NGOs and the private sector on the one hand, and the public extension and research systems on the other; and deciding on the *mechanism of such coordination*.

MASS MEDIA

With the increasing globalization of information through modern communication techniques, farmers should have access to various channels of information, and mass media would be an appropriate vehicle for this. The use of mass media for extension is nothing novel. In India, rural broadcasting has been very popular with farmers since the mid-1950s, and many crop varieties in the State of Uttar Pradesh

[7] KTDA is actually in the joint sector, i.e. a joint government/private venture.

used to be known as "radio varieties" as farmers became aware of them through radio. The dawn of the television age has resulted in many telecasts for farmers. In SSA countries, programmes for farmers are very common on radio and television. The main issues are:

- Improvement of the quality of the programmes.
- Providing farmers with access to multiple sources of information, instead of making mass media the mouthpiece of the "official" agencies; and
- Bringing about complementarity between mass media and "face-to-face" extension services in the field.

Mass media is particularly effective in making farmers aware of new technologies and they can always approach the extension agent for more details. It is also the quickest way of reaching a large number of farmers in a very short time and would therefore be very useful in times of emergencies such as a large-scale pest attack.

It could be effectively used for: announcing meeting points, training dates, work programmes, providing farmers with information on a wide range of topics of interest to them besides technology, such as the latest prices, goods available in the market, changes being made in agricultural policy that will affect them, etc.

It also has the advantage of enabling Extension Departments to communicate not only with the direct clients of extension (i.e. farmers), but also with the people in towns, so that the latter may become aware of new developments in agriculture. Increasing the use of modern communication techniques would require a constant reappraisal of the role of field extension and the kind of training to be provided to the extension staff.

Face-to-face extension in the field would not be eliminated in SSA for a long time to come; increasing mass media's role, and exploiting its comparative advantage, could eventually lead to a decrease in the number of more highly qualified and trained extension staff to undertake field extension work. It is necessary to start pilot activities to test different approaches in the field.

FARMERS' GROUPS

It is now generally recognized that working with groups rather than with individual farmers is more conducive to effective extension. In Ethiopia, for example, the experience of both the Ministry of Agriculture and the Ministry of Coffee and Tea Development has been that wherever the extension staff work with groups, the adoption rates have been much higher than when they work with individual farmers.

Competition among groups has been a major factor in facilitating the dissemination of extension recommendations. Extension work with farmers' groups is being actively encouraged under Bank-assisted extension projects. Extension could work with traditional groups in rural communities, and there is no need to form new ones only for extension purposes. While extension could work with already-existing groups, it should refrain from being pro-active in the creation of such organizations, as there is a real danger of farmers being coerced into forming groups by public sector extension services.

Although extension might not actively promote farmers' groups, its work can certainly contribute to farmers coming together on their own. Extension work with contact farmers involves persuading them to try new practices on small portions of their fields and inviting surrounding farmers to participate in the discussion on the adoption of these practices. In due course, if extension works consistently with the same group of farmers who find the recommendations useful, a certain bond is established among the farmers and the next thing they would like is access to fertilizer or seed.

MAIN RECOMMENDATIONS OF THE EXTENSION WORKSHOPS HELD IN ACCRA AND ABIDJAN IN JANUARY 1993[8]

As mentioned earlier, about 30 African countries are currently at various stages of implementing Bank-supported extension projects. In order to review their experience in implementation, two workshops were organized jointly by the Agriculture Division of the Africa Technical Department (AFTAG) and the Economic Development Institute (EDI) of the World Bank.

The first brought together senior managers of the national extension and research services from 10 Anglophone countries at Accra, Ghana, during January 18-24, 1993, and the second from 17 Francophone countries, in Abidjan, Côte d'Ivoire, between January 25-29, 1993. The two-week-long deliberations brought to light a number of interesting points regarding extension systems in Africa. Participants in Accra and Abidjan raised many of the same issues. The main difference between the two workshops was that natural resource management emerged as a more important issue in Abidjan than it did in Accra.

The topic of how to reach women farmers with extension services was discussed in greater depth in Accra than in Abidjan, where more attention was paid to how extension agents can work more closely with various types of farmers' organizations. The main issues and concerns voiced in the Accra-Abidjan workshops fall under four main themes. These are: *Management of Extension, Technology, Training and Extension for Special Categories of Farmers.*

With regard to the Management of Extension Services, the main concern was the inadequate provision of funding from the governments concerned. In IDA-assisted extension projects, the governments are expected to put up counterpart funds, typically amounting to about 20% of the total project cost. However, because of the continuing economic crisis in most African countries, as well as procedural and other delays in releasing even budgeted amounts, field staff face severe problems, such as the inability to carry out as many staff training sessions and supervision tours as envisaged.

Other issues discussed under this theme concerned modifying the T&V system to suit the socio-cultural-administrative context of the particular country, and the implications of operating a "unified" extension system, delivering extension messages to farmers in many areas of concern to them, such as crops, livestock, agroforestry and fisheries, the underlying assumption being that extension's concerns should be congruent to farmers' concerns.

Under the topic of Technology, the participants were concerned about the slow pace at which technologies appropriate to the African context were being made available. Unless the existing research infrastructure is strengthened, and there is better research-extension linkage, the extension services would not be able

[8] This section is extracted from Bagchee (1993).

to show much effectiveness in the field. Participants, particularly in Abidjan, also pointed to the need to coordinate the efforts of staff working in the extension services and those working in natural resource management projects.

Periodic staff training is a fundamental feature of the T&V system. The workshops considered several aspects of training: the need to have regular training sessions, to include training in communication skills, and for training sessions to follow a problem-solving methodology.

A fourth major area of concern at the Africa extension workshop was the need for targeting and reaching special groups of farmers. These included women farmers, young farmers, pastoralists and nomads, and farmers' organizations. The general consensus was that special diagnostic analyses and innovative methodologies need to be devised in order to service these special categories of farmers.

At both workshops, Professor R. Evenson presented the findings of the evaluation of T&V extension in Kenya and Burkina Faso. These show a very high rate of return on the marginal investment involved in strengthening and reorganizing extension services according to the principles of T&V.

A number of significant recommendations were made at the workshops - "workshop" stands for either Accra or Abidjan, and where the report refers to a specific workshop, the prefix Accra or Abidjan (as the case may be) is used. Some of the most important suggestions for the consideration of the World Bank and national governments are:

- Strengthen the recently established unified national extension systems (as opposed to crop-specific services).

- Increase attention to research on hitherto neglected areas: the "orphan" food crops such as sweet potato, yams, and cassava, intercropping and natural resource management.

- Align research efforts with small-scale integrated production systems by introducing more participatory on-farm research, like the multidisciplinary farmer-oriented approach of farming systems research.

- Improve linkages between extension and other agencies by placing more emphasis on bringing about attitudinal change or "emotional realignment" in the different hierarchies, than on the creation of new institutional structures.

- Work towards establishing unified national extension services, by (a) avoiding, at least in the future, sanctioning separate extension projects (commodity-specific or "enclave" projects), outside the national extension programmes and (b) not sanctioning extension projects with a *conflicting approach* (e.g. that bring subsidies, doorstep delivery of inputs or linked credit).

- Improve extension services to female farmers.

- Include advice regarding the management of soil and water conservation at farm level in extension messages. At the same time, the programme managers of natural resource management (NRM) and T&V should explore the possibilities of working together, or harmonizing their perspectives.

- The World Bank should facilitate the establishment of a regional or international centre in Africa for the regular exchange of experiences and innovative ideas in extension, and function as a centre of

excellence for training, documentation and evaluation of extension methodologies. In the meantime, a newsletter could be started to exchange ideas and experiences.

- A Pan-African conference on extension issues should be organized in two or three years, which would facilitate exchanges of experience at the continental level.

Acronyms

SSA	Sub-Saharan Africa
T&V	Training and Visit
NARS	National Agricultural Research System
ASI	Agricultural Services Initiative
FSR	Farming Systems Research
SMS	Subject Matter Specialist
REL	Research-Extension Linkage
NRM	Natural Resource Management
NGO	Non-Governmental Organization
NES	National Extension Service
KTDA	Kenya Tea Development Authority
BAT	British American Tobacco Company
CFDT	Compagnie Française pour le Développment de Fibres Textiles
AFTAG	Africa Technical Department, Agriculture Division
EDI	Economic Development Institute
IDA	International Development Association

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FUNDING AGRICULTURAL EXTENSION

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Why is it a problem to fund agricultural extension?

Suppose a political decision-maker, who is responsible for allocating the budget of an African country, stood before a group of farmers and told them that due to budgetary cutbacks, they had to decide whose services they wanted to retain: those of an agricultural extension agent, a nurse or a teacher. For many farm communities it is unlikely, if not altogether impossible, that the agricultural extension agent would be at the top of the list. This is due to the fact that very often, the smallholder farmer in Africa does not appreciate the significance of the extension agent's messages. Moreover, often the technical information contained in these messages, which are generally offered for free and insistently, is not always utilized.

Does this mean that extension services in Africa are useless? Certainly not, because experience shows that agricultural extension can be beneficial in Africa as well as elsewhere.

A study conducted by the World Bank in 1988 on the impact of extension on the agricultural economy concluded that it has a "positive and considerable effect". The rate of profitability of agricultural extension in Africa, Asia and Latin America is supposed to be between 34 and 80%, which is more than satisfactory, even if it is far from the rate of 100% achieved in the United States.

Realistically speaking, in economically advanced countries, technical and agricultural information is bought like an input or a piece of equipment. In some developing countries, this information is also bought within the framework of technological packages that include seeds, fertilizer, pesticides, etc... for which the smallholder farmer accepts to pay retail price. Such is the case for example for smallholder rice farmers in India and some smallholder maize farmers in Kenya.

However, it must be acknowledged that the transfer of technological information to most farmers in many African countries remains a difficult undertaking. This situation prevails despite the efforts made by governments and international development cooperation agencies and organizations. Thus, in both agricultural development projects and integrated rural development schemes, the problems of technology transfer are among the main obstacles in the way of achieving the set goals, regardless of the funding sources.

Agricultural extension services have benefited from substantial but non-renewable financial resources.

African countries see agricultural extension as an essential tool for promoting agricultural production as well as rural development. Although the role of agriculture in national budgets has often not reflected the true magnitude of this sector in the national economy, the resources set aside for agricultural extension have increased considerably.

Moreover, outside aid agencies have also financially supported efforts to strengthen agricultural extension in Africa. The Food and Agriculture Organization of the United Nations (FAO) provided this type of assistance in key areas which are:

- The analysis of constraints to the adoption of new technologies.
- The establishment of formal and informal programmes to train extension agents.

- The strengthening of linkages between agricultural research, extension and training.
- The creation of agricultural extension policies and programmes.
- Awareness-raising among political decision-makers and directors of agricultural services regarding the magnitude of requests made by rural women for technological information.

The World Bank, which is the main donor in agricultural and rural development in Africa, is also the main source of outside financial assistance for agricultural extension, for which a major effort was launched in 1985. For example, the Bank had earmarked US$150 million annually for financing 30 agricultural extension projects between 1990 and 1994 in 27 countries, 16 of which are African countries.

Other international financial institutions, like the Fonds International de développement agricole (International Agricultural Development Fund), as well as the main bilateral and multilateral aid donors, continue to provide support through their contributions to agricultural and rural development projects, as shown by specific extension or research and extension projects.

The question that arises however, is whether the current programme and project funding mechanism is sustainable.

A study recently conducted by the World Bank, which was published in 1992, provides information that could partially answer this question. This study presents a table of recurrent costs of extension projects in the following African countries: Rwanda, Zambia, Uganda, Burkina Faso, Somalia, Côte d'Ivoire and Cameroon.

The extension component absorbs an average of about 60% of the general cost of the projects in question, so these are projects whose main objective is to promote agricultural extension. The government is responsible for 6% to 42% of the total costs of the projects, depending upon the country, but the average is 18.5%, or less than one fifth of the total costs. Is it reasonable to count on outside financial assistance for up to 80% of the costs to maintain a supposedly permanent governmental administrative structure, in other words the national extension services, on a long-term basis?

Admittedly, the tendency to reduce outside funding for agriculture in Asian and Latin American countries has not yet reached Africa, particularly Sub-Saharan Africa. This is due to the fact that agriculture is a sector that is as essential to the economy of the continent as it is vulnerable. However, this tendency could very well affect Africa in the future.

The economic reasons for this may be summarized as follows:

- Investments in the agriculture sector have not yielded the expected financial returns.
- National institutions have a limited absorption capacity.
- The financial problems of developing countries, including that of external debt, which have lead to the necessary implementation of economic restructuring plans, have prompted donors to give priority to macro-economic and political reforms, to the detriment of agriculture projects. It is estimated that these reforms will create a macro-political environment that will then enable agricultural projects to achieve acceptable rates of profitability.

- Donors most likely feel rather "exhausted" by perpetual efforts made in the area of agriculture. This seems justified by the remarkable growth and economic potential perceived in newly industrialized countries.

Political motivations are linked to the interests of groups of farmers from industrialized countries, and are also influenced by public and private banks that exert pressure to use development assistance to increase exports so that debt-ridden developing countries may repay their loans.

The problem of recurrent costs should also be examined, as well as the question of the relative level of the actual resources mobilized by African countries for funding agricultural extension projects and programmes that receive outside funding. An examination of project-related data in the aforementioned countries reveals recurrent costs from 3% to 75%, with an average of 36% for all the projects.

The problem then arises of the capacity to pursue activities once outside funding has come to an end, unless a new project financed extensively by outside sources is launched. This is a particularly relevant concern at the present time for structural adjustment programmes, to which African countries are subjected, one after the other.

In their concern to balance their national budgets, these programmes lead to substantial cutbacks, which affect the "normal" operations of government services. This is a factor that must be taken into account.

How can funding for agricultural extension be perpetuated?

An essential point should be clarified before answering this question: agricultural extension projects cannot be designed and funded on an isolated basis, without integrating them into the entire process of development and technology transfer. It is thus a matter of funding agricultural technology systems.

The main actors in a technology system are:

- *Those who use the technology.*

  This normally means farmers, but individuals and establishments responsible for processing the products, marketing agents and naturally consumers should also be included.

- *Institutions responsible for developing and adapting the technology.*

  This means the national agricultural research systems, which include both public and private institutions.

- *Agents responsible for disseminating the technology.*

  This is where agricultural extension services play a major role. Their essential function is to serve as a "driving belt" for the dissemination of agricultural information. The term agricultural information is preferable to that of technological information, as it shows the range of information that needs to be covered.

The following remarks essentially deal with the funding of agricultural research and extension.

Agricultural research in Africa is going through hard times. For a while, this branch of activity, which promotes efforts to increase agricultural productivity, did not benefit from the financial support necessary.

When mobilizing resources for agricultural extension, African political decision-makers were often unaware of the fact that an extension system can only be valid if it is supported and sustained by an effective, efficient agricultural research system. Thus, taking the years between 1959 and 1980 as an example, the output for extension in relation to the value of agricultural production in West Africa went from 0.6% to 1.16%, while the output for research went from 0.19% to 0.81%. On the other hand, the figures for semi-industrialized countries were 0.29% to 0.59% for extension and 0.68 to 1.5% for research.

In 1986, aware of the seriousness of this relative negligence towards research, countries in Sub-Saharan Africa and their traditional donors set up a special programme for agricultural research (SPAAR), whose main goal was to strengthen agricultural research in Africa south of the Sahara through the improved coordination of outside assistance and better regional cooperation. An interesting aspect of the programme is the recommendation made to the partners - donors and aid recipients alike - to set up a consolidated research funding mechanism in each country.

This mechanism would ideally be a "pool" of resources that has been put together to implement national programmes based on a plan of action that is acceptable to all parties concerned, with the coordination of outside assistance being ensured by the recipient country. This mechanism has not yet been accepted by all donors, but an intermediary version may be implemented soon in some countries. The basic principle is the guarantee of the sustainable funding of a comprehensive national agricultural research programme offering:

- A process of defining well-established priorities, taking into consideration the human resources available, and of realistically evaluating funding possibilities.
- Effective control over all financial resources for the national research system.
- An appropriate system of financial supervision.
- An adequate research evaluation strategy.

Moreover, SPAAR's approach includes the design and implementation of regional research programmes based on a collective decision-making process regarding the content of the programmes and the distribution of responsibilities between the various national research systems concerned. By avoiding the duplication of effort, this approach will potentially save both time and money, and will thus even reduce the cost of research activities.

With regard to national research systems, SPAAR encourages contributions from the commercial private sector or non-profit sector (NGOs), which is a factor that can stimulate competition and reduce government output. Judicious collaboration with international agricultural research centres, which are supported financially by the donor community, will also be a way of reducing the national costs of developing agricultural technologies.

There is clearly no absolute guarantee for African countries that the funding of their agricultural research activities will be continued if SPAAR's strategy is adopted, or if this approach is used for their programmes. They can, however, expect a long-term contract which will enable them to establish the basis for full-term autonomous funding. It seems that some donors are ready to try out such a contract, and hopefully their numbers will increase.

Some fundamental questions should be asked with regard to the funding of agricultural extension. The first pertains to the very nature of the extension services. Do they fall under the heading of public service, like basic education for example, which for some would mean that they should remain permanently free of charge? Or, on the other hand, are they a source of economically and financially lucrative information, which would consequently be used for commercial transactions? If so, why would the government necessarily play a role? And if it does, what role would that be?

Along similar lines, the second question is: does the function of extension, or the transfer of information require particular mechanisms, or could it be combined with the research function? In our opinion, these two questions can be partially answered by the following remarks:

If the continuation of the funding of agricultural extension is a major objective, extension or rather the agricultural information service must be self-financing in the long term. There is nothing novel in this proposal because extension is already being more or less gradually and partially funded in some programmes and projects in Africa (e.g. Zaire). It would imply, however, exploring its feasibility and encouraging its use in agricultural development programmes and projects in every way possible.

If the formula has been accepted by smallholder farmers, it is because they have found agricultural extension to be a valid investment if it carries messages that can be transformed into positive financial results. If there are no such messages, the extension services are not of any great use.

With regard to twinning the extension and research functions, there is a formula used in some developing countries such as Indonesia, where it meets the needs of numerous farmers (rice farmers). It enables the farmer to deal with a competent representative who guarantees that the research will be applicable to solving the problems identified together. It reduces the chain of communication between research and the farmer and creates a true political basis for agronomic research among the farmers.

Whether research and extension functions are combined or separate and assumed by different mechanisms, the government cannot be completely absent from the processes involved. It must in fact draft research and extension policies; define national priorities, at least the main points; and support priority actions with the appropriate resources.

The government must also ensure that competition in the area of development and technology transfer does not flourish to the detriment of users with less resources. It may also manage control mechanisms that protect the needs of marginalized groups or promote products that are less attractive to the private sector.

CONCLUSIONS

Although some of the results of the extension services remain unconvincing in many cases, the actual function of extension, which is the dissemination of knowledge that is necessary for improving

agricultural productivity, remains essential because this improvement is an ongoing process, without any time constraints.

Extension, which revolves around the communication of constructive information, should eventually become the responsibility of its users, since other demands of rural development also exert considerable pressure on the meagre financial resources of many countries. This includes agricultural research, which is an indispensable aspect of effective extension.

Extension may benefit from being combined with agricultural research, thus shortening the chain of communication between the developers and users of technologies, and creating a better political basis for research. The government may equally benefit by delegating a major part of the development function and technology transfer to the commercial and non-commercial (NGOs) private sectors.

SUPPORT TO RURAL FARMERS: SOME ALTERNATIVE APPROACHES

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Abstract: *Using the "Training and Visit" method to improve agricultural extension systems does not solve the problem of government expenditure and keeps farmers dependent upon technicians. In his paper, the author discusses new innovations and numerous experiments that are currently underway in West and Central Africa, and highlights the following: the promotion of competent farmer organizations and advisory services to help identify concrete actions to be taken; the implementation of a farmer-driven plan to accompany these actions; the production sector (supplies, marketing and financing strategies); the establishment of a team with an "orchestra leader" to provide support to farmers; evaluation as training-support tool; redefining the role of the government to create a favourable environment for farmers and their organizations; and giving priority to training extension agents who provide support to farmers, with particular emphasis on advisory services.*

SUPPORT TO RURAL FARMERS: SOME ALTERNATIVE APPROACHES

Alternative approaches? Alternative to what? In this paper, we will go beyond analyzing extension models and discussing how to improve their implementation and examine alternative approaches to agricultural extension.

THE SITUATION IN 1994

The plight of African farmers today is marked by the fragility of monoculture production systems (cf. coffee and cocoa in Cameroon), and by the tendency of many farmers to diversify (including groups that had previously produced strictly cash crops in south-central Cameroon who are now involved in marketing cocoa, and are also attempting to increase cash crop production).

In this case, diversification does not only imply substituting subsistence crops with cash crops: it also suggests attempts to implement a multicrop and "multiactivity" system, with cocoa being one of its components.

The assessment of the parastatal farmer-support systems that have been fostered for over 20 years is not very optimistic. However, these systems have certainly managed to safeguard jobs through outside funding, and perhaps, in some cases, contributed positively to agricultural production (although this is difficult to evaluate - how can production increases or decreases be attributed exclusively to extension!..).

In most African countries, the time has come where governments want to cease providing support to farmers, especially under constraints imposed by foreign donors, and following the crisis precipitated by the drop in the prices of certain products (e.g. coffee and cocoa in Cameroon. This situation may obviously change with the depreciation of the CFA Franc).

However, in this context, it should be noted that the role of the government has not been given sufficient thought. In certain cases, the previous supply and marketing systems have been abandoned (cf. in

Cameroon, SODECAO and the cocoa marketing system have been called into question) and liberalization and the role of workers in the private sector are being debated. Some operations that strengthen earlier agricultural extension systems are nevertheless being continued (such as "national agricultural extension programmes" that were promoted by the World Bank according to the "Training and Visit" method).

These changes are occurring within evolving political frameworks, where countries are going through a process of democratization. This means that new individuals, i.e. civilians, are increasingly gaining recognition (especially farmer groups in rural areas, which have various roles and objectives, ranging from technical responsibilities, to the representation of farmers in certain networks or political situations...).

However, the role of farmer groups is still rarely taken into consideration when designing farmer-support programmes (e.g. in Cameroon, where independent farmer groups among coffee and cocoa growers have difficulty gaining recognition).

PAST DISCUSSIONS ON EXTENSION

Representatives of the "Training and Visit" system discussed its implementation at the meeting in Yamoussoukro[1] with advocates of a research/development procedure.

The discussion, which also covered local adaptations and critical points of view, can generally be summarized as follows:

The "Training and Visit" system enabled previously unemployed administrators to be re-employed by injecting additional financial resources and helping to define necessary frameworks and programmes, particularly for grassroots-level extensionists.

In addition, "Training and Visit" models have also enabled certain extension mechanisms to be relaunched, however:

- The "Training and Visit" system does not really take into account the different types of agriculture practised and the need for diverse solutions.

  Its attempts to apply a uniform model to a wide spectrum of situations have had limited results, despite the presence of specialized teams of technicians (although it is certainly helpful to have access to specialists on-site).

- The system assumes that the farmers' productivity is limited due to their lack of knowledge of technical proposals resulting from agronomic research, and that research has the solution to all problems.

- The farmer's situation is not sufficiently taken into account when research-based proposals are made, e.g. regarding supply conditions, marketing and credit. These are often deciding factors as to whether or not the farmers will adopt certain innovations. This is often also linked to the labour and financial resources available.

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[1] cf Recherche, vulgarisation et développement rural en Afrique Noire. Documentation Française 1987.

- The system implements uniform models, whereas they should vary according to the topic in question.

- Different means of communication should be used depending upon the nature and complexity of the information to be disseminated and the farmers themselves. For example, mass media (radio, etc...) may be appropriate for disseminating certain types of information. It is also useful for disseminating other types of information to groups of farmers, e.g. in neighbouring villages or among groups with economic links.

Ways to improve all of the foregoing points will be proposed during the course of the workshop. However, two major criticisms of the situation in 1994 are:

- The "classical extension" that has been improved by the "T&V" system reinforces the existence of expensive administrative mechanisms and does not provide farmers with any new alternative to classical extension.

  It also does not help solve the problem of government output, nor does it help redefine the government's role. This is still necessary in many respects, even with the current trends towards liberalization (particularly in order to maintain a favourable economic and social climate).

- It prevents technicians from playing a dynamic and catalytic role among farmer groups. In fact, research fosters the farmers' dependency upon technicians instead of helping them to become autonomous. (Perhaps progress will be made in this area during the workshop).

Many discussions, in addition to those on extension *senso stricto*, are now focusing on farmer organizations and the professional side of agriculture, which is often overly privatized. Moreover, rural organizations are playing a major role in environmental protection (land-use management projects) and in restructuring the main sectors that are having problems (cotton, cocoa, coffee...). Some important questions on support to farmers within the foregoing context (redefining the role of the government and the promotion of rural organizations) are therefore:

- What kind of technical advice do the different types of farmers require?

- What other types of advice and support do they need with regard to management and economic and commercial information?

- What are the most appropriate types of advisory services (individual or group) and in the latter case: should there be occasional case-by-case group meetings, meetings with existing working groups, and/or should the meetings revolve around the farmers' "economic or technical projects".

- What are the most suitable institutional mechanisms for providing this support and advice, and for ensuring their effectiveness (through appropriate supply, marketing and funding models)?

All of these points are linked to the cohesion between strict technical advice and agricultural policy, thus a favourable socio-economic environment for farmers (which has to do with government policy and the relationships between the different actors in a network).

- What is the role of farmers and their organizations in the management of advisory and support services, and other economic, commercial and financial services? What is the farmers' influence on "extension" services and research and training establishments at the institutional level?

- What is the role of farmer organizations in defining agricultural and development policies and in the management of the different sectors?

This is often discussed within the context of "professionalizing" agriculture, along with the topic of cohesion between government bodies and professional organizations (merchants, NGOs...).

PROFESSIONALIZING AGRICULTURE?[2]

- Rural farmers need resources and tools to be able to meet different needs i.e. to obtain supplies, market their products and finance their work. Technical advice in the true sense of the term is only useful if it helps farmers meet these needs. They also need a technical and economic environment that fosters the activities of their production unit and the completion of their individual or collective projects. Workers who deliver the necessary goods and services are also essential in this arrangement.

- Farmers must understand and master the aforementioned resources and tools. They must be familiar with them, have access to them, and in the best case scenario, contribute to their establishment and management, for which a wide spectrum of situations may be envisaged:

  ▸ Workers who contribute to the economic side: (shopkeepers, craftsmen...) ensuring quality service at a "normal" price (which must be specified).

  ▸ Farmer organizations that play a technical or economic role regarding hands-on management (of a shop or a cooperative).

  ▸ Farmer organizations that have their own "service" centres: i.e. management, service or shopping centres...

- Furthermore, an agricultural and rural development policy that promotes these operations (prices, taxation and credit policy, support to professional service structures...) is thus necessary. It is also essential that farmers play a role in establishing the agricultural policy through their representatives. This raises the issue of farmer representation and their recognition by the government and businessmen, for which different tactics and strategies may be adopted.

INNOVATIVE APPROACHES AND ACTIONS

The various innovative approaches used deserve special attention (although they do not provide universal solutions). In our opinion, the following are areas where farmer-support mechanisms may be improved:

[2] GAO Network Newsletter No. 16 page 13.

The promotion of farmer organizations

Farmer organizations must be in control of farmer-support mechanisms. These organizations must also be dynamic and directly involved in farm activities and production.

There are many different types of farmer organizations:

- Village groups, whose main concern is often the economic viability of their projects. Many of these groups are assisted by NGOs.

  Some of them had been reticent to become involved in government initiatives in the past, but are currently involved in a range of possible efforts in the areas of marketing, supplies and the organization of services for their members. There are many of these farmer groups here in Cameroon, particularly in the southern-central part of the country.

- Groups that are promoted by development projects or organizations. They often lack the autonomy to fully commit themselves to projects of which they would ideally be in charge. This is undoubtedly the case for groups promoted by SODECOTON in the north of the country.

- CFPC-type federations or unions in Cameroon, FONGS in Senegal, and Naam groups in Burkina Faso, which can potentially become a support-providing force (as is already the case for FONGS).

  It should be noted that in Cameroon today, 27 out of 37 farmer federations are members of the Council of Farmer Federations. Many others are currently being formed: they are either being newly founded, or are being created out of federations that are splitting up.

  This is an important "part of life" in rural areas, although it pertains mostly to minority groups and is thus still a relatively delicate situation (particularly with regard to the continuity of the original organizations).

  Moreover, although these groups are currently strongly supported by NGOs in certain cases, they sadly lack support in areas that are essential for their future existence (particularly with regard to the implementation of projects with an economic orientation).

- Organizations that play a pivotal role in negotiations between private or government sectors (thus a union-oriented role) e.g. the SYCOV in Mali.

- Last but not least, some of the first cooperatives should be mentioned (e.g. UCAL in Nkongsamba and UCCAO). They are both economic hubs and "technical training" centres.

All of these local or regional-level, independent or federated organizations can serve as active support/advice centres for their members, certainly in a more sustainable way than artificial groups that have been created to carry out extension activities.

These organizations must also establish their specific purpose with the local communities. This will become increasingly necessary in some of the countries in the region due to the restructuring of these communities (e.g. decentralization laws are being implemented in Burkina Faso and Mali...).

ADVISORY SERVICES: EMPHASIZING THE PROCESS OF DIAGNOSIS AND THE ENSUING DECISIONS TAKEN BY THE FARMERS

We would like to discuss the research development practices that were implemented by projects that came under the foregoing heading or by teams in the field.

Although research/development-type operations have often been bogged down in endless diagnoses, and have been wrongly confused with production systems research, the process of diagnosis has a great deal to offer. Since operations may be started up before the process of diagnosis has come to an end, farmers can be shown where individual solutions to problems are possible, and where more collective solutions are necessary (for equipment, communal purchase, etc...).

Today, this procedure, which starts with diagnosis and goes all the way through to advisory services, is an important part of "management advisory" operations. The process begins with a diagnosis that is carried out together with the farmers concerned, and solutions are sought in practices implemented elsewhere or that have been proposed by research.

The next step is the design of the project (whose dimension and angle may vary, and it may also be of a technical or economic nature...). Processes may be utilized that have been used by research units in "Southern Mali" for example, and elsewhere by NGOs (e.g. by the Diobass group), but that have also been used within the framework of more classical projects, like in Burkina Faso.

For example, in the region of the integrated rural development project of Houet Kossi Mouhoun in Burkina Faso the support provided by the CRPA agents within the framework of the SNVA is based on the "Training and Visit" approach.

We have found that the farmers request information about technical innovations, crop performances, the price of pesticides, possible locations for obtaining supplies and details on the marketing circuits. They do not ask how to measure lines, the distance between lines for sowing or the doses of fertilizer to apply, which they already know and have adapted to their strategies and resources.

A "management council" team introduced another approach that had been tried in five villages. The approach consisted of an exploratory phase with 10 farms per village, an analytical phase and a consolidation and restitution phase for the villages.

The names of farmers interested in the activities were listed. They then decided together which actions to implement. This type of process is possible particularly with the support of literate farmers in the project area.

Leaders are currently being identified in the different areas. They should not only be "agricultural advisers", and the sole resource person: they should provide support to many resource people (literate farmers). Visits are also organized between villages to promote exchanges between farmers.

The three following tables, which were drawn up based on different experiences, summarize the farmers' diagnosis-to-decision-making process.

Illustration of the procedure

Table 1. Analysis of "problems" and "farmer projects"

Problems observed and/or identified by the farmers, or requests for support	Questions on the problem identified or regarding the request for support	Responses given by the different actors	Possible remedies
Example: The land is less productive.	Has the problem of fertility become more severe? When was it first observed? How does it manifest itself?	• What the farmers say • What they do • What the technicians say	• Fertilizer • Organic manure • New rotations...

Table 2. The choice of actions

Topic	Possible procedures	The problems implementing them	Possible actions, considering the necessary available resources
e.g.: Fertility	Fertilizer New rotations Intercropping	Lack of credit Problem of transporting the fertilizer Not tested in the area	Supply store Wheelbarrow or cart Experiment

Table 3. The various (existent or potential) actions that may be envisaged by those involved and their organizations

Level of implementation / Nature	Production unit (agricultural or other)	Basic group	Other basic groups
Agronomic			
Zootechnical			
Technical			
Services (supply, marketing)			
Equipment maintenance			
Miscellaneous			

Establish an accompanying programme to implement actions decided upon by the farmers.

When farmers or farmer groups choose to implement an action, what activities should accompany it?

The accompanying programme, in which the local players must participate (technicians, agents from NGOs, responsible members of farmer organizations...), must fill this gap. The programme is discussed/negotiated with an operational farmer organization, should there be one. Many support-oriented NGOs in Cameroon already have experience in this area (SAILD, INADES, etc...).

The accompanying farmer-support programme

Whether it be an experiment in agronomy, a supply-related project or a decision regarding the communal purchase and management of equipment, there are four types of support roles:

a) Providing the farmers with *information* on technical and agronomic issues, as well as commercial and legal matters, etc...

b) Giving *advice* on investment options, work schedules, etc. The advice may be given on an individual or collective basis, depending upon the complexity of the issue.

The following table illustrates the points to be considered with regard to the degree of complexity of the action and consequently the type of intervention to use.

Table 4. Complexity of the action and type of intervention

Complexity of the action / Type of intervention	+	++	+++
Individual intervention			
Group intervention (ad hoc or existent)			
Mass media interventions			

c) Providing *support* in the true sense of the term. This entails doing demonstrations, conducting studies on production prospects or the first contact with a buyer...

d) *Training* the farmers or farm managers. "Exchanges between farmers" often develop out of this. The training entails primarily technical and economic (management) issues, but also includes commercial and legal aspects, etc...

The accompanying programme thus involves the formulation of the support mechanism, including the different phases of the programme, the groups of farmers concerned, the support staff, the methodology used and the means of funding. These factors are the result of an agreement between the various parties concerned and are illustrated in the following table:

Table 5. Accompanying programme

Mode / Stage	Farmers concerned	Who carries out?	Methodology (How?)	Where	Funding	Schedule											
						J	F	M	A	M	J	J	A	S	O	N	D

When planning the programme, it is important to include monitoring and evaluation mechanisms that may provide advisory and training services for both farmers and technical advisers.

Workers responsible for implementing this programme are of course agricultural technicians but many other players may be mobilized as well.

Based on these principles, teams of technicians, who were responsible for providing support in four priority areas in the SODECAO zone, were set up in different districts of Cameroon. However, this procedure is contrary to the practices of many field representatives (governmental or non-governmental). It should also be noted that the district technician's role should be that of an "orchestra leader".

"Monitoring and evaluation": the farmer-support tool

It is beneficial for farmers and advisers alike to use simple but pertinent (easily spotted) indicators. Monitoring and evaluation is a way of finding out "what works" and "what doesn't". It should not be used to collect additional statistics, but to provide farmers and their advisers with information on the way activities are conducted at the end of a season or an exercise. The following is a summary of a work strategy with technicians in Niger:

INDICATORS[3]

Mechanisms for monitoring and evaluating actions

During a workshop with agents from the PDRIZ in Niger, emphasis was placed on finding simple but pertinent indicators for monitoring and evaluating village initiatives.

An indicator is a sign that can be easily observed (its *existence* or *absence*) or measured (quantity, value...) and thus compared (from one season to the next, from one village to the next...).

1. *Indicators for monitoring activities, or for assessing the conduct of an activity:*

1.1. *Technical* indicators: number of engine breakdowns, tonnage delivered, etc...
1.2. *Economic* indicators: price, profit margin, etc...
1.3. *Organizational* indicators: books, number of days a shop is open, etc...
1.4. *Social* indicators: number of women in the organization...

2. *Indicators for evaluating actions*, to measure the impact:

2.1. *Achievement* indicators (what was achieved compared to what was anticipated)
2.2. *Impact* indicators (e.g., how many farmers have adopted a concept compared to the total number of farmers in the village)
2.3. *Farmer reaction* indicators (what the farmers say about the action - in qualitative terms)
2.4. *Cost* indicators (what expenditures the action has required).

It is up to the agents and farmers to determine the indicators for each type of action. The indicators for monitoring and evaluating a village store will not be the same as those used for monitoring and evaluating an operation in which off-season crops are grown.

[3] Le suivi-évaluation outil de formation? E. BEAUDOUX. Evaluation des programmes de vulgarisation-développement. Actes des journées internationales - Toulouse - Avril 1990.

Mastering the production environment (marketing, provision of supplies, funding...)

Supporting marketing initiatives

The experiences of the "cotton" groups, be it SODECOTON in Cameroon or the CMDT in Mali, are well known in the area of marketing. In Cameroon, experiences pertaining to the negotiation of contracts between private groups and buyers for marketing cocoa over a period of two seasons should also be noted:

During the 1992/1993 marketing season, "group sales" operations were conducted in the SODECAO zone by 322 groups that marketed 7167 tons of cocoa, which represented 15% of the cocoa production of the entire zone. These groups were either former cooperative centres that have become autonomous, or groups of cash crop growers who are now involved in cocoa marketing. They had contacted exporters to negotiate purchase and payment conditions.

Unfortunately, the general conditions of the season did not favour the operation (the season started late and the farmers were in dire financial need for several weeks; there was some uncertainty regarding prices and a "disinformation" campaign was conducted by some local authorities...). Nevertheless, the result, however limited, shows that farmer organizations have the potential to compete in the area of marketing. It also shows that merchants/exporters must "play the game" as well.

Supply-related initiatives

Groups of cotton growers have lead noteworthy supply-related initiatives. However, these initiatives also have their limitations (i.e. the group's dependence on an organized network). Other popular ways of organizing communal purchases of inputs are:

- *Communal purchase (e.g. associations in the retail zone at the Office du Niger in Mali, which buy cattle and fertilizer in Mopti).*
- *A supply store founded by a rural organization (e.g. in Cameroon, the store in Essé established by the UGCE).*

Funding support

The adoption of proposals is often impeded due to a lack of funds. An exception to this can be found for example in the "pioneer" areas of Mbam in Cameroon, where non-native inhabitants have established new plantations and acquired land using available financial resources.

Credit operations in many projects are marked by the frequent non-repayment of loans. Often, normally "good payers" from collective groups, the basis for many transactions, refuse to repay.

Some collective groups are trying to find new ways of obtaining financing (e.g. groups of three or four individuals borrow money in the rural credit programme in Guinea) such as from funds managed by farmer representatives (the FOCAOP in Cameroon, a common support fund for farmer organizations).

Moreover, one of the priorities of farmer-support mechanisms is the establishment of funding mechanisms for agriculture as well as for other individual and collective activities.

THE PROMOTION OF INSTITUTIONAL MECHANISMS INVOLVING FARMERS

The workers

There are many innovative initiatives besides the "PNVA", which supports the classical extension mechanisms that have been established by the government:

- Support to farmers by private workers; i.e. a phytosanitary product company that is establishing a network of field technicians; and a former SODECAO agent here in Cameroon who has set himself privately up as a repairman for sprayers.

- Support from NGOs: this is not new, but it is on the increase with the creation of numerous NGOs by former public service employees, which is not necessarily an indication of competence!

- The establishment of professional support mechanisms for farmers, for example the "House of the Farmer" in Casamance, where services are available to farmers; and the Rural Management Centre of Koutiala in Mali.

The goal of the Rural Management Centre of Koutiala is to provide accountable and financial support to village associations in the CMDT zone. This centre, which is managed by a board of farmers, works with "rural accountants" who are either independent or part of the GIE. Their services are paid for directly by village associations.

The Rural Management Centre of Koutiala is certainly a promising institutional concept that can potentially provide farmers with information on prices and markets, as well as technical information... etc.

There is certainly no single solution in this institutional framework. Workers in a particular area must find the appropriate formula that combines various capacities under a favourable contractual arrangement.

THE FUNDING OF FARMER-SUPPORT MECHANISMS

Following the reduction in government funding, new ways have been developed to finance farmer-support mechanisms outside the PNVA and classical projects:

- Services are paid for by those who use them (cf. the case of the Rural Management Centre of Koutiala), although it would be unrealistic to think that the farmers could finance all of the advisory services. *Part of the "public service" will always rely on non-professional financing*, which obviously varies according to the area and the farmers.

- The establishment of new financing mechanisms that are managed/manageable by farmer representatives and supported directly by international aid. This is the concept of the "Support Fund", which is currently in the planning phase in Cameroon.

The objective of "The Fund", which was initiated when the cooperative legislation was being reformed, with support from the *Caisse Française de Développement* and the European Union, is to subsidize rural organizations to enable them to pay instructors and advisers (NGOs or private enterprises) for training and advisory services. Elsewhere, other funds that have been managed professionally include the "FIL" (*Fonds d'Investissement Local* [Local Investment Fund]) in Mali, which is used for financing investments that are not eligible for credit.

THE ROLE OF THE GOVERNMENT

The government's withdrawal from these activities does not imply that it has abandoned the farmers, but rather that it is refocusing on matters of general interest, and is aiming to create favourable conditions for the farmers' activities, for example:

- *Appropriate legislative measures.*

A positive step has just been taken in Cameroon with the new legislation on rural organizations ("autonomous" cooperatives, groups with common initiatives like GIC and GIE...).

- *Marketing policy measures.*

This clearly shows the necessity of having a government policy, for example for spelling out "the rules of the game" for the cocoa marketing season and for protecting national production if necessary (e.g. poultry production).

- *Land-use measures.*

- *Financing policy measures (e.g. a loan improvement policy)...*

- *Measures to relaunch priority crops.*

- etc...

RESEARCH AND FARMERS

It has already been mentioned that apart from research activities conducted by specialized institutions, research/development operations and production systems analysis have lead to a better understanding of the farmers' situation. This applies to the programme currently underway in Dschang in the chiefdom of Bafou in Cameroon for example. However, three essential questions remain unanswered:

a) How can the cohesiveness between research and development be improved in order to guarantee better feedback?

b) How can research further contribute to making technical and agronomic improvements, to increasing information on the social and economic environment and to finding organizational solutions?

c) How can research results be used by farmers? The establishment of teams of technicians who specialize in the "T&V" system has had mixed results.

"Professional service centres" may potentially play this role, like the technical institutes that have been established by professional agricultural organizations in France. Isn't this same problem as the directors of the SYCOV have in Mali, who are dependent upon the CMDT for their technical information?

INVESTING IN "ADVISORY TRAINING" FOR SENIOR LEVEL STAFF AND AGENTS RESPONSIBLE FOR PROVIDING SUPPORT TO FARMERS

It is clear from the foregoing points that the human potential for providing support to farmers exceeds the efforts of technicians from the classical agricultural services network, and that the challenge is now to mobilize all of the available knowledge at the local level (technicians and farmers, public service agents, NGOs and even private companies...). This can only be achieved through *development programmes* (and the accompanying programme between potential workers, interested individual groups or collective groups of farmers and national or foreign donors). This type of development programme and its outcome, the accompanying programme, are the result of an agreement between the workers concerned and the monitoring and evaluation mechanisms.

Previous experiences with negotiations between support NGOs and their donors may give some direction to the efforts, as could *development programmes* that are financed in France by ANDA (*Association Nationale de Développement Agricole* [National Agricultural Development Association]: a joint effort that gathers together representatives from farmer groups and the public service in order to manage and administer development activities) or in Europe, specific programmes like "leader programmes".[4]

Regardless of the initial basic technical training of the workers involved in establishing the accompanying programme (NGO agents, technicians...), the main flaw in the training mechanisms lies in the instruction in providing *advisory services*. Training is not simply a matter of learning about technical or pedagogical methods: it also implies the preparation for accompanying farmers through every step of their activities, i.e. conducting diagnoses and establishing, implementing and evaluating a plan of action.

It is unrealistic to count on training colleges at universities to achieve this, (or perhaps only partially). Only training curricula that are closely linked to field activities will help workers (technicians and senior-level staff) acquire enough knowledge to be able to provide advisory services. In this context, the experiences of some NGOs, which would also greatly benefit from other contributions, including my own, might serve as an inspiration.

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[4] Dialogue between African and European farmers should emphasize these aspects of methodological exchanges. It would also be advisable to inventory methodological and institutional mechanisms for the appropriate pedagogical methods, including in Europe.

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LIST OF ACRONYMS

ANDA	Association Nationale de Développement Agricole (National Association for Agricultural Development)
CFPC	Conseil des Fédérations Paysannes du Cameroun (Council of Farmer Federations of Cameroon)
CMDT	Compagnie Malienne pour le Développement des Textiles (Malian Company for Textile Development)
CRPA	Centre Régionale de Promotion Agro Pastoral (Regional Centre for Agro-Pastoral Promotion)
FIL	Fonds d'Investissement Local (Local Investment Fund)
FOCAOP	Fonds Commun d'Appui aux Organisations Paysannes (Common Fund for Support to Farmer Organizations)
FONGS	Fédération des Organisations Non Gouvernementales du Sénégal (Federation of Non-Governmental Organizations of Senegal)
GAO	Groupements - Associations Villageoises - Organisations Paysannes (Groups - Village Associations - Farmer Organizations)
GIC	Groupement d'Initiative Commune (Common Initiative Group)
GIE	Groupement d'Intérêt Economique (Economic Interest Group)
INADES	Institut Africain pour le Développement Economique et Social (African Institute for Economic and Social Development)
IRAM	Institut de Recherches et d'Applications des Méthodes de Développement (Institute for Research and the Application of Development Methods)
ONG	Organisation Non Gouvernementale (Non-Governmental Organization)
PDRIZ	Projet de Développement Rural Intégré de Zinder (Integrated Rural Development Project of Zinder)
PNVA	Programme National de Vulgarisation Agricole (National Agricultural Extension Programme)
SAILD	Service d'Appui aux Initiatives Locales de Développement (Support Service for Local Development Initiatives)
SNVA	Service National de Vulgarisation Agricole (National Agricultural Extension Service)
SODECAO	Société de Développement du Cacao (Cocoa Development Company)

SODECOTON	Société de Développement du Coton (Cotton Development Company)
SYCOV	Syndicat des Producteurs Cotoniers et Vivriers de la zone Mali Sud (Union of Cotton and Cash Crop Producers of Southern Mali)
UCAL	Union des Coopératives Agricoles du Littoral (Union of Coastal Agricultural Cooperatives)
UCCAO	Union des Coopératives de Commercialisation et Approvisionnement de l'Ouest (Union of Western Marketing and Supply Cooperatives)
UGCE	Union des Groupements Communautaires d'Esse (Union of Community Groups of Esse)

THEMATIC PAPERS

THE ROLE OF WOMEN IN AGRICULTURAL RESEARCH AND EXTENSION

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Abstract: *According to current statistics, women make up over half of the world's population. In order to set right the economies of the different nations, it is essential to ensure the participation of all those who are ready, willing and able to take part in efforts to increase national production and reduce excessive imports, especially of basic food supplies. National production can only be increased if the entire active population, including women, is involved in the production machine. The following presentation illustrates how women have contributed to plant, animal, fish, forest and fruit production. However, despite their valuable contribution, women have only limited access to agricultural extension. Since women are active in all processes of change, it is essential that they participate in the decision-making process that will later affect the entire community. The Training and Visit system in Africa may be by far the most appropriate system for disseminating messages and information to target groups of women. One of the advantages of this system is that the women are trained at their work place. However, new techniques for integrating women in all facets of the research and extension process must be developed before the complete success of this method can be confirmed. Solutions have been proposed to increase the participation of women in extension, where particular emphasis is placed on literacy, information and training.*

INTRODUCTION

According to global statistics, women make up 51-55% of the population of most African countries. In countries that are at war, the percentage of women may be as high as 65%, because the men generally go to war.

It has been scientifically proven that about the same number of girls and boys are born annually. However, girls are more resistant to diseases that affect children from the time they are born until they are five years old because of their biological constitution (XX chromosomes). Moreover, urbanization is very limited in African countries: the majority of the population lives in rural areas where they practice agriculture, which constitutes the basis of the economies of most African countries.

At the present time, the lives of Africans are affected by the external debt crisis, inflation, devaluation and other elements of the economic crisis about which one hears on the radio, television, and in newspapers and magazines. To set right the economies of these countries, one must increase national production to reduce excessive imports, especially of basic foodstuffs. National production can only be increased if:

- Special emphasis is placed on research with a view to disseminating improved, highly productive seeds, using modern growing methods that can guarantee this high productivity under favourable climatic conditions.

- Extension services use appropriate means of communication in order to reach all target groups in the rural world.

- The active population, including women, is an integral part of the production machine.

THE CONTRIBUTION OF WOMEN TO AGRICULTURAL DEVELOPMENT

Agricultural production includes plant, animal, fish, forest and fruit production.

The role of women in plant production

Plant production, especially of annual crops, starts with preparing the land and includes the sowing, maintenance, harvesting, conservation and marketing or consumption of agricultural products. Women traditionally do the sowing, maintenance, harvesting and conservation on their own, but sometimes they work together with the farm manager and the children.

The farm manager is generally responsible for marketing, especially cash crops. Since most training and education programmes regarding farming methods are designed for the farm managers, who are mostly men, the women do not have the necessary know-how to ensure the high productivity of the crops. On the other hand, in cases where a woman is the head of the farm, her plot is often too small to attract the attention of extension agents. *These women thus have very limited access to extension services.*

Sometimes plant products are processed before they are marketed. Women are responsible for the processing in many African countries. The products that are commonly processed are maize, groundnut, cassava, palm nuts etc... Research on the processing of agricultural products is negligible, and women have limited access to the little that exists. The reasons why this access is so limited will be discussed later.

The role of women in animal, fish, forest and fruit production

Women generally maintain a few heads of goat, sheep and some poultry. Cattle are often the property of the farm manager, but the women and sometimes the children are responsible for obtaining the necessary food for their maintenance and production (fattening them or obtaining milk products). Men generally fish on the high seas and the women are especially responsible for processing fish products. Women play a rather negligible role with regard to forest and fruit products. However, they must become increasingly involved because they are also concerned by problems regarding environmental protection and, since most of them use firewood for cooking, they must be involved in producing firewood.

It should be noted that the women's access to extension services is an integral part of their access to available resources such as land, capital, information, education, technical assistance, and other elements that contribute to the improvement of the economic and social well-being of the individual. Men and women generally have different types of access to the aforementioned resources, which greatly affects their respective ability to achieve the goals of a project and to benefit from the results in a way that effectively reflects their different roles and responsibilities.

Women's access to agricultural extension

In the world in general, and in Africa in particular, the United Nations Decade for Women (1975-1985), alerted governments, governmental and non-governmental organizations, political, social, economic and academic institutions etc., about the problems of women in general. This widespread awareness was demonstrated in some countries by:

- The creation of ministries responsible for women's issues.
- The creation of special offices responsible for promoting women's activities.
- The design and implementation of projects or micro-projects funded by such agencies as UNICEF, UNDP, UNIFEM, UNESCO, OXFAM and DANIDA.
- Studies on the participation and contribution of women to the socio-economic development of the countries.
- The organization of international, regional or national seminars and workshops on topics related to the problems of women.
- The establishment of special funds especially for women's activities.
- The creation of information and communications networks to report and disseminate news on women.
- The ratification of United Nations resolutions.

After the United Nations Decade for Women, some of the foregoing programmes and activities continued along their normal course, but it was generally noticed that, with the exception of a few unusual cases, these programmes and activities did not achieve their goals, which were mainly:

- To improve the lives of women in the community.
- To collectively organize and mobilize women around income-generating activities.
- To create a database on the contribution of women to the socio-economic development of their country.
- To use this database to design projects for women.
- To improve women's access to infrastructures, public and semi-private goods and services such as schools, drinking water, health services, social centres, and health, extension and veterinary services.
- To improve women's access to credit.
- To develop appropriate technologies in view of reducing some phases of domestic activity, fieldwork and processing of agricultural products, activities that are carried out exclusively by women, at least thus far.
- To increase their knowledge especially in the areas of income-generating and production activities.

The objectives were not achieved for the following reasons:

- The main participants in these programmes and projects (who are women) are not involved in their design and in the choice of projects and programmes that could meet their current needs.

- The lack of coordination between institutions that actively promote women's activities at local, national, regional and international levels.

- Wherever women have been persuaded to accept programmes, they lack the necessary training to implement programme and project activities.

- The fact that there are no reliable statistics on women's activities means that the planning of their project activities is more theoretical and sometimes does not take into account their "non-productive", but essential activities.

- Most project managers did not have the necessary patience and expertise to disseminate or communicate information to women, who constitute the target group. *It should be noted that to work with women, programmes must be designed that take into account all the members of the community. This is truly necessary in order to obtain community support. All the programmes that ignored this aspect of the problem have failed.*

- Most of the projects are not self-sufficient on a long-term basis, which implies that when some of the programmes are terminated, the target group is even poorer than before the projects started.

- The lack of an adequate system of communication and an efficient network for disseminating information. Most women who should have access to extension services are illiterate and simply orally translating documents that have been written in foreign languages is not enough to convey extension messages.

In conclusion, although the general finding is that the old extension method, which simply disseminated information on agricultural techniques, did not achieve its goals, it must also be said that the situation was far worse for women.

THE TRAINING AND VISIT SYSTEM: ITS OPPORTUNITIES, EFFECTS AND IMPACTS ON HUMAN RELATIONS IN AFRICA

Women play a major role in all processes of social and economic change. They are also the first to experience the effects of these changes. Consequently, they should participate in the decision-making process that will later affect the entire community.[1] It must be said that the Training and Visit system is by far the most appropriate system for disseminating messages to women's target groups in Africa. The advantage of this system is that training and information are obtained from women farmers in their workplace. However, before the total success of this method can be guaranteed, one must:

- Ensure that the target group is involved in the formulation of the extension topics.

- Ensure that these topics meet the current needs of the target group.

- Ensure that the extension agent will provide the information and training in a language that is understood by the target group.

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[1] Women in development in Africa by G.S. Were (1985). pp. 36-43.

- Ensure that the Training and Visit system necessarily includes the spouses of the women farmers concerned, to avoid unnecessary rows.

- Ensure that the Training and Visit system takes into account the very full schedule of women, bearing in mind that other programmes are meant to reduce their domestic activities, which are classified as non-economic activities.

- Ensure that the extension programme aims at reducing the non-productive work of women farmers in the long term.

If all of these conditions are met, the Training and Visit system will have positive effects on productivity and will consequently improve relations between family members.

THE NEW TENDENCY TOWARDS ECONOMIC LIBERALIZATION: ITS EFFECTS ON THE RELATIONSHIP BETWEEN MEN AND WOMEN

The new tendency towards liberalization obliges countries to redefine the "economic contribution", including economic activities, of women, who make up over half the population. The problem with redefining the "economic activities" of women is that they carry out a multitude of activities, which are, for the most part, classified as non-economic activities. If one adds the time that women spend on informal activities and fieldwork, one finds that women work long hours daily. However, this is not completely taken into consideration, especially in cases where domestic work and fieldwork are not clearly defined.

One of the harmful effects of economic liberalization is that the number of work hours per day has risen for both employed and non-employed workers in an atmosphere of uncertainty and vulnerability[2]. In this context, women must fight to make their contribution to the national economy visible. How can this be achieved if they do not have access to information and extension services? At the present time, export policies require greater participation from women in the production of cash crops and other export products that could bring foreign currency into the country. With such policies, the traditional women's activities are considered to have no value. Consequently, women should continue to fight for the economic development of their countries.

The current general trend in developing countries is that per capita agricultural production is decreasing, imports are increasing, agriculture is stagnating or decreasing, and malnutrition is increasing. Consequently, all policies concerning increasing food production must take into account the important role that women play in agricultural production[3]. Too few studies have been conducted on this topic to enable a generalization to be made. However, it is clear that land ownership and agricultural production are related. A great deal of creativity and political competence is required when adapting to the new economic situation, in order to increase the participation of individuals, communities, non-governmental organizations and private sector firms in building up the country.

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[2] "Invisible structural adjustment". Poor women and the economic crisis. A study done by UNICEF.

[3] Study conducted by Rekha Wazir on women and changes in the world.

IMPROVING THE SITUATION OF WOMEN FARMERS IN AFRICA THROUGH THE DEVELOPMENT OF TECHNOLOGIES, KNOWLEDGE AND EXPERTISE

Considering what has been stated in the foregoing section, it is necessary to develop new techniques in order to integrate women in the research and extension process. The major problem is how to recognize and study the role of each member of the family in order to more adequately redistribute their roles to ensure each one's participation. This study should involve both men and women simultaneously. Moreover, appropriate technologies must be developed in order to reduce the necessary time and energy that must be invested in domestic non-economic work, which is however indispensable for the social well-being of the family. This domestic work must be considered a production factor and treated as such.

It has been demonstrated that certain African traditions are built on obstacles and prevent the total participation of women in development. These traditions must be carefully studied and recommendations must be made in view of improving them so that they do not create more obstacles in the way of women's participation in development. In any case, some "anti-economic" traditions are already being reduced or eliminated. This should be done in close collaboration with traditional and religious leaders.

Special programmes must be developed in view of increasing the level of literacy of the rural population in general and that of women in particular. In addition to literacy programmes, women will also require special extension topics concerning their income-generating activities and other production activities.

Research work on special topics must be designed together with all those who participate in development activities to ensure that they satisfy the current needs of all actors. A training programme for local instructors needs to be developed to ensure the continuity of the Training and Visit system. Researchers and extension agents, who will be involved in the programme to integrate women in the development process, must specifically learn how to include them.

AGRICULTURAL RESEARCH AND EDUCATION, NGOs, DECISION-MAKERS, ETC.: THEIR ROLE IN IMPROVING THE CONDITION OF WOMEN FARMERS (OPPORTUNITIES AND CONSTRAINTS)

Men are the traditional and religious leaders of the community. They will work together with the women to establish the specific concerns that are relevant to the integration of women in extension activities. Research will be conducted on these specific topics and the results will be widely disseminated. Extension themes will be developed based on the research results.

Steps towards improving education will include the establishment of a literacy programme to help both men and women farmers gain access to information on extension. Non-governmental organizations should secure technical assistance and the funding necessary for research work and for implementing adequate extension programmes that could meet the needs of both men and women farmers. They must also fund programmes that focus specifically on integrating women in development. Decision-makers must develop and adopt policies that foster integrating women in the development process at all levels.

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EXPERIMENTS WITH AGRICULTURAL INNOVATIONS: COMMUNITY-LEVEL FARMER ORGANIZATIONS AND EXTENSION

Presentation by World Neighbors of West Africa

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Abstract: World Neighbors is an NGO whose goal is to strengthen the capacities of marginalized communities to enable them to meet their basic needs. In agriculture-related programmes, World Neighbors tries to help partner communities identify and analyze agriculture-related problems in a participatory way, and to propose agriculture-based innovations from several sources as solutions to be tested and evaluated. If the villagers find that the results may potentially solve their agriculture-related problems, they are disseminated by the Peasant Farmer Experimenters (PFT) and Peasant Farmer Extensionists (PFE). Agricultural extension activities in programmes of World Neighbors in West Africa also include agricultural research. The farmer communities have also adopted this practice. In fact, these activities do not simply involve teaching agricultural technologies to farmer communities: the farmers are organized and motivated so that they themselves may arrive at a method that can help them solve agriculture-related problems with which they will eventually be faced. Community-based farmer organizations play dual roles as researchers and extension agents for agricultural technologies in the programmes of World Neighbors, which maintains its presence within the communities to encourage them to play these roles.

AN INTRODUCTION TO WORLD NEIGHBORS

World Neighbors is an international non-profit NGO whose headquarters are in Oklahoma City, Oklahoma in the United States of America. The organization's main objective is to strengthen the capacities of marginalized communities so that they may be more autonomous their ability to meet their most essential needs. From this perspective, the projects of World Neighbors are integrated development programmes, involving the most isolated and marginalized communities.

In West Africa, the organization has operational projects in Togo, Mali, Burkina Faso and Ghana. In Togo, for example, the integrated development programme of World Neighbors (WN), which is called the Program to Promote Rural Community Self-Development (PADCOR), was established in Bassar in January 1983. About 60 000 inhabitants participate in the activities of PADCOR, which directly involve 14 pilot villages in the districts of Bassar and Denkpen. Since this is a self-help project, the six-member team that makes up the programme staff is supplemented by 116 volunteer farmers who promote activities that are in the interest of the communities in the areas of health, agriculture, management and community organization.

THE APPROACH OF WORLD NEIGHBORS

The main objective of the ongoing programmes of World Neighbors in the agriculture sector is to help community organizations develop their capacity to take charge of their own agricultural development. World Neighbors must thus encourage these organizations to collectively identify the farmers' diverse agriculture-related problems. The organizations must also establish which problems take priority, and seek appropriate solutions. After identifying agricultural innovations that may provide solutions, the

farmers must: test, monitor, evaluate and disseminate the results of the new agricultural technologies that they judge to be potentially able to solve their problems.

Smallholder farmers may develop their own agricultural practices for the programmes of World Neighbors by collectively using experimental and evaluation methods and by promoting the spontaneous extension of agricultural innovations by the community organizations themselves. They must therefore improve their (traditional) methods of agricultural experimentation and extension.

In this context, the improvement of these methods implies that the farmers will also improve the individual system of evaluating tested innovations (through community evaluation). Moreover, the farmer's network will be further strengthened by the spontaneous dissemination of positive innovations through the organization of a community extension programme. The work of World Neighbors, which Roland Bunch described so well (in 1990), does not consist of teaching or selling a technology to people, but of teaching them how to conduct research at the village level, with which they can continue to experiment every year using new techniques and innovations.

To translate this approach into concrete facts, World Neighbors programmes help community organizations establish a mechanism consisting of volunteer farmers who promote sustainable agriculture: they are called Peasant Farmer Experimenters (PFT) and they test agricultural innovations (proposed solutions to problems that have been identified) and Peasant Farmer Extensionists (PFE), who teach the PFTs to conduct agricultural experiments using the innovations that have been identified. These two categories of proponents ensure the dissemination of agricultural techniques whose results have met the satisfaction of the people as reflected during community evaluation sessions.

World Neighbors feels that one must work especially hard to strengthen organizational and community management capacities in order to make this process sustainable. After a "strategic" evaluation of the experiences of WN since 1984, the staff in West Africa identified the "most necessary capacities for perpetuating the process of agricultural self-development".

STRENGTHENING THE AGRICULTURAL SELF-DEVELOPMENT[1] OF THE FARMER COMMUNITIES

The following aspects need to be strengthened:

- The communities' capacity to negotiate with outside entities (research and extension services, NGOs, credit agencies and donors).
- The communities' capacity to mobilize local resources (community funds, human and material resources).
- The capacity to ensure broad-minded leadership (vision - conception - animation - facilitation - drive - awareness-raising).

[1] Author's note: WN uses the term "self-development" to distinguish between development that is "supply-led" (where the initiative, control and decision-making is done primarily by outsiders), and a "demand-led" process, where the focus of control and initiative is from the local or community level. The demand-led process of development is an "autonomous" or internal process.

- The communities' ability to organize and conduct sustainable activities of community self-development.

- The communities' capacity to manage a self-development process (diagnosis of problems, survey of needs, planning/programme establishment, budgeting, literacy campaigns, monitoring and evaluation).

- The capacity to collaborate with other villages on problems of common interest (communication).

- The communities' capacity to take representative, democratic and transparent decisions (communication).

- The communities' capacity to acquire, experiment with and promote innovations and agricultural techniques...

HOW DOES ONE EXPERIMENT WITH AGRICULTURAL INNOVATIONS?

Experiments in agriculture are conducted by smallholder farmers at the community level. World Neighbors extension agents ask a series of questions on specific topics, thereby prompting the farmer communities to examine some of the agriculture-related problems that concern the populations of the villages being monitored.

The following essential points always guide the discussions:

- Farmers are encouraged to compare earlier forms of agriculture practised by their grandparents with those practised today. Based on these comparisons, they are encouraged to list the changes, to establish their causes and to determine the various problems with their own agricultural crops.

- Villagers are encouraged to analyze the solutions they have proposed to the problems they are facing.

- Farmers are encouraged to review new proposals for eventual solutions to the problems that need to be solved.

- The communities are shown the necessity of conducting small-scale experiments with the solutions that they have proposed.

Once the communities decide to test the proposed innovations, the programme extensionist helps the instructors design the experimental procedure for each innovation to be tested. The following points are taken into account when designing the experimental procedure: problems to be solved, traditional practices, methods to be tested, objectives of the trial, establishment of the trial and observations to be made. According to the book *Two Ears of Corn* (1982), when designing the experimental procedure, the World Neighbors extensionist does not force the farmer to replace his old agricultural practices with new ones. The Peasant Farmer Experimenters in each village are trained by the Peasant Farmer Extensionists on the experimental procedure developed by the community.

As soon as the experiment is established, the PFE records everything he observes during the monitoring phase. During the community evaluation sessions, he will use these observations to explain the experiment he conducted. All the farmers interested in the experiments conducted in the villages also

visit the trial plots that have been set up by the Peasant Farmer Experimenters. Some are simply curious, while others want to follow the way the experiments are conducted in order to be able to appreciate the potential value of the innovation during post-harvest community evaluations.

HOW ARE THE INNOVATIONS EVALUATED?

At the community level

The various activities conducted in the villages are evaluated by the community in two phases:

During the first phase, the PFE in each village explains to the communities how the innovations were tested while discussing problems that the innovations should solve, and presents the results obtained. The villagers and the PFE then hold discussions on the test results obtained to see whether or not the tests have been conducted properly. They then try to judge if these new innovations may solve the specific problems that have been the focus of the tests, based on the results. Finally, the communities decide whether or not to adopt, reject or pursue some of these innovations at the village level.

At the level of the inter-village association

The PFTs that have been trained by the project extension agents (three or four per zone, and village associations whose number varies depending upon the country) meet to prepare the second phase of the agricultural activity evaluation, while finalizing an evaluation design.

During the second phase, when the results of the agricultural innovations tested are being evaluated, two PFTs and one representative of the Village Development Committee from each of the pilot villages within each zone meet in a village. The representatives of the Village Development Committee serve as intermediaries who convey the test results from their respective villages. Those who have developed the evaluation model conduct the meeting. Experiences are thus discussed at the inter-village level during the second phase. Like in the first phase, new discussions are held and representatives make analyses in order to make the final decisions on each of the innovations tested.

Also, during the second phase, the inter-village level representatives plan the actions to be taken during the next fiscal year. This plan takes into account tests of innovations to be introduced, those of the preceding season that are to be repeated and the new innovations to be promoted. The representatives then return to their respective villages after the inter-village level community evaluation to report the results. The World Neighbors team leaders thus develop the programme profile for the work of the following fiscal year based on all of the foregoing actions that have been decided at the community level. However, the results of previous evaluations are not taken into consideration during this planning process for the following year, which is another flaw in the system.

HOW IS AGRICULTURAL EXTENSION CARRIED OUT AT THE GRASSROOTS LEVEL?

World Neighbors feels that community organizations should be responsible for implementing agricultural extension programmes. In certain programmes, pilot villages are established which then disseminate new innovations in neighbouring villages. *Their activities also include organizational and community*

management projects. This dissemination is rendered more effective by raising awareness among the people who have been trained by the extension agent on the need to communicate knowledge to others. Based on frequent contacts with community organizations, we have noticed that the motivation behind this is that the farmer is proud to teach others what he knows how to do. This impetus should be fostered to ensure that innovative agricultural techniques are effectively promoted. World Neighbors programmes in West Africa have yet to discover a way to achieve this.

The PFTs are responsible for promoting previously tested innovations and have had promising results within the communities. They generally distribute small amounts of seed to all those who need to implement the innovations on a large scale. Those who want to adopt techniques learned during extension activities are trained by the PFTs or the PFEs. Moreover, the dissemination of an agricultural innovation begins wherever it is tested. Inputs for testing proposed innovations are supplied or sought by the programme but also by farmers who travel outside their villages or visit neighbours' fields.

When an innovation is introduced in a village, the inhabitants gather together in order for the project extension agent or the PFE to first publicly present it. In the case of seeds for example, each farmer in the village takes turns carefully examining them. The farmers are then informed that the innovation must be tested. In addition, when communities seek solutions to agriculture-based problems, each member of the population has an idea about the type of innovation to be sought (specific cycle, yield potential, etc...).

Community organizations play a major role in the spontaneous agricultural extension circuit.

Generally speaking, community agricultural extension is based on experimentation and on evaluating tested agricultural innovations.

FARMER COMMUNITY TESTING AND EXTENSION IN 14 PILOT VILLAGES SUPERVISED AND TRAINED BY THE PADCOR PROJECT (TOGO)

All of the data in Tables 1, 2 and 3 were collected entirely by the farmers who promote agricultural self-development in 14 pilot villages. These farmers have also taken functional literacy courses. The data collected have enabled the PADCOR team to make certain analyses. This shows that community organizations can play the role of researcher, extensionist and investigator. However, one should not expect the farmer to conduct research at the same level as an experienced researcher in a research institute.

EXPERIMENTS WITH AGRICULTURAL INNOVATIONS

Objective: To reduce possible risks with food crops

The PFT seeks to combine crop diversification and the use of short-cycle crops to offset harmful climatic effects by:

1) Conducting trials comparing early species on 100 m^2 plots in 14 villages as follows:

56 replications for maize varieties POOL 16, Pozarica and Local
77 replications for sorghum varieties S17, Framida and Local
42 replications for rice varieties IRI 841 and Local
63 replications for groundnut varieties TS32-1, RMP12 and Local Ayengré

2) A group of four PFTs in five pilot villages established a test to compare the production of yam seed-pieces using two varieties: Dilambore and Tchangbalo, which belong to the *Dioscorea alata* and *D. cayenensis rotundata* species, respectively. The test was conducted in five replications on 100 m^2 plots.

3) Other tests using agricultural innovations, which were established by the PFTs of 14 village communities, were conducted until the various plots were harvested (cf. Table 1).

4) Post-harvest cowpea storage trial.

According to farmers from 14 villages that are supervised by the PADCOR programme, the destruction of cowpea reserves, especially by bruchid beetles after harvesting, limits the distribution of the cowpea varieties that have already been tested and retained for extension. Thus, after conducting a biological conservation test of cowpea reserves in 28 replications in 14 villages using 13 natural products (see following section), the community organizations sought low-cost parameters for storing cowpea that will not leave residues of chemical substances that are toxic to the human organism. During the test, 500 g of cowpea were mixed with one of the natural products before storage, using the following quantities:

T1: 10 g powder of *Capsicum chinense* pepper

T2: 10 g powder of *C. frutescens* pepper

T3: 10 g garlic clove cut into rounds

T4: 10 g powder of leaves of *Cymbopogon* sp.

T5: 10 g ground *Hyptis* sp. leaves

T6: 10 g ground "Ditounoure" leaves

T7: 10 g kitchen ash

T8: 10 g ground neem leaves

T9: one sp. groundnut oil

T10: one sp. peppered groundnut oil

T11: 1 sp. shea nut butter

T12: 1 sp. pure honey

T13: no product (control)

Table 1. Indicators of the conduct of agricultural trials by the PFT in 14 villages from June to November 1992 under the supervision and training of PADCOR
(Gnon 1993 in the July 1992-June 1993 Annual Report)

Innovations tested	Planned repetitions	Repetitions carried out	No. village	No. of full-term repetitions	Cycle (No. of days)	Estimated yield (kg/ha)
Pool 16 Maize	42	53	14	46	64	1380
Pozarica Maize	42	53	14	46	81	1700
Pirsaback Maize	42	53	14	46	75	1561
Local Maize	42	53	14	46	98	1294
Groundnut RMP 12	42	36	12	26	126	989
Groundnut 321	42	36	14	26	91	859
Local Groundnut	42	36	12	26	98	671
Local Groundnut "Ayengré"	42	36	7	26	101	718
Sorghum S17	14	21	9	10	92	360
Sorghum Framida	14	21	9	10	76	507
Local Sorghum	14	21	9	10	110	78
IRI 841 Rice	0	25	9	8	90	1791
Local Rice	0	25	9	8	110	1442
Jupiter Soybean	0	8	3	7	-	804
ISRA 44 Soybean	0	8	3	7	-	793
Maize under locust bean	14	6	6	2	-	700
Maize under Shea nut	14	6	6	0	-	-
Control	14	6	6	2	-	500

PP = Programme profile * Objective: Risk reduction after the harvest

The results of this trial were recorded by the PFT and are presented in Table 2.

According to Table 2, the cowpea harvest can be stored without being attacked for an average of four months using certain natural preservatives.

Table 2. Results of the biological cowpea storage test using 13 treatments, as conducted by 28 PFT in 14 pilot villages

Treatments	No. of repetitions	Date test established	No of repetitions attacked	# days before attacked	# days stored without being attacked
T1	28	23-12-92	3	100	145
T2	28		4	115	138
T3	28		3	109	127
T4	28		3	112	119
T5	28		2	98	117
T6	28		1	113	116
T7	28		4	96	102
T8	28		5	89	94
T9	28		4	100	112
T10	28		3	120	127
T11	28		4	118	126
T12	28		1	118	135
T13	28		24	40	44

COMMUNITY EXTENSION FOR TESTED AGRICULTURAL INNOVATIONS

Following various community-level food crop diversification and soil fertility restoration trials conducted in 14 pilot villages, some farm managers adopted the innovations that their villages had learned through extension. This was revealed to us by a survey taken by farmer-promoters with over 52% of a total of 1085 farm managers living in the 14 pilot villages.

a) Objective: Diversification of food crop production to reduce risks

- For maize, 26% of the farm managers have been cultivating 1-3 early maize varieties since at least 1990-1992. They thus bought about 2800 kg of maize seeds for the season and cultivated at least 92 hectares all together.

- For cowpea, an average of 15% of the farm managers cultivated two varieties of short-cycle cowpea from 70-75 days between 1990 and 1992.

- For sorghum, 5% of the farm managers in five villages adopted three early varieties that had been tested two years ago.

- Lowland rice cultivation has increased 6% compared to rainfed rice in nine villages among farm managers who have begun to grow the variety of rainfed rice called IRAT 112.

- The two groundnut varieties retained last year during community extension by 10 pilot villages were adopted by 8% of farm managers in eight of these villages. They bought 500 kg of seed in their husks.

- For cassava, 6% of the farm managers cultivated two improved short- and long-cycle varieties that had been tested by the PFTs. During the previous season, about 8% of them had expressed the desire to adopt these varieties, but could not due to a lack of cuttings. This problem could be resolved, like in the production of yam seed-pieces, if the project taught community organizations how to use mini-cuttings of cassava through trial tests.

- 98% of all yam growers produce yam seed-pieces using the traditional technique of hardening off. Of this group, 18% separate the mother-tubers using a rather improved technique to produce the seed-pieces that are used for planting tubers for consumption.

The following was revealed in the survey conducted by the farmer-promoters regarding activities for their agricultural self-development:

Twenty-four percent of the farmers from 10 villages bought new maize seeds that had been recommended by members of their respective communities. Six percent obtained them from their neighbours in the village who had stored them from harvests of trial plots.

The results of the survey generally reveal that during the agricultural season, 36% of the seeds used for production by the farm managers in 13 out of 14 pilot villages are of the varieties tested by the model farmers within the framework of the PADCOR project. Moreover, based on the results of this survey, we can say that with regard to diversifying varieties, at least the farms in the 14 pilot villages now have 13 new varieties of cereals, legumes and starches.

b) Objective: Soil fertility improvement

Six percent of the 1085 farm managers from the 14 villages have begun to alley crop cereals with agroforestry species, and 7% plant trees in fields so that they leave a sufficient amount of organic material. Thirty-one percent let the fields lie fallow, whereas the majority (56%) continue to use chemical fertilizers.

Table 3. The adoption of agricultural innovations tested and retained by community organizations for extension during the 1990-1992 agricultural seasons
(Gnon 1993 in the July 1992 - June 1993 Annual Report)

Innovations	No. of varieties	No. of farm managers who adopted them	% total adoption	No. of villages	Area cultivated	Quantity of seeds bought (kg)
Maize	3	285	26	14	120	2800
Sorghum	3	11	5	5	4	38
Rainfed rice	1	46	6	9	4,5	238
Groundnut	2	57	8	8	5	500
Soybean	2	112	7	9	5,75	0
Cowpea	2	115	15	10	13,5	210
Alley cropping	-	90	6	12	33	-
Production of yam seedlings	Local	243	18	10	8,5	0
Cassava	2	60	6	9	5,0	0

The foregoing results clearly indicate that an increasing number of agricultural innovations that had been tested by the community during previous years are being used in extension: the number of varieties (especially maize) adopted by the farm managers increased compared to last year, as has the number of crops.

Based on these figures, we feel that the community organizations may assume the lead roles in agricultural research and extension for agricultural development. *However, support for a literacy campaign is necessary.* The fact that the farmers play these various roles in the self-development of their agriculture does not mean that the researcher or the "modern" extension agent should be eliminated. Laboratory work is equally necessary for the advancement of agriculture. In conclusion, the experience of World Neighbors shows that community organizations must adopt a method that makes them autonomous in their agricultural development in order for agriculture to be sustainable.

ACRONYMS AND ABBREVIATIONS

PADCOR: Program to Promote Rural Community Self-Development
PFT: Peasant Farmer Experimenters
PFE: Peasant Farmer Extensionists
WN: World Neighbors

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THE ROLE OF PEASANT FARMER ORGANIZATIONS IN TRANSFORMING AGRICULTURAL RESEARCH AND EXTENSION PRACTICES IN WEST AFRICA

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Abstract: This paper critically assesses the role of peasant farmer organizations (FO) in contributing to more effective agricultural research and extension in the context of structural adjustment and the recent political changes in West Africa. The paper begins by reviewing the potential role of farmer organizations located in complex, diverse and risk-prone (CDR) environments in agricultural development. It then outlines some of the necessary characteristics of self-supporting farmer organizations. Three case studies in West Africa of programmes working to transform research and extension practice through effective partnership with strengthen farmer organizations (two by NGOs, one by a parastatal) are presented. Based on this analysis of field experience, the paper points out several important lessons. The evidence suggests that strong farmer organizations have a crucial, if not indispensable role to play in CDR areas for more effective research and extension. To realize this potential, extension agencies and NGOs must particularly address the following issues: commitment to a re-conceptualized and broadened scope of "extension" practices; overcoming internal institutional constraints to "role reversals" and to empowering FOs; development of participatory learning methodologies and tools; the undertaking of vigorous staff training and reorientation; learning how to address village dynamics that impede the formation of democratic and representative FOs; and decentralizing decision-making within research and extension in a way that gives a role to representative FOs.

TRANSFORMING AGRICULTURAL RESEARCH AND EXTENSION: THE ROLE OF SELF-SUSTAINING PEASANT FARMER ORGANIZATIONS

Major changes must be made in agricultural research and extension if West African grassroots agriculture is to be sustainable and productive, arrest environmental degradation and the decline of livelihoods and generate local resources for social development.

Given the need to develop sustainable livelihoods and peasant farming systems in West Africa, attention is being increasingly paid to strategies to reorient research and extension policies to better address the needs of the rural poor living in relatively complex, diverse and risk-prone environments. The population pressure on natural resources will continue to grow in many countries of West Africa, making the search for sustainable growth in levels of agricultural productivity increasingly urgent.

Numerous developing countries outside Africa have achieved respectable rates of growth in agricultural productivity. However, this growth has been concentrated largely in reliably rainfed or irrigated areas. There have been only minor improvements in the complex, diverse and risk-prone (CDR) areas, which are characterized by low and unreliable rainfall and poor soils.

The problems of CDR areas are particularly acute in West Africa, which faces numerous obstacles to agricultural development. These include weak infrastructure, scattered populations, distance from markets, low prices and lack of inputs and credit. Most countries are undergoing structural adjustment, which impedes public sector budgets from increasing the number of extensionists in the field, and from providing those already there with adequate support (training, supervision, transport).

One of the most intractable problems, however, lies in developing institutionally viable ways of working with peasant farmers in CDR areas for agricultural technology development and dissemination.

Some West African governments are experimenting with a number of agricultural extension and research "models". Some extension models are commodity-specific, while others cover a range of farming requirements. Many follow the principles of dissemination through visits to individual "contact" farmers, as embodied in various forms of the "Training and Visit" system. In West Africa, T&V has proven to be less effective and more costly than envisaged by its promoters. Other government approaches also have had only limited impact.

In the search for more effective and institutionally viable extension strategies, a number of organizations (primarily NGOs), have begun to experiment with approaches in which *peasant farmers*, rather than professional extensionists, act as the principal agency for change. These various participatory, farmer-led approaches to research and extension approaches have been increasingly termed "Farmer First"[1].

Strengthening the *indigenous* capacity for technology development (alternatively termed "Informal Research and Development", or "peasant science") is central to FF strategies. However, the farmers are then required to learn from modern scientific knowledge systems.

The evidence, which is as yet fragmentary, suggests that Farmer First approaches can generate considerable success. The key factors underlying this success involve strengthening the capacity of peasant farmer organizations to diagnose and prioritize their agricultural problems themselves; providing access to a "basket" of technological options; and helping them to design experiments to test, evaluate (and perhaps adapt) the more promising technologies. Almost all Farmer First approaches are based on collaboration with some form of *peasant farmer organization*, rather than working with individual farmers.

New *methodologies* have also emerged to support these alternative approaches to research and extension. Participatory Rural Appraisal (PRA), Farmer Participatory Research (FPR), Participatory Technology Development (PTD), Agroecosystems Analysis, Participatory Action Research (PAR) and Development Education Leadership Teams (DELTA) are approaches that are increasingly used by NGOs to help farmers *identify* and *analyze* problems and opportunities for technical change and better natural resource management themselves (Cornwall, Guijt and Welbourn 1993). Most of these approaches have in common the methods to facilitate peasant farmer "ownership" of the technology-testing process, and of "farmer-to-farmer" *dissemination* of proven innovations.

Given the reality of structural adjustment and diminished public resources, an examination of "farmer-led" and "demand-driven" approaches to extension, where organized farmer groups formulate and manage their own (community-based) agricultural development programme, has become both opportune and urgent. Very few government research and extension services in West Africa, however, have yet seriously examined Farmer First approaches and methods.

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[1] Farmer First (FF) strategies of agricultural research and development build upon Indigenous Agricultural Knowledge, use local resources, and aim to strengthen the innovative capability of resource-poor farmers living in complex and risk-prone environments. FF strategies entail role reversals. Farmers, not scientists, decide on research priorities, analyze problems, make choices about which technologies to test and adopt, conduct experiments and evaluate results. Scientists and extensionists learn from, consult, search for and supply ideas to convene, catalyze and support farmers in a collaborative or collegiate manner (Chambers *et al.* 181-86).

This paper argues that it is increasingly urgent in West Africa to draw policy lessons from the experiences of alternative "Farmer First" (FF) approaches to agricultural development. Another important task is to *critically* examine how Farmer First approaches might be adopted, piloted and, if proven successful, "scaled up" by government. This will entail government extension services identifying what changes in strategy, policy, and staff management/training would facilitate FF approaches.

The paper also summarizes the theoretical arguments that advocate an active role for peasant farmer organizations in research and extension. Three relevant case studies are described after suggesting essential qualities of "self-supporting" FOs, and constraints to developing these qualities. In the concluding section, a synthesis of the lessons drawn from the case studies are presented.

THEORETICAL IMPLICATIONS

The potential role of strong FOs in more effective research and extension

Many proponents of FF suggest that if peasant farmers are to benefit from public sector research, they must be "empowered" to influence the direction and content of research (Richards 1985, Röling 1989, Chambers 1983, 1990). They argue that peasant organizations can act as a "user constituency", giving resource-poor farmers the capacity to "reach up" (Hyden 1983) to "pull down" (Röling 1988) state research and extension services and to exert influence in developing a more cost-effective and relevant technology-development approach.

Farmer organizations can help make research institutions more responsive to the diversity of needs and conditions in CDR agriculture. However, this approach will require that scientists accept farmers as "partners" in the technology-development process. Many analysts argue that peasant farmer organizations are required to push feedback up through the system and make it more "client-oriented" (Röling 1988, Chambers 1983, Richards 1985, Bebbington 1992). Bebbington (1991) notes that farmer organizations (FOs) can help build sustainable livelihoods for the rural poor in other ways. FOs can act as an "interface" to mediate in the relationship between the concerns of research and extension agencies and the indigenous knowledge, innovative capacity and expectations of peasant farmers. FOs can also actively adapt and disseminate agricultural technologies in programmes they themselves manage and control.

Uphoff (1992) notes that local (i.e. peasant farmer) organizations are important for sustainable rural development because they:

- Can mobilize local resources and regulate their use with a view to maintaining a long-term base for productive activity.

- Put available local resources to their most efficient and sustainable use with location-specific knowledge, which is best generated and interpreted locally.

Uphoff argues that with "community-based" FOs, the fact that people know one another creates opportunities for collective action and mutual assistance, and for mobilizing and managing resources on a self-directed and self-sustaining basis. People feel more mutual support and a sense of obligation at the community and local levels than at the district or regional levels. The prevalence of face-to-face interpersonal relationships is necessary for effective organization.

Uphoff also suggests that a local or community-based organization is an essential requirement because:

- People's behaviour is conditioned by community norms and consensus, so preserving or promoting practices required for sustainable development in agriculture, or natural resource management, requires more than *individual* incentives/persuasion.

- Local institutions encourage people to take a longer-term view by creating common expectations and a basis for cooperation *that goes beyond individual interests*. If local institutions are considered legitimate, people comply without (or with fewer) inducements and sanctions.

In stressing the community-based approach, Uphoff makes the important assumption that decisions within the FO are taken with regard to *common interests*, held by most members of the community, rather than on the basis of individual (or household) interests. He does not consider *differential or conflicting interests* within a village in solving a "common" problem as an issue.

The growing interest in participatory research shown by international agencies is also inspired by the belief that it will help reduce costs, governmental organizational burdens and improve the relevance of formal research and extension. Not surprisingly, therefore, the World Bank (1989:60) has started to echo many FF themes in calling for community development based on "indigenous African values and institutions" and "a highly participatory approach - less top-down, more bottom-up...". Recognizing that a bottom-up approach requires "genuinely empowering the intended beneficiaries", the World Bank (1989) advocates a devolution of authority from central to local government through closer linkage with non-governmental organizations, and by strengthening local institutions.

The idea of strengthening community-based farmer organizations is not new. It has long been recognized that rural development initiatives in West Africa often fail because peasant farmers have not been able to exert an influence on design and decision-making. Many analysts argue that a local organizational framework by which peasant farmers can defend and negotiate their interests is essential to the success of [agricultural] development projects (Daane and Mongbo 1991).

There is increasing evidence that more sustainable and equitable outcomes are likely to occur from externally initiated development interventions if FOs, *rather than the state*, are given primary responsibility for management (Fowler 1992). Bebbington (1991) also marshals evidence that peasant farmer organizations (FOs) have a number of "comparative advantages" for the design and administration of research and extension over conventional public sector approaches, but also have major limitations on what they can do. Given these potential benefits and limitations of FOs, he suggests that much more can be achieved by *combining* government and FO resources.

Essential characteristics of self-supporting peasant farmer organizations

In West Africa, there is an emerging consensus that a lack of strong, articulate peasant farmer organizations is a critical bottleneck to sustainable and more equitable agricultural development. This is in striking contrast to other regions of the Third World, particularly in Latin America, where FOs are stronger and more developed.[2]

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[2] For example, in the province of Ceara in Northeastern Brazil, the peasant farmers of the Taua district (the rural population is 29 000) developed a district wide "Agro-ecology Development Plan" with the help of an NGO. This initiative arose on the request of a small farmers union, but quickly developed to cover the whole district, a scale of activity wider than any other NGO activity in Brazil. According one of the NGO staff "without the high degree of organization and involvement of the grassroots members of the small farmers union, the whole plan would be impossible" (Von de Weid 1993:5).

To better assess the constraints inhibiting the evolution of FOs in West Africa, and to subsequently develop an effective strategy for strengthening their capacity to make agricultural research and extension more effective, the essential qualities and capacities of self-supporting peasant farmer organizations are presented.

According to the International Federation of Agricultural Producers, (IFAD) a self-supporting farmer organization requires an effective *management* capacity, a *negotiating* capacity, and a *financing* capacity, in which the major source of revenue is obtained from its constituency (IFAD 1992). In addition, sustainable FOs must be "member-driven" and require:

- A clear definition of organizational goals and objectives.
- A participatory decision-making process.
- A self-management capacity (leaders, staff).
- A process of accountability of the leaders to their constituency.
- Clear lines of responsibility.
- Financial transparency, record-keeping.
- Effective leadership.
- Outside recognition and legitimacy.

While some of these IFAD criteria may appear to represent a western-style model, the widely accepted approach of agencies promoting FOs is increasingly to build on and strengthen indigenous institutions to meet these requirements, rather than impose imported structures of organization, such as cooperatives. OXFAM UK also suggests additional qualities for effective local FOs (Howes 1992):

- Internal cohesion and solidarity
  Critical consciousness/critical faculty
  Active and critical participation
  Democratization of power; collective responsibility
  Self-management capability.
- Reduced dependence; increased self-confidence, self-esteem.
- Involvement in regular discussions with other similar FOs
  Linkages with (or active involvement in creating) similar FOs.
- Ability to deal with government agents.

Finally, after a strategic evaluation of its programme of work in West Africa, World Neighbors staff developed a list of eight "capacities" judged critical for effective agricultural development by FOs:

- Capacity to negotiate their interests with external agencies (such as NGOs, research and extension services, credit institutions, donor agencies).
- Capacity to effectively mobilize local resources (Farmer "Experimenters", Extensionists, partial self-financing through community revenue).

- Capacity for broad-based leadership with mobilizing vision, spirit of initiative, ability to conceptualize, animate, do awareness-raising.

- Capacity for organization required to undertake ongoing (sustainable) community agricultural self-development activities such as farmer-to-farmer extension, identifying new technologies.

- Capacity for effective management of the community self-development programme: problem diagnosis, needs assessment, planning, setting objectives, establishing indicators, budgeting, monitoring and evaluation, reporting.

- Capacity for inter-village linkage, communication and collaboration as well as with other Peasant FOs in other areas for "cross learning" and coordination of efforts to address common problems.

- Capacity for democratic, transparent and representative decision-making.

Given the obvious convergence of opinion on the essential capacities of self-supporting FOs (from these three different agencies), the more practical question arises of how to develop or promote them in the field. A related question is how different agencies (actors) can best work together to achieve this. A review of the major constraining factors is presented to address this question.

Constraints to effective FO participation in research and extension

The potential benefits of Farmer Organizations (FOs) to serve as a vehicle for Farmer First research and extension is based on the assumption that there is a *complementarity of interest between the state and the peasant farmers* living in complex, risk-prone environments. It also assumes that government services are able to work in partnership with FOs in pursuit of common interests. Even more importantly, it also requires learning how to achieve *sustainable "role reversals"* required by FF.

Some authors have documented that such complementarity is not always evident, and suggest that interests are *conflictual*, rather than harmonious (Adams 1982, Netting *et al.* 1989).[3] Other authors have analyzed how, in many West African countries, the existing configuration of institutional and socio-political interests weigh heavily against peasant farmer influence over public policy (Fowler, Campbell and Pratt 1992; Daane and Mongbo 1991; Hart 1982; Adams 1982; Bates 1981; Charlick cited in Moulton 1977).

[3] A case study from Senegal by Adams (1982) illustrates this point vividly. Adams describes how peasant associations in the Bakel area of the Senegal River Valley (organized by a returning migrant) developed collective farms for maize and vegetable production, using agronomic advice from a French technician. After achieving success, an agricultural development authority SAED (Société d'Amenagement et d'Exploitation du Delta du Fleuve Sénégal) attempted to bring these peasant associations under their *control* for extending rice growing. However, SAED's top-down approach was dominated by "outside" interests and considerations (a concern by bureaucrats to maintain their privileges, and a political concern to secure cheap food for urban areas. The peasant associations resisted because their concern was to bolster local food production and provide alternatives to labour migration. As Adams noted, the choice was not between innovation and stagnation, but between change that has evolved from within (peasant interests) and change imposed from without (government interests). This same point is also made by Netting *et al.* (1989), who argue that the stunning success of Kofyar farmers in Nigeria to sustain indigenous agricultural development (producing local food crops for an urban market) occurred precisely *because* the Kofyar were ignored by government planners and scientists, and were free to develop new cropping systems based on new land, previous experience, local experimentation, roads and markets.

While the current wave of "democratization" in West Africa may have widened the scope of action within these political constraints, it is not yet clear how to bring about *institutional* changes within public research and extension organizations that will enable farmers to become creative analysts and "experimenters". It is also not clear how to empower farmers to negotiate with outside agents whose new role is to serve as advisers, catalysts, conveners and suppliers of potential innovations.

As Richards (1990) trenchantly observes, it is important to distinguish between "*supply- side*" and "*demand-side*" agrarian populist[4] strategies. Supply-side strategies are well-intentioned interventions by government services or NGOs in which "sympathetic" researchers, who empathize with peasant farmers and respect their indigenous knowledge *choose* to work with them as partners in a participatory way (cf Chambers in Altieri 1990). While this approach may generate success, it does not often entail lasting policy or institutional change or organizational capacity building at the community level. It is highly dependent on motivated individuals who tend to derive job satisfaction by working in partnership with farmers. (Once these individuals move on, the situation goes back to the default level; see Footnote 10).

This contrasts sharply with "*demand-side*" populism, where organized farmers have an organizational capacity to analyze their agricultural problems, articulate their research priorities, manage their own extension work and negotiate their interests with government or NGO research/extension services. Achieving "demand-driven", autonomous FO requires learning how to "institutionalize" Farmer First approaches, both within public sector research and extension *and at the community level*. At the local level, the rationale is that if improved farmer capacity for technology development is to become *sustainable*, it needs to become institutionalized and find organizational expression.[5]

In conclusion, a *theoretical* recognition of the "need" for peasant farmer organizations has not often led to efforts to create them. As Bebbington (1991) notes, while FF literature stresses the importance of peasant organization, it pays little attention to "how those organizations will come into being, how their dynamics will influence the sorts of technology they want, how they will combine technological with other activities, and how they will pressure formal [research] institutions to decentralize..." This is a critical issue for West Africa, because **the vast majority of farmers, particularly those living in risk-prone environments, are unorganized. They currently have no effective voice, nor do they participate in deciding agricultural research/extension policy or priorities.**

RELATING THEORY TO PRACTICE: THREE CASE STUDIES

In West Africa, there are currently few self-supporting peasant farmer organizations and federations that have the capacities to design, staff, implement and manage an autonomous programme of agricultural

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[4] Richards (1990:105) defines agrarian populism as a catch-all label for the qualities of self-reliance and capacity for self-organization within agrarian societies.

[5] In this paper, an *institution* is defined as a complex of norms and behaviours that persist over time by serving some socially valued purpose. An *organization* is a structure of recognized and accepted roles (Uphoff 1992). This paper, however, is concerned with rural (community-based) institutions addressing agricultural problems that have an organizational basis. The issue is how the work of farmer organizations managing community-based experimentation/extension and negotiating assistance from outside agencies can become *an accepted and routine part of organized social behaviour at the community and inter-community level*. This will only occur if their work is recognized locally by fellow peasant farmers as serving a valued social and economic purpose.

research and extension to serve their members, and to negotiate with NGOs or government services. One of the essential components of a new approach for more effective research and extension in West Africa must therefore be that of strengthening peasant farmer organizations. Three case studies are analyzed hereafter to illustrate lessons of programme work undertaken to accomplish this.

One case study documents the experience of the state-sponsored *Animation Rurale* movement in francophone West Africa in the late 1960s and 1970s. A review of the *Animation Rurale* movement shows that concern for organizing peasant farmers is not new. The case study highlights important lessons for a FF strategy based on developing farmer participation in extension through a strong government-led programme.

Recognizing the constraints within public sector research and extension (now exacerbated by budget cutbacks imposed by structural adjustment), NGOs have received increasing recognition as the potential motor of agricultural development (Bebbington and Farrington 1992). Many NGO promoters cite NGO flexibility, the quality of relationships with the rural poor and their commitment to work in risk-prone environments as their "comparative advantage" over government.

In West Africa, the experience in assisting Farmer Organizations to undertake community-based experimentation and extension programmes is mainly confined to the experience of a relatively small number of NGOs. The most notable examples documented are the *Projet Agro-Foresterie* (PAF), an OXFAM-supported programme in Burkina Faso and the work of *Voisins Mondiaux* (World Neighbors) in Togo, Burkina Faso and Mali (Chambers and Toulmin 1992; Gubbels 1989, 1990, 1992; Savadogo 1992; Yabre 1992; Atampugre 1993). These NGO experiences are reviewed to provide insights into the strengths and limitations of NGOs to promote self-sustaining peasant FOs capable of effective agricultural technology development.

State-sponsored support for rural development organizations: *Animation Rurale* in francophone West Africa

After independence, many francophone West African countries implemented a form of "*Animation Rurale*", an out-of-school adult education programme to assist rural organization and development. Modern agricultural techniques and economic attitudes would be instilled in the rural masses so that they could participate in modern economic and political institutions such as cooperatives, credit schemes and other marketing devices established by the state. The hypothesis was that the bulk of the rural population could be educated to participate in new local institutions, which would replace the traditional and colonial ones.

Animation Rurale aimed to train peasants to take responsibility for these new organizations, and to increase peasant farmer power and authority in government at both local and regional levels (Moulton 1977). The *Animation Rurale* programme did not succeed in achieving these goals in any francophone West African country. Given its regional significance, many scholars have analyzed the *Animation Rurale* experience in order to assess its wider impact and determine why it failed. Moulton's (1977) study of the *Animation Rurale* experience in Senegal and Niger has many important lessons for any agency, whether governmental or NGO, concerned with strengthening local organization for agricultural development in the 1990s.

One major flaw of *Animation Rurale* was that it assumed that a rural community - a village - consisted of a homogenous group of individuals, who shared the common circumstance of poverty. Those who

formulated the *Animation Rurale* approach tended to have a romantic view of the West African village. According to this view, communities had a communal tendency to share surplus wealth.

Animation Rurale also viewed village structures as inherently democratic because it appeared that decisions affecting the community were made in a "palaver" (or community discussion) process which led to a consensual agreement.

An in-depth study of villages participating in *Animation Rurale* in Niger, however, revealed that the villages were not homogenous. Distinct gradations of wealth, power and influence, based on age, family origin, religion, occupation, gender and access to resources, existed in most villages. These often generated a conflict of interests.

The study showed that significant economic inequalities militated against communal investments in technological improvements and self-help efforts. Those who were already more wealthy were reluctant to share what they had. Decisions were most often made by influential heads of households, despite the appearance of consensual agreements. The study also indicated that *Animation Rurale* often met with the resistance of local elites, who felt they would not benefit from proposed new political and economic structures. Indeed, the local religious, tribal and political authorities often saw the intervention of *Animation Rurale* as a threat to their power (Moulton 1977).

In other cases, as documented by Charlick (cited by Moulton), influential individuals among the local elite saw the new resources as another opportunity to establish themselves as "patrons". If they could control these new resources, they would be more able to cultivate a clientele in the locality ready to obey their commands, in exchange for favours. *Animation Rurale*'s new farmer organizations, therefore, tended to help better-off villagers increase their influence and clientele by being in a position to offer material as well as political favours.

For Niger, Charlick gave examples of how the intervention of *Animation Rurale* in establishing new inter-village organizations sometimes promoted conflict and dissent, rather than solidarity, cooperation and shared benefits. The intervention propelled competing ethnic groups in some villages (Fulani and Hausa) into a struggle to decide which social group should predominate in the area.

Animation Rurale often did not train villagers to efficiently manage the new organizations. It also failed to effectively funnel peasant interests and demands upward to government decision-makers. *Animation Rurale* also provided insufficient training and support for peasant farmers to learn how to more effectively express their collective interests (Charlick, cited in Moulton 1977).

Most *Animation Rurale* extension workers had only a meagre understanding of village dynamics. Although they knew what to expect because of their personal village upbringing, *Animation Rurale* workers were not trained to view village conditions analytically, which is an essential precondition in learning how to intervene and change them.

When their pedagogical "dialogue" approach to helping villagers learn and adapt new methods did not produce results quickly, and when they met with unexpected resistance, many *Animation Rurale* staff reverted to authoritarian techniques to carry out their "training" duties.

Animation Rurale staff tried to convince rural farmers that the government's intent was beneficial. The farmers, however, had come to fear and distrust the central government and its local agents. The effort to gain the confidence of the villagers was not enhanced because many *Animation Rurale* fieldworkers were transferred from other government services, and often used a paternalistic and authoritarian manner,

despite a major effort by *Animation Rurale* to change their attitudes. Moulton concludes her assessment by stating that *Animation Rurale* in Niger and Senegal produced some technical innovations, but no sustainable organizational (i.e. local institutional) changes.

The *Animation Rurale* experience highlights many of the limitations and constraints of even well-intentioned state agencies to work with peasant farmer organizations for agricultural development. It lends credence to the view that fundamental changes in the prevailing centralized mode of state decision-making in rural development initiatives and within the wider socio-political context are essential if peasant farmer organizations are to have more influence and responsibility for agricultural development at the local level.

NGO CASE STUDY: OXFAM's *PROJET AGRO-FORESTERIE (PAF)*

The PAF programme was begun by OXFAM in 1979 to address widespread environmental degradation in the Yatenga Province of Burkina Faso. PAF began with a "transfer of technology" approach and a predetermined agenda (agroforestry). PAF's flexibility in redirecting the *content* and *approach* of research in response to farmers' feedback (to address food production issues) was the key to its subsequent success.

Overview of PAF's approach

PAF's objectives are both *technical*, oriented towards increasing production via higher adoption rates of improved technologies, and *organizational*, in terms of strengthening community organization and training to improve the farmers' capacity.

PAF's approach is based on *community* organization for soil and water conservation (SWC). This is primarily because treatment undertaken by one farmer must often be continued in the neighbouring field belonging to another farmer. With this approach, families whose turn arises for SWC treatment of their fields are always obligated to feed the mutual help work party. Other technologies promoted by PAF, such as penning up sheep, goats and cattle to improve animal production and to prevent them from destroying tree seedlings, and improved village management of non-cultivated communal lands, also depended upon strong community organization.

Results

Between 1983 and 1991, PAF's five extension staff members supported community-managed farmer-to-farmer extension programmes, promoting rock bunds, "Zai"[6] tillage and composting. The programme helped trained 4542 peasant farmers from 406 villages in the rock bund technique. More than 8000 hectares were treated (Ouedraogo 1992). Rock bunds are now found throughout the province, even where PAF or other agencies have not promoted them.

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[6] "Zai" is a traditional method of tillage whereby a 20 cm by 20 cm basin with a depth of 10 cm is dug during the dry season, when labour is free, and filled with mulch or compost. This leads to increased termite activity, which in turn increases the rate of water penetration when rains come. When applied on encrusted, eroded soil, runoff from the first rains fills Zai basins, thereby multiplying the effective rainfall for seed germination by a factor of 10 (i.e. if it rains 5 mm, the local effect in the Zai basins is the equivalent of 50 mm).

After two years of joint experimentation, an improved version of the indigenous rock bund *diguette* technique proved successful for soil and water conservation[7] (SWC). PAF's major contribution was to develop a cheap water tube level that enabled farmers to precisely trace the contour line for the bunds. Thereafter, PAF helped farmer organizations develop a wide range of complementary technologies made possible by its initial success: penning up of animals, fodder production, agroforestry and increased compost/manure production.

Cost-benefit analysis (undertaken by a team sponsored by the World Bank) indicates that PAF's approach has been cost-effective, in striking contrast to the total failure of expensive government-sponsored SWC programmes. The World Bank team concluded that PAF's modestly scaled research and development work was low-cost and efficient largely because farmer participation in designing, testing and evaluating technologies under a variety of local conditions ensured relevance. Another factor was PAF's integration of research with extension by promoting farmer-to-farmer extension.

CRITICAL ANALYSIS

Lack of documentation of the process

The discourse in PAF documents and published materials uses terms such as "the farmers' participation" "awareness-raising" "community self-reliance", "strengthening social organization" "benefiting the poor" and "action research". PAF's discourse places confidence in the peasant farmers' knowledge and capacities, but there is little documentation on how the *process* of strengthening indigenous capacity works in practice, particularly in terms of local institution-building and organization.

Lack of attention paid to the needs of poorer families and gender

Poorer farm families often lack sufficient foodstuffs to invite communal work parties to treat their fields. Recognizing this, PAF provides each community with a revolving stock of foodstuffs (cereal bank). The objective of this stock is to enable poorer families to borrow foodstuffs on credit from the Community Management Committee to feed the workers of the mutual aid group.

Aside from this initiative, PAF did not vigorously attempt to identify the needs of different socio-economic groups within participating villages. Hence, PAF's approach does not seem to have prevented the gap between rich and poor in the participating communities from widening. As Yabre (1992) learned in her socio-economic study of PAF:

- Collective SWC work does not benefit everyone at the same time. Certain fields are protected long before the others. Thus, the exploitation and benefits of SWC go to certain families before others. The first are better served.

[7] Permeable rock bunds, if aligned properly along the contour, hold back rainwater and make it pool back from four to 15 metres uphill, allowing much more time for infiltration. Some water passes through the gaps in the stones onto the level down slope so the fields below do not dry out. Medium-sized stones are heaped up to a height of 15-25 cm in a band 20-30 cm wide along the contour. The stone bunds reduce and even reverse soil loss. Sand, soil, twigs and seeds accumulate behind the stones.

- In order to benefit from the revolving fund of foodstuffs, the poorer farm families must feel that they are capable of reimbursing the grain they have borrowed. The poorest farm families are afraid to take up a loan that they may not be able to repay.

- According to the PAF Manager, the poorest families borrow food in desperation, not for organizing a mutual aid work group, but just to have food to survive. Many of these grain loans have not been repaid due to the lack of good harvest on untreated fields.

- Families in the community with more labour available, land, cash, more animals for the production of manure and agricultural tools and equipment benefit much more from SWC technology than those who do not have access to such resources.

Thus, Yabre observes that the effect of the revolving grain loan on preventing social disparity is minimal. Despite the impressive adoption rates, the majority of farmers in PAF's programme area have not constructed rock bunds on their lands.

In some villages, in spite of the evident impact on yields in some fields, adjacent farmers have not yet adopted it. PAF did not seek to analyze the socio-economic causes at the local level that favoured or constrained the adoption of SWC techniques. For example, the dynamics of "community" decision-making about deployment, the training and material support provided by PAF, the influence of local power structures, alternative livelihood strategies and differential access to resources were not investigated by PAF.

PAF and gender

Before PAF, SWC work to protect land was the men's task. However, the more intensive and improved methods of SWC promoted by PAF created the need for increased labour resources. One of the main responses was to engage women in the work of transporting rocks for the construction of the bunds.

In addition, women are responsible for adding water to the compost/manure pit, and for watering the sheep and goats in the stable. In the face of soil erosion and declining food security, the majority of women interviewed perceived providing labour to help their men in SWC work as in their interest (helping to feed the family). A typical response of women was:

> Yes, the work is onerous for us, but we seek to have enough to eat and this work provides us with hope...when a child is hungry, it is the mother to whom he comes crying (Yabre 1992).

The impact of PAF, therefore, is certainly to increase the workload of women.

This extra work, moreover, has reduced the time women have for income-generating activities such as spinning cotton. The improved land belongs to and is fully controlled by men. Women's benefits from the SWC work are indirectly of lesser magnitude than for men.

Women do not have access to the community grain stock provided by PAF. Yabre therefore disputes PAF's claim that its approach of working "with the entire community" also benefits women. In addition, at the household level, the dynamics of how and why women are persuaded to provide heavy labour for a non-traditional task with little or no direct compensation is not documented.

Common or conflicting interests?

The tendency and nature of intervention within a community may sometimes exacerbate the conflict between competing values and interests and intensify the struggle over resources. PAF's explicit objective, however, is to strengthen community cooperation and solidarity around common problems (Yabre 1992).[8]

Little data is available to determine how PAF's approach has affected relationships within participating communities. There is little information about how the management committees of village organizations are constituted, how representative they are or how decisions are made about which fields are to be treated first in the village.

Yabre notes that PAF's intervention has occasionally stirred up conflict due to political tendencies within and between villages. In the village of Recco, for example, while two different village groups cooperated for the construction of contour bunds and compost pits, they disagreed about enclosing all village animals in pens. One village group, dominated by the chief's family, refused to do so, arguing that enclosure presented too many disadvantages.

Yabre suggests that PAF's activities are not always favourable to inter-village cooperation. The village of Goumba had refused to allow a neighbouring village of Louanga to collect stones from its lands for the construction of contour bunds (Yabre 1992).

Savadogo also provides evidence of different values and interests within communities. He notes that farmers trained by PAF are intended to become animators in their own right, to service the development of their village (farmer-to-farmer extension). However, they are often frustrated by a lack of interest on the part of the rest of the community. Savadogo suggests that this problem may be one of "social power versus technical knowledge".

Young men and women are not as socially influential as older people in the village. This compromises their ability as animator extensionists, even if they have undeniable technical knowledge. Savadogo suggests that the elders, religious authorities and nobles of the village - those who hold social power - are neither as interested nor as competent in acquiring new technical knowledge (Savadogo 1992).

PAF INTERACTION WITH GOVERNMENT RESEARCH AND EXTENSION

PAF's policy is to develop a strong working relationship with government technical agencies in its area. Through its work in organizing farmers, PAF has been able to give peasant farmers a voice in local NGO-state decision-making about planning extension work.

This is a potentially significant achievement. PAF accomplished this by leveraging its credibility to initiate an annual process of government technical agency/Peasant Farmer Organization/NGO joint planning. PAF has enabled village leaders to have "a voice" for providing feedback and influencing decisions.

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[8] When contacting a village, PAF makes clear that it will support community (not group or individual) SWC. PAF makes the creation of a Management Committee, to organize the work and manage the tools and equipment, a pre-condition for assistance.

However, as OXFAM staff admit, this does not constitute the "empowerment" of farmers vis-à-vis research and extension institutions or a shift in power relations within the broader society. Another aspect of PAF's collaboration with government has been to train government agents in improved SWC techniques, after developing this technology with farmers.

Nevertheless, the attitude of most government fieldworkers trained by PAF is that their task is to "convince" farmers of the benefits of rock bunds via demonstrations and "awareness-raising". They thus continue to operate within a "transfer of technology" paradigm. However, the extension "message" has changed, not the "method". There is little to suggest that the "two-way feedback mechanisms" between government extension agents trained by PAF and farmers have been strengthened. (It is too early to ascertain if PAF's recent joint planning initiative may provide a more effective feedback mechanism.)

PAF INTERACTION WITH VILLAGE ORGANIZATIONS

Role reversals?

Most informants suggest that PAF is a "star-led" project whose success largely depends on the personality and qualities of its leader, Mathieu Ouedraogo. OXFAM staff also suggest that the process of technology development is still very much "Project-led" (i.e. not peasant farmer-led). There *are* farmer-led experiments, but they are very much stimulated and guided by Ouedraogo (Gubbels 1992).

Strengthening the "farmers" capacity to analyze their own problems, and to identify, test and evaluate their own solutions may be part of PAF's rhetoric "but does not occur so much in practice". Although recognizing that PAF is very farmer-oriented, OXFAM staff state that PAF has not achieved genuine "role reversals" in the FF sense.

OXFAM attributes PAF's lack of progress in stimulating farmer initiative in technology development to a mutually reinforcing set of mentalities between villagers and PAF staff (Gubbels 1992). Being illiterate, the majority of villagers believe (or have learned the advantage of acting as if they believe) that those who have gone to school "are wiser". This belief places the onus on outsiders to *provide solutions to their problems*.

For their part, PAF staff's self-perception, instilled by their formal education, is that of being a bearer of *knowledge*. For reasons of self-esteem, they need to be seen as competent. Hence, a powerful internal dynamic exists within PAF that works against role reversals. According to OXFAM, this is a "major factor" that influences PAF's relationships with villagers.

Strengthened local capacity for technology development?

PAF's long-term objective is to help the rural population become self-reliant by building local capacity and organization. Yabre found little evidence in her interviews that villagers perceived this as PAF's role. Most interview responses indicated that villagers perceived PAF as a source of ideas, material assistance, and, implicitly, an important component of their strategies for coping.

After 10 years of intervention, Yabre attempted to determine if the village communities benefiting from PAF's activities have acquired the self-help mentality and the organizational means necessary for self-reliance. In general, the response of the villagers was consistent with this observation;

> "PAF has helped us and is helping us. We have mastered the technology of constructing contour bunds. We are able to continue constructing the bunds on our own even without PAF's assistance, provided that PAF could provide us with a little more material support [tools and carts]."[9]

In response to the question of when PAF should end its assistance, Mahama from Goumba replied, (in a very typical metaphor used by peasant farmers in West Africa),

> "It is as if you are teaching a child to walk. You hold it by the hand for it to take its first steps. If you let go of its hand, the child falls down. You have to support the child for a longer time before releasing it. We are like the children of PAF. PAF has taught us how to walk, but we do not yet know how to walk alone. This will come..."

Indeed, the PAF-village interaction is marked by conflicting perspectives. Villagers want PAF to continue, appreciating PAF's material assistance and perhaps its ability to broker access to government services. OXFAM, strongly concerned about sustainability and self-reliance, wants PAF to plan a process of "*disengagement*" (withdrawal). Overtly, PAF staff accepts this objective, but the reality of village expectations (and self-interest in their own futures) causes PAF staff to believe and act as if they were indispensable.

If PAF withdrew immediately, OXFAM staff agree that SWC technology would remain, *but village problem-solving and organizational capacity will not have been developed to such a point that they could be self-sustaining.*

NGO CASE STUDY: THE WORLD NEIGHBORS EXPERIENCE IN WEST AFRICA

Since 1983, World Neighbors (WN) has supported programmes in West Africa whose purpose is to strengthen the capacity of marginalized rural communities for agricultural self-development. Like PAF, WN initially focused more on developing a participatory approach of *technology development and dissemination* to improve agricultural production. By 1989, however, WN staff became concerned about the *sustainability* of community-managed experimentation and extension, and placed much more emphasis on strengthening peasant farmer organization capacities, particularly in management, leadership, planning and evaluation.

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[9] According to the villagers, while the economic impact of PAF has been positive, it has not been large enough to enable them to have the resources necessary for buying their own tools and equipment. However, the villagers emphatically deny that they have become dependent on PAF's assistance:

"No one is happy always holding out his hand. We started the work of soil and water conservation with our own rudimentary resources, our tools. It was because we were motivated. It was our motivation which determined if PAF would grant us more effective tools and carts. This support remains insufficient. It is only for greater effectiveness that we are soliciting more aid from PAF. Later, we will be able to manage on our own. For example, if we have another two growing seasons as good as this year (1991) we will have the means to purchase our own tools. But at present, it is still too soon."

Overview of the WN approach

The initial thrust of WN programmes in Togo, Burkina Faso, Mali and Chad was to teach volunteer "Peasant Farmer Experimenters" simple scientific methods to compare new technologies with their existing practices. In 1988, WN summarized the major steps of this approach in an article as follows:

1. Peasant farmer diagnosis of agricultural problems
2. Helping communities identify potential innovations
3. Community selection of which technologies to test
4. Testing of new technologies by peasant farmer experimenters chosen by their communities
5. Community evaluation of the results
6. Community-managed extension of successful innovations

This approach began with focus-group interviews and community meetings with peasant farmers in the programme area. These interviews were designed to draw out the peasant farmer's knowledge about the major changes in local farming over the past 20 years, and then assist farmers in analyzing the underlying problems and constraints. Most villagers indicated reduced and irregular rainfall and declining soil fertility as their priority problems. During the focus interviews, WN staff asked what indigenous experiments and innovations farmers had developed themselves to address these problems.

World Neighbors staff also asked farmers to assess agricultural technologies being promoted by government extension services. In each of the programmes initiated in Togo, Burkina Faso, Mali and Chad, WN staff learned that the majority of technologies being promoted by government extension services failed to address farmers' perceived needs and conditions.

When initiating work in the Bassar Prefecture of Togo in 1984, for example, WN staff asked village communities to test eight innovations recommended by the local Ministry of Agriculture, comparing them to existing local practices. After evaluating the results of these experiments, almost all farmers preferred their local practice over the innovations, for rational reasons based on their local conditions.

For example, when farmers sowed sorghum in lines, as was recommended to obtain optimal density, birds dug up and ate the seed after each sowing. The control plots, where the farmers had used the traditional technique of broadcasting the seed and thinning (and replanting) during weeding, produced higher yields.

In another case, 10 farmers experimented with the use of fertilizer, improved maize seed and more dense spacing, as promoted by extension. While eight farmers, who had poor soils, obtained higher yields than those produced on the control (traditional) plots, the increase did not cover the cost of new inputs. For two farmers with fertile soil, the yield increased substantially, but the innovation was not practical because credit, seed and fertilizer were not readily available.

After this initial experience, WN gave the *choice* of which innovations to test completely over to participating communities themselves. World Neighbors shifted its emphasis to helping farmers *identify* a broad range of relevant technologies by contacting a variety of sources. These sources included:

- Other NGOs with experience in agricultural development.
- Peasant Farmer Organizations in other districts.
- Innovative peasant farmers within the district.

- National research stations and extension services.
- International research stations.

Results

By ongoing experimentation and adaptation of a wide range of technologies, and by organizing farmer-to-farmer extension, farmer organizations supported by WN programmes have generated impressive adoption rates within their communities and often *beyond* the programme area. The technologies include:

- Improved short-cycle seed varieties of staple crops (millet, maize, sorghum) that help farmers cope with erratic rainfall, drought, and reducing the "hunger season" via earlier harvests.
- *New* crop varieties (i.e. short-cycle cowpeas, soybeans, upland rice) in local farming systems.
- Improved systems of producing and applying organic manure/compost.
- Improved fallow and alley-cropping/green manure systems, using pigeon peas.
- Soil and water conservation techniques (traditional "Zai" method of micro-water harvesting) and permeable contour bunds.
- Introduction of dry season farming crops (particularly bérébéré, a sorghum that grows from October to February on residual moisture on marshy lands).

CRITICAL ANALYSIS

In 1989, WN started a review of its five-year programme experience to determine how to begin "phasing out" its support while leaving behind a *self-sustaining* process of community-managed experimentation and extension. This review determined that the major limiting factor to increased effectiveness and sustainability was the inadequate organizational, management and leadership capacity of the embryonic Peasant Farmer Associations (grouping 10 to 14 villages together) that WN had helped to establish. Ongoing programme evaluation over the next few years led WN staff to realize additional limitations and weaknesses in its approach, which are detailed hereafter.

Farmer rationality and indigenous approaches to experimentation

World Neighbors had been teaching farmers simple scientific methods along positivist lines as a way of "strengthening" farmer experimentation and facilitating collaboration with research stations. It became increasingly clear, however, that farmers had their own way of experimenting, using a different rationale.

The organization sponsored a field research study in Mali that documented some aspects of farmers "adaptive" rationality (Stolzenbach 1992). The study found that farmers frequently used their experience,

intuition, pragmatism and practical know-how to change the design and execution of their experiments, which were often performed not as separate actions, but as an integral part of agricultural production.

The evidence, gleaned from interviews with innovative individuals, suggested that farmers do not perceive experiments in the same way as scientists do, but as continuous "learning by doing and improvisation". The evidence also suggested that this "adaptive rationality" was better suited than "scientific rationality" (which is too rigid) to working in a changing, unpredictable environment.

These insights helped explain a disturbing problem with WN programme work: As WN staff decreased their follow-up and support to Peasant Farmer Experimenters, they often abandoned "improved" experimental methods (such as using control plots).

Differential needs within communities

World Neighbor's initial approach implicitly assumed a homogeneity of community interest centred around key problems of declining soil fertility and irregular rainfall. It did not attempt to identify more specific needs, or the appropriateness of innovations for villagers with different socio-economic, gender and ethnic status. In retrospect, when WN programme staff "listened" to farmers, and engaged them in collective analysis, the most influential and powerful village voices dominated.

Initially, WN indicators of "success" monitored "adoption rates" as a percentage of the total number of farm families. This rate often ranged from 30-60% for the more popular innovations. Subsequently, using wealth ranking and social mapping techniques, WN staff found that poorer families or marginalized groups within the community tended not to participate. Families with better access to labour, animals and land benefitted the most. Aside from promoting women's cultivation and utilization of soybeans, WN gave little attention to the specific role and needs of women in agriculture.

Methodology and tools used by WN staff

Problems in not addressing differential interests, and in not developing more rigorous analysis, diagnosis and evaluation in agricultural problem-solving stemmed partially from the methodological limitations of WN's approach. World Neighbors staff (and community leaders) only became aware of many of the weaknesses presented here after learning and applying the Participatory Rural Appraisal (PRA) methodology, which uses tools such as wealth ranking, scoring, social mapping, Venn diagrams, historical profiles and seasonal calendars. Without such analytical tools, and a participatory learning methodology, and helping peasant farmer leaders learn to use them directly, WN has realized that the process will continually depend on its programme staff.

Human resource development of WN programme staff and community leaders

The problem of methodological limitations was compounded by WN's lack of a systematic and rigorous human resource development policy for programme staff and peasant farmer leaders to accelerate their learning from ongoing programme experience. Many WN programme staff were recruited because of their technical training. It became clear that such training was of limited value in WN's approach to agricultural development. World Neighbors even found that technical training sometimes impeded new staff from learning a fundamentally different approach to research and extension.

World Neighbors wished to promote "role reversals", an experiential and collegial learning approach to "extension", an understanding of social processes and analysis and the strengthening of community organization. However, WN underestimated the resources and effort required to enable new WN staff to learn the new attitudes and competencies required, and to abandon assumptions acquired in their formal education.

Interaction with research and extension services

The approach of World Neighbors to collaboration with agricultural research and extension services was initially aimed at obtaining access to a variety of potentially relevant technologies for testing, and, on occasion, to input supplies such as improved seeds. This collaboration consisted of regularly sending community delegates to research stations to view the experiments and have discussions with scientists.

Scientists at the research stations in Mali and Togo eventually asked WN to help them undertake on-farm trials of innovations through WN's relationship with community-based farmer organizations. In this collaboration, the scientists decided on what technologies to test, and designed the experimental protocols.

Although initially pleased, WN staff gradually realized that this scientist/farmer collaboration was not generating a constructive "synergy" between peasant farmer and scientific knowledge systems. The main reason was that all parties (including WN) viewed collaboration from an "instrumental" perspective, (seeking their own interests), rather than a "partnership" perspective, in which all stakeholders set and worked toward jointly defined objectives. For example, scientists were primarily interested in working with farmer organizations to realize their own predetermined objectives (for on-farm trials) at lower cost. Their approach with farmers, however, tended to be "top-down".

Rather than listening to farmers, and modifying their work in view of farmers' needs, most scientists were primarily concerned about the scientific integrity of the experiments and data collection. Scientists generally did not fully appreciate or recognize farmer knowledge or indigenous experimental approaches.[10]

Farmers were predominately interested in gaining access to potentially productive new technologies for testing. Most of the collaboration was mediated by WN. The weakness of WN's approach was in not developing collegial relations and understanding between both parties. To develop true partnership would require, on the one hand, *helping farmer organizations* better understand the workings of western science, and *strengthening their power to negotiate*. On the other, it would require *helping scientists* appreciate rural peoples' knowledge and adaptive rationale to experimentation, and to help them learn (and apply) participatory methodologies that guide WN's approach.

WN - village interaction

Using PRA evaluation tools and methodology, WN has found that the organizational capacity of farmers to diagnose and solve their agricultural problems in most of its programmes is still not "self-sustaining". The process continues to be dependent on WN programme staff. At WN West Africa's recent Strategic

[10] In Mali, the Director of the CINZANA Agricultural Research station proved to be much more open-minded, but his mandate for changing the research agenda and experimental design was very limited. (Later, when this Director was transferred, the whole issue of "collaboration" had to be renewed with his successor).

Planning Conference, field staff drew up the "capacities" of self-supporting farmer organizations that require further strengthening:

- *Negotiation* with research, extension and other outside agencies.
- Better *mobilization of local resources* (partial self-financing).
- *Leadership* (strengthening the conception and vision of empowerment through organization and local initiative, skills in conflict resolution, more inclusive decision-making).
- *Programme management*: diagnosis of problems, planning, budgeting, evaluation.
- *Inter-village linkages* and collaboration.

The constraints to strengthening farmer organizations described in the PAF Case Study generally also apply to WN's experience. Specifically, WN has determined that staff/leadership training, improving methodology and better interaction with research and extension are key points to improve for greater impact.

THE MAIN LESSONS LEARNED

Many important lessons can be learned by analyzing the case studies. Some of the more significant lessons are outlined hereafter.

Effective farmer organization is critical for more effective approaches to research and extension in CDR areas.

Informal farmer experimentation and diffusion tends to be unsystematic, ad hoc (sometimes secretive) and localized in a few individuals working separately. Linkages with outside knowledge systems are often weak. The PAF and WN Case Studies indicate that the most effective way of dramatically strengthening the farmers' capacity for technology development is through farmer organizations.

The results obtained by WN and PAF indicate that:

- In CDR areas, research and extension is more effective when it provides farmers with a "basket of innovations" that address farmer-defined problems and when it facilitates the testing of these new technologies under local conditions by the farmers themselves.
- Farmer analysis of problems and constraints of farming systems offer important and different insights than those of agricultural scientists. Catalyzing exchanges of experimental results, innovations and experiences between farmers within the community, and between communities is the most effective form of learning and evaluation.
- Farmer experimentation can be made dynamic and more able to accommodate changing circumstances and diversity than conventional research approaches.

Strong farmer organization is the key to all of the foregoing. It is also indispensable for the effective "synergy" between external knowledge systems (NGOs and research/extension systems, and indigenous knowledge systems).

STRENGTHENING FARMER ORGANIZATIONS: THE ROLE OF INTERMEDIARY NGOs

The case studies suggest that intermediary NGOs have the potential to play an important catalytic role in brokering synergistic collaboration between different actors in agricultural development. However, the cases also reveal that NGOs have *internal constraints* that inhibit their effectiveness in this regard.

The PAF example illustrates how mutually reinforcing mentalities of outsiders and village leaders obviate against "role reversals" that allow peasant farmer organizations to control and manage their own agricultural programmes. Most of the initiative for technology development originated from PAF. This tendency is partly due to institutional pressures within NGOs to achieve quick and tangible results and to their strong problem-solving focus.

Donor agencies contribute to this dynamic by applying pressure for quick results. This leads NGO project staff to easily slip back into paternalistic behaviour, and to do things *for* peasant farmers, rather than helping to develop their organizational capacity to do things on their own.

NGOs (and other actors) must realize that the radical revisions of existing practices take time to establish and take root. The *process of institutional change at the grassroots level* (or within research/extension agencies) is a long-term endeavour, and this should be clearly planned for and mandated (Cornwall, Guijt and Welbourn 1993).

A less-recognized but more difficult problem facing NGOs is that villagers themselves, often for rational reasons, resist accepting role reversals. Participation is not a costless resource for villagers. Potential peasant leaders (especially women) in rural communities often find it difficult to take time from day-to-day tasks to undertake newly established management tasks within community-based farmer organizations. In conclusion, the "quality relationships", "flexibility" and other "comparative advantages" of NGOs are necessary but not *sufficient* conditions for building self-supporting farmer organization capacities for agricultural development.

RE-CONCEPTUALIZING THE ROLE OF EXTENSION

Extension agencies wishing to support a "Farmer First" approach in West Africa face a fundamental problem because empowering farmer organizations will require changing conditions going far beyond the normal *scope* of extension activities (whether by government services or by NGOs). Farmer First approaches must not only seek to develop the farmers' organizational capacities for technological creativity, but *also their socio-political awareness, their competency in organizational management, and their ability to negotiate their interests with the "outside" (i.e. government extension agencies and NGOs).* Extension personnel, therefore, must shift into a collegial learning, rather than a one-way teaching mode, in their new role as advisors, catalysts and conveners.

HUMAN RESOURCE DEVELOPMENT WITHIN EXTENSION AGENCIES

Achieving role reversals will entail a significant commitment to helping extension personnel acquire new attitudes and skills required for "animation", conflict resolution and social analysis skills at the village level. The new role of extension workers requires them to: be more aware of village dynamics in decision-making, develop greater analytical and conceptual skills and learn to broker "relationship

building" between peasant farmer organizations and research agencies. They must be highly committed to developing strong peasant farmer leadership. Functional literacy training, which is necessary for organizational self-management, is another often essential complementary activity for extension workers, given the extremely high illiteracy in many villages.

DEVELOPMENT OF APPROPRIATE METHODOLOGIES AND TOOLS ACCESSIBLE TO FARMER ORGANIZATIONS

The transformation of agricultural research and extension requires the further development of methodologies that generate experiential and continuous learning, that recognize and seek to accommodate conflicting interests and that acknowledge the influence of power relationships in decision-making *within* villages and between farmers/outsiders.

Analytical tools, if applied within such methodologies, have the potential for "collegial" learning between people with different skills, experiences and knowledge, both within communities, and between villagers and outsiders. Since it is not possible for government services or NGOs to provide intensive and continuous support in CDR areas, these methodologies need to be of a type that can easily be learned and applied by peasant farmer leaders themselves.

PROMOTING REPRESENTATIVE AND DEMOCRATIC FARMER ORGANIZATIONS

To benefit poorer farmers, and to address the needs of different interest groups, NGOs must recognize that rural communities are not homogeneous entities when promoting local organizations. While villagers do have common interests, they also have conflicting interests based on factors such as gender, occupation, age and access to resources.

A major problem in strengthening farmer organizations has been whether to build on indigenous leadership, with their inherent power structure and values, or to establish "modern" organizational models. Traditional leadership and organization evolved to address a specific set of cultural problems.

These structures, their patterns of authority and decision-making are often *not* geared towards addressing new "development" problems. However, organizational models developed in another context and "imposed" by outside agencies are unlikely to be appropriate or sustainable.

The real issue and challenge for outside agencies is to assist communities themselves to develop *new patterns of organization and leadership* to meet new needs. This will involve participatory tools for the analysis, decision-making and evaluation that ensure that the voices of less influential groups are heard. It also involves developing representative and visionary leadership at the local level. To overcome traditional attitudes and practices over the long term, especially those that tend to exclude women, ethnic minorities, or other marginalized groups from decisions, the staff of outside agencies need to learn how to facilitate the inter-village negotiation of competing interests.

One way to offset the influence of local elites in decision-making is to promote an organizational structure designed to ensure a wider sharing of decision-making and responsibility within the community-based FO. This can be done by encouraging the creation of *many different posts* within the FO (peasant farmer experimenters, tree nursery promoters, extensionists, animal health promoters, dry-season garden

specialists, a cereal bank manager, a village input supply store manager, collective assets [i.e. tools, bullock cart, water tank] manager, etc). Not only will this decrease each person's workload, it will also allow less influential members of the community to have a "voice" and to gain valuable experience in the public domain (especially women). It also enables a wide range of villagers to benefit from leadership, management and functional literacy training.

EMPOWERING FARMER ORGANIZATIONS WITH THE CAPACITY TO NEGOTIATE THEIR INTERESTS WITH OUTSIDE AGENTS

Non-Governmental Organizations often have a tendency to confuse the momentary successful local application of participatory or action-oriented approaches with a permanent change or shift in power relations. Case studies of success often ignore the instability of the macro-context of power relations and this often creates a temporary illusion of empowerment (Arnould 1989:136).

To be more effective in "empowering" farmer organizations to negotiate their interests with state technical agencies, NGOs should help peasant farmer leaders learn about the roles, motivation, world view and constraints of agricultural researchers and extensionists. Helping peasant farmer leaders learn the basic principles of scientific experiments, and how scientists are rewarded (valid data, publishing papers) is particularly important for more balanced peasant farmer/scientist communication and collaboration.

Promoting the establishment of inter-village peasant farmer associations, and linkages and coordination between peasant farmer associations is another essential task. Working with individual villages in isolation is unlikely to provide peasant farmers with enough clout to influence decision-making within formal research and extension.

Developing an appreciation by scientists and extensionists of peasant farmer rationality and indigenous forms of experimentation is important. NGOs should be more pro-active in generating "hands-on" experiential learning experiences for scientists and extension managers through workshops and participation in PRA interdisciplinary teams. This will not succeed, however, without a decentralization of decision-making within agricultural research and extension services, which entails increasing the control/influence over decisions by representative peasant farmer organizations.

CONCLUSIONS

The vast majority of peasant farmers in West Africa remain unorganized. Without strong, community-based organizations and federations, it is difficult to see how the majority of peasant farmers in West Africa will have sufficient clout to act as a credible and effective partner with government extension agencies.

Given that there are very few self-sustaining, member-driven peasant FOs in West Africa with the essential management capacity to undertake technology development and dissemination, an appropriate form of outside intervention by NGOs and government extension agencies to support the strengthening of peasant farmer organizations is required. Such interventions should be guided by lessons learned from the experiences outlined in the foregoing if farmer organizations in West Africa are to realize their tremendous potential for more effective agricultural technology development.

LIST OF ACRONYMS

CDR	Complex Diverse and Risk Prone
FF	Farmer First
FOs	Farmer Organizations
IFAD	International Federation of Agricultural Producers
NGOs	Non-Governmental Organizations
PAF	Projet Agro-Foresterie
PRA	Participatory Rural Appraisal
PTD	Participatory Technology Development
SWC	Soil and Water Conservation
T&V	Training and Visit
WN	World Neighbors

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CHANGING PERSPECTIVES ON MONITORING AND EVALUATION

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Abstract: For many years, monitoring and evaluation in rural development programmes have been used as tools for measuring progress against objectives. However, this "top-down" policy-driven approach is being increasingly questioned. This article focuses on an alternative approach to monitoring and evaluation, according to which monitoring and evaluation are considered a process that improves the learning of all actors involved, rather than a tool for control and effective management. The approach requires a different methodology that enables all programme stakeholders to participate in the decision-making process with regard to the design and implementation of monitoring and evaluation. During the design of the monitoring and evaluation process, all stakeholders are to participate actively in the setting of its objectives, the choice of indicators and the methods to be used, in order to incorporate the various interests, needs, knowledge and skills.

INTRODUCTION

A discussion on the monitoring and evaluation (M&E) of extension programmes is essential in a report for a workshop on changing perspectives on extension. For many years, M&E has been used as a tool to measure programmes against objectives by donors and implementing agencies. However, this "top-down" approach is being increasingly questioned. It seems appropriate, therefore, to focus on alternative perspectives for M&E, in line with our focus on alternative perspectives for extension. We will begin with a typical incident.

"Should we continue or stop the anti-erosion activities in this village?" During an evaluation session, this question was asked of male and female farmers, fieldworkers, technical assistants and other stakeholders in an integrated rural development programme in a Sub-Sahara African country.

Some of the women, especially among the technical assistants, said to "stop" the programme because it increases the burden of women farmers without benefitting them. Others said to "stop" because of conflicting strategies with other rural development programmes in the region. Some farmers (some of whom were also women) said to "continue" because of the expected increase in crop production. Many other "stops" and "continues" were volunteered, all reflecting the different perspectives, values and objectives of those responding.

This experience teaches us that an evaluation of a social development activity is more than a comparison between empirical data and programme objectives through counting and measuring. It tells us that this type of evaluation has very much to do with the different perspectives, values and interests of the different stakeholders in a development programme, which results in different interpretations and perceptions.

The more people involved in an evaluation, the more interpretations and perceptions will be expressed. The challenging question is how to deal with this diversity, and should we ignore or espouse it?

The monitoring and evaluation (M&E) of social development processes has emerged as an important issue. Over the last decades, a great deal of effort has been made to establish rural development

programmes that do not only aim at economic growth, but also at improving the quality of life. Economic programmes are usually assessed in quantitative terms. However, programmes that aim at developing sustainable indigenous capacity, awareness-raising and empowering local people give rise to important questions such as: "How can these goals be measured, who should do it, when should it be done and what are the purposes of such an evaluation?"

This article attempts to answer some of these questions by discussing some principles of M&E in social development programmes. Special reference will be made to the changing role of extension in rural development projects and its implications for M&E.

CHANGING PERSPECTIVES

The mid-1970s saw the beginning of a fundamental shift in development-oriented thinking, away from the domination of the modernization paradigm and instrumental intervention, towards a systematic search for alternatives. The main reason for this search was that development was considered to be too capital policy-oriented as opposed to people-oriented.

Development efforts had bypassed, or even marginalized people in the efforts to build and construct. Complex societal problems were reduced to technical and economic problems. Gradually, the view emerged that although physical development was important, development programmes had to allow people to play a central role and to have some control over it. This has resulted in the development of alternative approaches that are often referred to as "people-centred development" or "participatory development".

Analogous to this shift in thinking in the area of development, the perspectives on the role of rural extension have changed. In early days, extension focused on how to convey the technical message developed by research stations to farmers. Since the adoption rates of these technical messages were often below expectations, extension services began to realize that it would be more effective to involve the target group in the definition of the message and the communication channel used to transfer it.

In addition, an effective impact of extension on agricultural innovation appeared to be not just a question of productive extension methods or communication alone. Such an impact cannot be achieved without taking into account the contribution of other relevant actors, such as researchers, policy-makers, farmers and their organizations, agro-industries and commercial companies, all of whom are involved in the development process in a certain region or sector.

Finally, experience has shown that it is very difficult to assess the effectiveness and impact of extension programmes by measuring the adoption rate of a particular technology, because this rate often does not only depend on the efforts of extension services alone. The evaluation of an extension programme therefore benefits from a comprehensive perspective known as the Agricultural Knowledge and Information System (AKIS) (see Röling, this volume), which focuses on various aspects, like actors and their linkages, the contributions they make in terms of knowledge and information and the way they organize themselves. AKIS takes the multiple perspectives of the actors involved as a starting point to strengthen a negotiation process among them.

The emergence of people-centred development approaches and the changing perspective of agricultural extension have imposed two challenging tasks with respect to M&E. Firstly, although there is a joint

agreement on the importance and relevance of these alternative people-centred approaches to achieve sustainable development, there is a need to clarify and compare them in order to improve the transparency of these approaches and their impact. It is our opinion that M&E should play an important role in this. Secondly, the alternative approaches require a different approach to M&E and a different methodology that embraces the diversity of perspectives and values of all actors involved in the development process, raises awareness and stimulates mutual comprehension.

MONITORING AND EVALUATION: A DIFFERENT APPROACH

Although the concepts of M&E (either in those words or in the local language) are commonly used to refer to some proportional activity, one seldom realizes that they are an essential part of daily activities. The following definition of evaluation is given by the Concise Oxford Dictionary: "appraise, assess, give value", which is what everyone does. For instance, when one goes outside and see a certain type of dark cloud obscuring the sky, one decides to bring an umbrella. We "give value" to those clouds based on our past experience.

The fact that everybody uses M&E everywhere at anytime seems to contradict the experience that formal M&E is often done sloppily or not at all. There will always be some form of M&E within an organization or project, but this is usually not considered or recognized as such. This observation brings us to the hypothesis that the lack of a systematic approach to M&E in rural development programmes often conceals the existence of informal M&E activities.

There are probably as many definitions of M&E as there are authors writing about it. Some definitions describe what people try to achieve with M&E, and others illustrate what is done. One can imagine how many definitions of M&E there are, since each author might have different objectives, which should each be achieved in a specific way.

When M&E as an organized activity first emerged, it was considered a provider of "objective" technical information on issues such as whether the right amount of money had been spent, the planned amounts of fertilizer had been distributed and the planned number of farmers had been contacted.

Monitoring and evaluation was more a matter of collecting data on what had been realized, and comparing them with what had been planned as formulated in the programme objectives. This comparison of empirical data and programme objectives often took on the character of a cost-benefit analysis. Each alternative was examined to see to what extent the results (achieved or expected) were in agreement with the objectives. The results were then compared with the costs (personal, material, organizational) (Abma 1993). Some definitions of M&E, e.g. the following FAO definitions, clearly show the management functions ascribed to M&E.

Monitoring is a continuous or periodic surveillance over the implementation of a project to ensure that input deliveries, work schedules, target outputs and other required actions are proceeding according to what has been planned (FAO 1985).

Evaluation is a systematic process that attempts to assess as objectively as possible the relevance, effectiveness and impact of a project in the context of the project objectives (FAO 1985).

Monitoring can deliver information on a regular basis. This information is needed to take daily management decisions. Evaluation is used to determine whether, or to what extent, the planned objectives have been achieved, as well as the impact and relevance of the programme. Evaluation ensures that ongoing activities will be improved, partly based on monitoring findings, and helps to lay a foundation for the management of a project to formulate future actions and policy. Monitoring is focused essentially on the present, whereas evaluation is focused more on the future.

Two main types of evaluations are commonly distinguished along those lines of thinking. They are referred to as formative and summative evaluations. Formative evaluations aim at providing feedback to improve a programme, whereas summative evaluation provides information that enables decision-makers to decide whether to fund, continue or terminate a programme (van de Fliert 1993). In the early days, the focus was mainly on summative evaluations. Policy-makers and donors especially appeared to be the primary beneficiaries of this type of evaluation, while the rest of the stakeholders perceived them as instruments of control. Abma (1993) says "M&E directed to management and policy making can lead to insufficient attention being paid to the values, knowledge, skills and interests of other programme stakeholders".

Nowadays, with the emergence of people-centred development approaches, a different approach towards M&E is required. In order to raise awareness and empower the different stakeholders in the programme, more emphasis is placed on the internal use of M&E. Although M&E is still considered important for programme justification and policy makers, more attention is focused on M&E as a learning process. This alternative approach to M&E is based on the acceptance of the multiple perspectives of the different stakeholders and takes the different values, knowledge, skills and interests of the actors as a starting point for negotiation in order to decide on sustainable development. In other words, the learning function, rather than the control and management function of M&E is stressed.

Human action is built upon experience. During experiential learning, and through observation, analysis and reflection, a decision will be made as to whether the same or a new action is to be taken or not, and who should be involved. M&E comprises exactly the same process. Information and data on different subjects are collected, analyzed, reflected upon and negotiated. In the end, conclusions are drawn for taking action.

Furthermore, M&E can provide insight regarding how the results have been received and who has taken part in it. Consequently, M&E enables the programme stakeholders to make the experience gained and the progress made explicit, and offers the opportunity of applying the lesson thus learned to a future situation. Monitoring & evaluation should be considered a learning process whose main function is to strengthen one's capacity for learning and problem-solving.

This capacity can be strengthened at the individual, collective, local and institutional levels. This requires that the different stakeholders be actively involved in designing, implementing and even evaluating the M&E system of the programme.

In this approach, M&E enables people and institutions to discover their own qualities and the opportunities for their own and their community's well-being. As a consequence, M&E might increase the (self)-confidence, motivation and responsibility of the different actors involved. Since M&E brings people together periodically to discuss programme matters, it facilitates the exchange of experiences, collaboration and the sharing of tasks, and improves networking.

M&E must be taken very seriously in social development programmes, not only because of its learning and mobilization function for the programme's stakeholders, but also to assure the continuation of these types of programmes. A common feature of social development programmes is that decision-making is being decentralized towards the programme beneficiaries.

Consequently, decision-making moves further and further out of the donor's sight. Donors may thus become reluctant to continue to finance programmes that struggle to find the appropriate strategies for awareness-raising and empowerment. A well-functioning M&E system will ensure the programme's transparency and therefore probably its duration.

METHODOLOGICAL PRINCIPLES OF MONITORING AND EVALUATION

Changing approaches towards development not only requires a different approach to M&E, but also different methodologies, methods and techniques. Conventional M&E is dominated by the concern of physical and financial *measurements and judgements*, while we feel that M&E of social development is characterized by *description, interpretation and appreciation.*

In principle, all human behaviour can be translated into numbers and is therefore amenable to quantitative analysis. Nevertheless, it is easier to envisage how to quantify and analyze the progress of road construction, than the progress in (self-) empowerment.

Numerical systems are nevertheless often used to assess complex human behaviour. One example of this is a system in which possible answers to questions addressing qualities are ranked by number. The numbers thus each represent a quality (e.g., 1 to 5 qualities from good to bad). Once numbered, different statistical exercises can be applied. This may generate some knowledge about the question addressed. However, these numbers per se do not generate understanding for the following reasons:

- The numbers per quality are set by the evaluator and not by the respondent. Thus the perspective of the evaluator and not necessarily that of the respondent is addressed.
- Numbers can only be expressed on a discontinuous scale, whereas most processes develop in a continuous manner. Thus, while some qualities can be addressed at any given moment, some aspects can only appreciated in time.
- Numbers are generalizations so that the individual/collective perspective is lost.
- Numbers do not provide insight into reasons why people are taking certain actions.

There is generally a need for a methodology that is not based on measuring material outcomes, but that is able to describe the characteristics and properties of a process, such as empowerment, which can allow the nature and extent of the process that has occurred to be appreciated through the interpretation of the data available. Thus, the function of the methodology should not be to measure effects, but to raise awareness and stimulate mutual comprehension between the stakeholders involved.

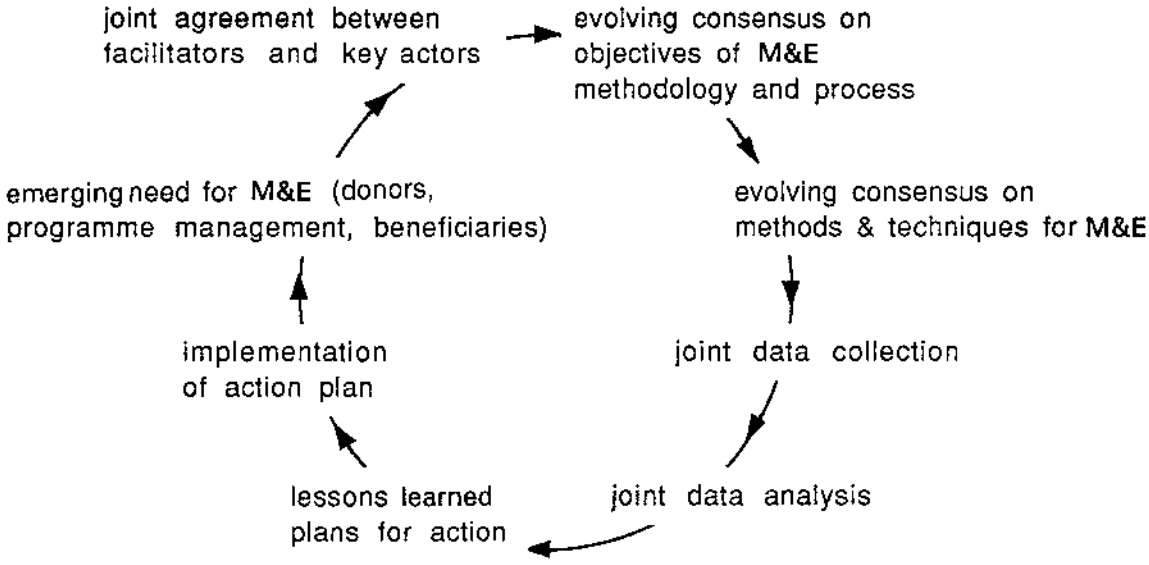
Too often the discussion about methodologies for M&E have ended up in little more than a checklist. While a checklist should serve as an aid to increase thought, it tends to be used too rigidly. A

framework and a set of key principles to help decision-making with respect to the design and implementation of M&E in social development programmes seems to be more useful. Some of these principles are described hereafter.

A. Phases in a participatory monitoring and evaluation process

The M&E of social development means the M&E of a process. M&E can be considered a process itself. In fact "it is more like a process in a process situation" (Marsden and Oakley 1990). More precisely, we prefer to refer to M&E as an iterative learning process comprising different phases (Figure 1). These stages may occur simultaneously and interactively. Taking into account these different phases may facilitate and improve the transparency of the decision-making process with regard to M&E.

Figure 1. M&E as an iterative learning process



Some aspects of M&E are explained in the following section, with a special focus on the design.

B. Who will be involved in the monitoring and evaluation?

At the start of an M&E process, it is useful to ask oneself: "Who should be involved in it?" In this respect, two types of evaluation may be distinguished:

1) an *internal M&E*, in which relative insiders such as programme staff, fieldworkers and the intended beneficiaries are involved, and

2) an *external evaluation*, carried out by relative outsiders such as donors or officials.

The choice of participating actors will obviously be greatly influenced by the actor(s) who express the need for the M&E and formulate its objectives. Experience shows that the involvement of programme stakeholders, and especially of the intended beneficiaries tends to be low when M&E has been requested by donors (DGIS 1993).

The focus here will be on internal M&E because it allows the programme stakeholders to learn more, and therefore improves the performance and impact of a social development programme. It is the authors' opinion that this type of M&E should receive more attention than it has thus far. However, we do not want to give the impression that external evaluations, focusing mainly on the accountability dimension of current development programmes and on future policy-making, are not important.

They may also have a very positive impact on the performance of a current programme. They may, for instance, open up discussions that were previously blocked because of internal conflicts (Groot and Boon 1992). However, more appears to be written about the M&E of participation in social development programmes than about participation in M&E.

Unfortunately, even in social development programmes that consider participation a means to empower the local community, evaluation is often based on a loose consultation process in which beneficiaries provide information for M&E activities that have been designed externally.

These beneficiaries do not normally have a say in the design and implementation of the M&E. Nevertheless, some interesting experiences show that the participation of local people in all phases of M&E can very well contribute to their empowerment.

For example, Roche's (1993) experience with evaluation in which farmers in Mali participated in formulating the objectives of the M&E, the methods and indicators to be used, and the implementation, showed two interesting aspects:

1) Auto-evaluation makes use of rural people's understanding of their environment and their own clearly articulated and consistent production objectives, and

2) It provides a framework through which rural people can communicate with development agencies.

Auto- or self-evaluation seems to gain in importance. However, none of the in-country surveys prepared for this workshop mention that auto-M&E activities have been carried out. This is a particular type of M&E, in which the local people concerned evaluate their own activity or programme.

The objectives of the evaluation, the methods and indicators to be used, the collection and analysis of the data and information, and the drawing of conclusions are all carried out by local people themselves. Such auto-evaluation may be facilitated by an outside player. Participative evaluations are often referred to as evaluations in which there is a balanced contribution of all actors involved.

In the alternative M&E approach, the evaluator should not be considered a distant observer or expert, but rather a facilitator who organizes the learning process of all relevant actors involved. In fact, the evaluator gathers together various people's notions and opinions and faithfully reproduces their points of view in an attempt to increase mutual comprehension (Abma 1993).

The authors are of the opinion that the M&E methodology of a development programme should be a reflection of the programme's strategy. If participation is considered a means to empower the beneficiaries, their perspectives, knowledge, skills and interests should be built into all stages of the design and implementation of the M&E process.

C. What are the objectives of monitoring and evaluation?

When different actors are involved in the same M&E process, it cannot and should not be denied that they generally have different objectives, particularly with respect to M&E.

Some actors (e.g., a Ministry of Agriculture) might want to monitor and evaluate in order to formulate future national agricultural policies, while others (e.g. programme staff) want to find out what elements of the programme need more attention. Farmers want to know whether a particular innovation is beneficial to them.

While focusing on M&E, it is important to begin negotiations to try to develop a consensus about its objectives among all actors involved. Clear M&E objectives will facilitate the delimitation and the choice of data and information to be collected and will prevent the actors from getting stuck in a large amount of data, only part of which will be used. Furthermore, the different objectives of M&E put forward by the actors increases the transparency of their aspirations.

D. At what level does monitoring and evaluation take place?

M&E is often carried out, simultaneously or not, at different levels e.g. (inter) national (ministries, donors), intermediary (programme staff, fieldworkers) and local (farmers). There is obviously a relationship between the M&E activities at these different levels. For example, one level might use the M&E results of another. An exchange of information therefore takes place amongst the different levels.

Although we consider such an exchange very worthwhile, in order to safeguard and optimize the learning process of those involved in M&E, we feel that M&E activities should be primarily in

keeping with the identity, interests and needs of those involved. As one of the participants put it during the workshop, "We often have the feeling that we spend a lot of energy collecting data, which only serves outsiders. This is discouraging".

E. What to monitor and evaluate?

The objectives of M&E obviously greatly determine what will be monitored and evaluated. As previously mentioned, in the more conventional development programmes, M&E is dominated by the measurement of the supposed outcome of a programme. It is concerned with the impact and effects of a programme in terms of its planned goals and objectives, the relevance of the programme and its efficiency in terms of the use of resources.

The authors feel that, as Abma (1993) mentioned, M&E should not only focus on intentions but on activities, motives and problems that occur during programme implementation. It should take into account the issues and concerns of all actors involved. Furthermore, the M&E that is aimed at clarifying and comparing development approaches, and at unexpected programme effects deserves increasing attention.

Different subjects of M&E can be identified using an AKIS perspective. For example, the relevant actors can decide that the M&E activities will be directed at the exchange of information among the actors, the differentiation and integration of the contribution of the actors involved, the frequency and quality of the linkages between them, the quality of joint learning processes and the development of sustainable innovations.

F. How are we going to monitor and evaluate?

As shown in Figure 1, during the first stages of M&E, a consensus has to evolve with respect to the approach, methods and techniques to be used. First of all, the chosen approach and methodology for M&E should be a reflection of the strategy of the programme and what it wants to realize.

We can often observe that (external) evaluation missions only use methods like secondary data analyses and discussions with staff and representatives of ministries, in order to evaluate participation and empowerment processes of beneficiaries, without actively involving the latter group.

During the design stage of the M&E process, it is important to clarify different concepts with respect to M&E among the participants, with an emphasis on those concepts commonly used in and adapted to the local situation.

After clarifying the different perspectives of M&E, a consensus evolves with regard to the methods and techniques to be used. Over the years, the M&E methodology has been very much biased towards the quantitative aspects of development. The commonly used methods/techniques for M&E often require a number of reading and writing skills.

However, the methodology must not be beyond the capabilities of the programme beneficiaries if they are to play an important role. Massive complex evaluation exercises are out of the question, while comprehensible and easily managed exercises are more appropriate (Uphoff 1989). Good results have

been achieved with locally adapted M&E methods, such as village/group meetings, diaries, life history and the use of symbols and pictures (Feuerstein 1986).

Women involved with vegetable cropping in Burkina Faso measured their harvest themselves by counting the number of filled plates that were used locally. In this way, the women became more involved in the evaluation than previously when the harvest was weighed by fieldworker using a scale. When choosing a group meeting as an evaluation method for example, certain aspects, such as the acceptability that local women and men participate in one group, should be taken into consideration.

If men and women can participate in one group, it must be established whether it is culturally acceptable for women to criticize men. Thus, in the choice of M&E methods, local customs should be considered when evaluating possible progress and success.

During the design stage of M&E, the participants discuss the criteria and indicators to be used. We are convinced that the indicators for evaluating the qualitative change brought about by development programmes will emerge as a result of an interactive process in which the different actors of a programme are involved, including the beneficiaries. Experience in Mali shows that rural people are well able to provide criteria by which the success of an activity may be determined (Roche 1993).

The criteria/indicators debate should not revolve around quantitative and qualitative measurements, because a number can be attached to anything. The interpretation of that number is more important.

This interpretation must be part of the process and must include as many perspectives as possible. It is of no use to talk about blueprint social development indicators, since they will essentially be derived from a social, cultural, historical and political context: they are value-bound.

As Roche (1993) said, the process of establishing the criteria reveals major differences in objectives between the various stakeholders of a programme and even within one household. For example, an activity aiming at supporting sorghum production has been evaluated by local men and women and the development organization involved.

It was obvious during discussions that women came up with other criteria than men (e.g. women asked about the availability of cooking utensils and sauce ingredients, while the men asked about the ability to sell sorghum when the price is high). The development agency focused on the "productivity and availability of sorghum seeds for the next season", among other points.

Compromises should not be made when setting the indicators for M&E. On the contrary, the multiple perspectives of the various stakeholders allow for the inclusion of local and scientific knowledge, and different skills and capacities.

G. When are we going to monitor and evaluate?

The changing approach towards rural development also implies that the timing of M&E is an important issue. Conventional development programmes are characterized by periodic data collection meant for relative outsiders, such as ministries and donors, and are completed by an ex-post evaluation. However, since such processes as learning, awareness-raising and empowerment develop continuously, M&E is required for systematic and continuous data collection and interpretation. This

implies that M&E is no longer considered an "outsider" activity, but as internal programme elements, for which planning is needed.

We are convinced that the ultimate success of M&E depends, among other points, on its integration in the programme cycle from identification onwards. This implies that M&E will have to find its place starting from the conception of a programme, as reflected in the allocation of money, natural and human resources and time.

H. Implementation of monitoring and evaluation and the lessons learned

The implementation of M&E should not be considered a technical and analytical procedure but rather a process of negotiation. In this process, all actors involved will be able to describe, interpret and appreciate what is happening in the programme. They will draw lessons jointly from the M&E, and decide which commitments are necessary for improving the programme.

CONCLUSIONS

In this article we have considered the changing role of M&E as a result of changing approaches in rural development. It is the authors' opinion that M&E in social development programmes should play an important role in order to achieve such programme goals as empowerment and the self-reliance of the beneficiaries.

In social development programmes, M&E is not a tool for control and effective management, but rather a process that increases the learning of all actors involved. This implies that the focus of M&E is more on the different interpretations and perceptions of what has happened than on measurement and judgement.

This learning approach towards M&E requires a different methodology, which enables all programme stakeholders to participate in the decision-making process with regard to the design and implementation of the M&E process, as well as its evaluation.

The local community thus does not participate through providing information on externally conceived activities only, but is able to build up their interests, needs, knowledge and skills in the M&E process. Only in this way can M&E contribute to the improvement of the learning capacity and empowerment of local people. An M&E process in which the relevant actors are actively involved may even be used as an important indicator to show to what extent awareness-raising and empowerment have been achieved.

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NET*WORKING* FOR SUSTAINABILITY: TOWARDS A NEW PARADIGM FOR EXTENSION

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Abstract: *Current trends in rural development are obliging extension scientists to fundamentally reassess their approach. The function of extension can no longer be conceptualized as the transfer of knowledge, practices, technology or information. It is to be seen as facilitating the* ***identification, mobilization and integration*** *of different relevant types of knowledge so that new, sustainable practices may emerge locally. The facilitation and improvement of social learning processes should be the focus of extensionists, not technology transfer.* ***Networking*** *is put forward as one practice that is bound to play an increasingly important role in rural extension. The author reviews the experiences of five different networks of non-governmental development organizations and highlights the potential contribution of networking to social learning processes and collective agencies for rural development. Finally, the author addresses two questions: what can we, extension scientists, learn from networking, and how could a networking approach contribute to a* ***paradigm shift*** *in extension?*

INTRODUCTION

Scientists working in the field of extension are obliged to fundamentally reassess their approach due to current trends in rural development. National extension programmes increasingly feel the heat of market-oriented development policies, which challenge government funding and cause questions to be asked regarding the effectiveness and efficiency of extension agencies. Also, private agencies compete increasingly with government services and often very successfully. Moreover, since the mid-1980s, and for very diverse reasons, the privatization of extension services has become a burning global issue.

At the same time, no one has challenge the *function* of extension in facilitating rural development thus far. There seems to be general agreement that certain categories of the rural population need technical and economic support to be able to carve out a niche for themselves in the global economy, although this may change. How important is the extension function for achieving sustainable development? Why can't actors in "development theatres" take care of themselves?

There seems to be little doubt that the extension function is crucial for sustainable development, yet the success or failure of the extension function during the coming decades will very much depend upon how effectively we will be able to redesign our paradigms, approaches, and methods, as well as our organizations.

These will have to be thoroughly readjusted to meet new challenges and constraints, and most of all, new objectives. If not, our organizations will be changed for us from the outside, while our paradigms, approaches and methods will not equip them to cope effectively with the new challenges that may arise from the current turmoil.

Scientists working in the field of extension have an important role to play, but is not an easy one. To do a thorough job, one should not limit examinations of dominant paradigms to rethinking old traditions or reopening old discussions.

One should delve deeper into the "core business" and come up with some new elements, new perspectives and new strategies. This can be done by looking at the functions of knowledge and extension from a more theoretical perspective.[1] Another way is to have a closer look at related phenomena in current practices.

What are the different strategies that agencies develop to face new challenges? Which agencies seem more successful than others? Which of the new practices seems relevant to the extension *function* in the future? In this paper we will discuss the last perspective. Elsewhere, we will pay more attention to the theoretical side (Engel 1993b).

Networking among non-governmental development organizations (NGDOs) is a newly emerging practice, although networking itself is not new. However, the extent to which development agencies now undertake systematic networking activities is unprecedented. "Networks" apparently provide for a flexible, decentralized way of organizing people-oriented services.

The focus of this article will therefore be on NGDO networking. A number of current networking experiences will be discussed, and attempts will be made to show their relevance to the extension function.

We will first outline the contours of what we consider the *paradigm shift* and clarify the meaning of the word "networking". This will be followed by a discussion on current networking practices among NGDOs. Why do NGDOs network and how?

The argument will be that what sets networking apart is the space it creates for joint learning and reflection, which is based mostly on a comparative analysis the author was able to perform on the documented experiences of five NGDO networks in Latin America, Africa and Asia[2].

The role that networking may play in redesigning the extension function in rural areas, and whether a focus on network facilitation in extension may contribute to a paradigm shift as previously outlined, will then be examined.

NETWORKING: A NEW PARADIGM FOR EXTENSION PRACTICE?

The author once labelled one of the most overriding biases that have characterized extension (thinking and practice) for about the last 20 years, the "Source Syndrome" (Engel 1989). This is the systematic overrating of technical, i.e. scientific and research-based knowledge, compared to other types of knowledge that are relevant to agricultural production and rural development.

As many others have also pointed out (e.g. Chambers 1983, Darré 1985), this bias causes agricultural development to deny itself the benefit of other sources of relevant knowledge, particularly the

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[1] For example: Röling *et al.*, Wageningen Research Programme on Knowledge Systems for Sustainable Agriculture, Bawden *et al.*, at Hawkesbury University, Australia; see also Wilson & Morren 1990; Long & Long 1992; Gremmen 1993.

[2] The author is indebted to ILEIA/ETC for making their materials available to do this study. See: *Linking with farmers: Networking for Low-External-Input and Sustainable Agriculture.* (1993). C. Alders, B. Haverkort & L. Van Velthuizen, Eds. London: Intermediate Technology Publications.

knowledge that farmers possess. But one might also say: what about the knowledge local traders possess about commercialization, bankers about loans, housewives about product qualities, local blacksmiths about tool-making, or "old people" about ecological changes?

We will not attempt to enumerate all sources of relevant knowledge at local and regional levels that might come in handy for achieving locally embedded, sustainable development. The list would simply get too long.

Fortunately, the "source syndrome" has started to fade away. But, as with "participation", it is easier thought of and said than done. Most of our extension programmes still reflect the "source syndrome" and still echo the transfer of technology (TOT) paradigm, although it does not matter much to most farmers, who might not believe it anyway (see box).

It does however matter to the quality of extension. It hampers the effectiveness and efficiency of our programmes. It makes us "institutionally blind and deaf" to other relevant sources of knowledge and experiences. The challenge to extension is to redefine its role as a catalyst to suit the complex theatres of social interactions from which we may expect new, sustainable practices to emerge.

To overcome the "source syndrome", the function of extension can no longer be conceptualized as aiming at a *transfer* of knowledge, technology, practices or information. It is to be seen as facilitating the *identification, retrieval & integration* of such 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. In other words, the extension function would then be to help facilitate an effective *fusion of horizons* (Long 1989), and practices among stakeholders in rural development.

"You don't believe that yourself, do you?"

Attending a meeting with Dutch glasshouse farmers in the famous Westland Glasshouse District, I once listened to a research director explaining how it is the researcher's job to produce agricultural knowledge, which can then be transferred by extension to the farmer, so that the latter may apply it on his or her farm. At some point during his speech, one of the farmers stood up and asked: "you don't believe that yourself, do you?" He then continued to explain that researchers were not the only ones that produce knowledge. On and around the research station, he calculated, including extension staff, at the most 200 (very!) intelligent people are actively developing agricultural knowledge. At the 6000 odd farms in this region, on the other hand, some 25 000 intelligent people are engaged in experimenting, adapting and developing knowledge on a daily basis, in order to run and improve their farms.

What he expressed was not that researchers and extensionists do not provide the farmers with relevant knowledge, but that it is not the only knowledge farmers need to run a farm (Engel 1989).

I believe most extension workers instinctively know this, particularly the very experienced ones. Yet many are trained to believe otherwise, or have given up trying to explain it to their scientifically trained bosses. In the words of Chambers, we are so accustomed to thinking of ourselves, researchers, extensionists, advisors as the sources of agricultural knowledge, that we forget to "step down off (our) pedestals, and sit down and listen and learn" (Chambers 1983).

As demonstrated by an increasing amount of research, the contours of a new paradigm for extension may be found in the concept of "learning", "learning systems" (i.e. Sriskandarajah, Bawden and Packham 1989; Wilson & Morren [Eds.] 1990) or "social learning processes"[3]. Within the complex theatres of agricultural change and innovation we are dealing with today, the joint responsibility of all relevant actors to learn and act upon it, rather than the capacity of some to transfer their solutions to others, will make all the difference (Engel 1993 [in prep.]).

Consequently, I expect "facilitation", "learning coalitions" and "agency" (see Long 1992), rather than "transfer", "decision" and "adoption" to be key to any new emerging paradigms. As I hope to show in the following pages, a paradigm including such key elements might well be labelled a *networking paradigm*.

NETWORKING: WHAT ARE WE TALKING ABOUT?

My primary interest is not with networks as such. Rather, I want to look at *networking*, the process resulting from the conscious efforts of certain social actors to build relationships with each other in order to enhance sustainable development.

Networks are the more or less formalized, more or less durable relational patterns that emerge as a result of such purposive efforts. From this point of view, the success or failure of networking, its function and characteristics, and the exact form and shape the actual networks take, may be evaluated against the *mission* that its constituting actors have in mind for it.

However, in order for networking activities to correspond to a mission, the same actors must be able to formulate one. That is, the question of who may or may not be a *constituting actor* - having the right to co-determine the ground rules or "constitution" for the network - has to be answered, and a procedure must be agreed upon for developing a *shared perspective*, or a "theory of poverty" as Tim Brodhead puts it (quoted in Korten 1990).

Such questions are often not dealt with very explicitly by those constituting a network, and as most networks start off very informally, they don't have to. Networks often evolve around a closely knit group of charismatic leaders. They initially determine who is "in" and who is "out", and set the agenda for network activities. However, when networks become more permanent and institutionalized, the need to develop more transparent and more widely participatory ways of generating such decisions arises.

Mario Padrón suggests a central thesis to NGDO networking: networking is about sharing. And he warns: *sharing may be one of the most demanding requirements in development work, yet it is the most essential common denominator developed by the poor in order to provide for each other and live under adverse conditions. Daring to share*, as he puts it, is neither easy nor automatic; it requires a willingness to be open-minded, and having enough confidence in one's own work to expose it to others, and at the same time, the necessary humility to understand one's position as one among many.

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[3] In the Wageningen Research Programme on Knowledge Systems for Sustainable Agriculture, we feel the latter term best reflects what we're talking about.

This makes networking more than simply individuals and institutions working together on the basis of agreed interests. It has to do with achieving "social synergy", as Haverkort and Ducommun put it (Haverkort and Ducommun 1992). Networks represent "communities of ideas", a space for like-minded people to interact on the basis of common interests, mutual trust and anticipated concern. This has less to do with the manufacture of products and/or services than social learning and communication. Networking helps create a fundamentally new quality to human cooperation by focusing on "mind" rather than "matter". It enhances comprehensive thinking, creativity and dialogue.

However, any attempt to understand and manage networks that overlooks this fundamental issue is bound to misinterpret the interests behind the networking of NGOs. This is not to deny the importance of specifying products and services in the realm of networking.

On the contrary, such tangible activities provide for indicators to assess the dynamics and eventual success of network activities. But the understanding of networks can never be reduced to the simple "production" logic that is so commonplace in institutional thinking today. The added value of networking is strongly linked to the development of ideas, to shared experiential learning and to making sense of the world through communication.

In the following paragraphs, we will consider some of the main issues arising from a number of current networking experiences, which have all reached a stage of consolidation. All of them have successfully transcended the risks and uncertainties of institutional infancy and matured into respected adolescence, carving out a "niche" for themselves in the local, regional, and/or global NGDO community. Our main interest will be to look for the value added to NGDO activities by networking[4].

What makes it worthwhile to *net*work, in addition to simply work in the view of the NGDOs themselves? Three questions will be raised in this context:

- What triggers networking efforts amongst NGDOs?
- What makes networks take on a more permanent form and endure?
- What are the most characteristic activities of network organizations?

WHAT TRIGGERS NETWORKING EFFORTS AMONG NGDOS?

At first sight, NGDO networks seem to surge from situations where the NGDOs themselves, or members of their staff, perceive a critical lack of access to relevant knowledge and experiences from others. Yet, at the same time, this lack is not looked upon as absolute or irrevocable. On the contrary, it is perceived as being surmountable when ideas, experiences, and information are shared among relevant parties, in other words, if information-sharing and learning among relevant NGDOs is improved.

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[4] I take "NGDO activities" to refer to a whole range of possible activities performed by non-governmental development organizations, from services to advisory work, from denunciation to advocacy and policy development, from cultural activities to communication, each particular combination of activities being the result of the choices made by the organization within a certain local or national context, in accordance with its own developmental objectives.

In India, NGOs and farmers agreed that there are many sound traditional practices that need to be brought to light and are worth disseminating (Quintal, Oswald, and Gandhimathi 1993 [Tamil Nadu and Pondicherry Region, India]).

Another case in point is CAME (Perú) (Manrique & Bueno de Mesquita 1993 [CAME, Peru]). Severe droughts and inundations convinced NGDOs of their inability to adequately respond to the Andean peasants' needs. They attributed this failure to a lack of familiarity with Andean and LEISA technologies, the environment and the ways to manage climatic risks on one hand, and to a lack of inter-institutional coordination on the other. Another example is the recognition of the participants at the OXFAM Cotonou Workshop of the isolated condition in which local project staff had to work, which gave rise to the formation of the ALIN network (Graham 1993 [ALIN, Africa]).

In some cases, a more general lack of coordination may have prompted networking efforts. Sometimes the coordination of vital tasks amongst NGDOs is recognized to be weak in terms of technical focus, as well as in terms of management and logistics, as was the case of ACDEP:

(...) coordination had a number of inherent limitations and weaknesses: The projects operated in isolation, (...) tended to replicate programmes and (...) operate similar activities within the same locality. (...) Coordination tended to be based on the vertical administrative structure of the church and parish. (...) coordinators (...) could not provide technical backup (...) varied and different development approaches (existed) without the benefit of learning process between projects. Policies regarding the delivery of services were conflicting and tended to undermine each other. (...) parallel and sometimes inefficient and costly services.(...) different prices for the same inputs. A coordinated voice on agricultural development policies was absent (Alebikiya 1993 [ACDEP, Ghana]).

In such cases, network organizations are forced to assume a much more comprehensive role of facilitating organizational integration and change. This often leads to the establishment of new specialized units or agencies that are dedicated to certain well-specified tasks in support of all NGDOs concerned.

However, it would stop short of recognizing the entire scope of intentions behind NGDO networking efforts, when only a relative and critical deprivation of knowledge and information, or even services, is pointed out as a motivation for networking.

An even more important dimension seems to be the awareness among a number of like-minded NGDOs that the situation they are faced with in their work in the communities requires new, more comprehensive insights and a more profound understanding of the options for sustainable development open to their clientele.

As we saw in the foregoing in the CAME case, it was the realization that the NGDO community did not command an adequate enough understanding of Andean and LEISA technologies, or of the options available to peasants to manage resources and risks, in order to be able to support the rural communities effectively.

In India, the ecological breakdown due to "modern" agricultural techniques, the ensuing crises, and the lack of appropriate and sustainable alternatives raised awareness that *a local network would enhance the speed and quality of field action and motivate others who are interested in the concept of LEISA* (Quintal and Gandhimathi 1993 [Tamil Nadu and Pondicherry, India]).

In global NGDO networking, the same thought has been on the mind of the founding members of EL TALLER, for example, as expressed by the Secretary-General, Sjef Theunis: *EL TALLER was born out of the need for reflection voiced by NGO leaders from around the world. Women and men who work at the heart of their society are feeling that citizens and politicians have lost their direction and focus* (EL TALLER, 1992 foreword Secretary General).

From this point of view, networking is very much carried by the wish to jointly search for new ways of understanding and intervening in complex development situations. The motivation to start networking is the wish to (eventually) articulate an alternative approach to sustainable development. In many cases, a specific conceptual framework or "theory" is adopted in order to provide guidance in developing such an approach: LEISA, in the cases of ACDEP, CAME, the Tamil Nadu and Pondicherry Region and "ecological agriculture" in the case of RAE. In other cases, a looser set of "guiding principles" is formulated.

It seems that the awareness of a lack of focus often coincides with the realization of a critical lack of access to relevant experiences, knowledge and information to create a powerful motivation for networking amongst NGDOs. A question remains to be answered however: Who will become "aware", who will notice the "lack of...", and why do they act upon it? As we will discuss later on, such NGDOs and individuals may be labelled *prime movers* (Padron 1991) or *network catalysts* (Korten 1990).

These may be local or national NGDOs acting out of an awareness of a crisis or immediate need, but also NGDOs that see an opportunity to increase their impact: In the case of RAE, the Ecological Agriculture Network (Perú), a number of experienced NGDOs sensed the opportunity to increase their impact through linkage with the work of about 200 local NGDOs active in rural areas, as outside interest in their practical experiences with ecological agriculture grew (Kolmans 1993 [RAE, Perú]).

A last recurrent item in the discussions regarding what triggers NGDOs to network is the desire to participate in the public and/or governmental development debate. According to Manrique & Bueno de Mesquita (Manrique & Bueno de Mesquita 1993 [CAME, Perú]), for the regional level of operation, the network was created because of *the wish of its members to transcend their limited or isolated level and to make themselves heard or noted within the regional society on the basis of proposals or suggestions for development policies*, among other reasons. NGDOs have become aware of the fact that it is beyond the scope and competence of any single NGDO to effectively achieve such participation, and requires the cooperation of a wide range of like-minded NGDOs.

Networks show a great degree of similarity with regard to earlier issues, but there are some remarkable differences in this respect. In Peru, CAME proposes the development of joint policies on LEISA and the role of NGDOs in the face of international and national developments (Manrique & Bueno de Mesquita 1993 [CAME, Perú]).

Along similar lines, the RAE network, wants to contribute to the public development debate (Kolmans 1993 [RAE, Perú]) through conferences, publications and articles. In Ghana, the top priority is rather to address government institutions, and to "..advocate the need for support of community-focused development work on behalf of the rural poor" (Alekbikiya 1993 [ACDEP, Ghana]). Other networks, however, like ALIN in Africa and the networking for LEISA in Tamil Nadu and Pondicherry Region, India, seem to place much less emphasis on this type of activity for the moment.

Many networks have been designed and initiated and then have quickly petered out as the initial momentum was lost, and (prospective) members went back to "business as usual". This may be perfectly healthy: if a network has achieved its purpose, it may dissolve itself. Yet the many that have survived may teach us some lessons about the conditions that must be met in order for networking activities to become more institutionalized and less incidental.

Before delving into this, another issue needs to be addressed that is raised frequently in the debates around networking, particularly by those arguing against it. Networks, they claim, are informal patterns of relationships and for that very reason should not be formalized nor institutionalized. This is exactly why one must distinguish between networks and networking.

Every individual and organization builds relationships with others, i.e. in networking, for many different reasons. Most of these activities remain informal and rather incidental. Some, however, become so relevant to the life and/or work of these individuals and organizations that they decide to institutionalize them in order to guarantee a more permanent facility. Claiming that networks should always remain informal is like saying that people should eat, but never build a kitchen.

Formal networks, then, are not always necessary as a prerequisite, nor as a result of networking activities. So, under which conditions do patterns of relationships become more formal, and do they take the shape of institutionalized networks? For the types of networks that this chapter is concerned with, a first condition has been extensively discussed in the previous paragraph: a considerable amount of people have to share the view that networking will add specific value to their work. These people, moreover, must be in a position *to articulate such views and to design a mission for the network.*

This seems to be a common denominator with which all networks start. All seem to begin with a phase of *planned activism*, as Manrique & Bueno de Mesquita call it (Manrique & Bueno de Mesquita 1993 [CAME, Perú]). This is a phase in which the first exchanges of ideas take place, when concrete activities facilitate the recognition of the value of sharing and support, one or a small group of enthusiastic *prime movers* (Padron 1991 p. 17) promotes the idea of networking and a meeting with prospective network members is prepared. A lot is done during this phase, but often in a rather unplanned fashion. The result is generally a workshop or a meeting where the idea of forming a network is discussed and evaluated, together with other more immediate interests.

The spontaneity and efficiency of this phase depends to a great extent on the scale of the operation. While regional, and even national NGDOs may get themselves organized for a network in a very informal manner, international efforts, like EL TALLER, take years of programmed activities in order to prepare for the foundation of the network. Yet, though the scale differs, the mechanisms seem pretty much the same: the combined efforts of a group of *prime movers*, *network facilitators*, and *interested (prospective) members* lead to the formulation of ideas, plans, and activities which eventually result in the establishment of the network. The term "Prime movers" implies here leading members of respected NGDOs who participate in creating the idea and the vision upon which the network is to be built.

The "network facilitators" are those who, by virtue of the space allowed to them by their own organizations, engage in actual networking, organizing and supporting a first run of activities closely tuned into the needs and wishes of the prospective members of the network. In some cases, "prime movers" and "network facilitators" are partly the same people. The "facilitation function" is mostly done by a secretariat connected to one of the "prime mover" NGDOs involved in the networking

THE THREE "U"s: MOTIVATIONS TO NETWORK

As an answer to the first question, it may be suggested that networking efforts are triggered when three types of perception gain sufficient momentum amongst NGDO leaders, staff and clientele:

- The existence of a relative, but critical deprivation of access to others' experiences, knowledge, and information, hampering effective individual performance.
- The need to jointly gain a more comprehensive and effective understanding of the complex problem situations that NGDOs are dealing with, and to create new innovative options for supporting grassroots development.
- The desire to work out alternative development proposals, stemming from NGDO grassroots experiences, and voice these in regional, national or international debates, in order to contribute to the formulation of effective development policies.

The first leads to the desire to *upgrade* collective NGDO performance. It encourages networkers to place a great deal of emphasis on documenting and sharing ideas, experiences and knowledge from such people, NGDO or otherwise, as are deemed relevant to the purpose of the network. Its main concern is with improving collective learning and the quality of NGDO work.

The second involves the wish to *"upstream"*[5] analysis and actions. It takes on the relevance or efficacy of the field operations themselves within the prevailing social and political context in the country or region. It goes "beyond the evident consequences of the problem at hand to address its source" (Korten 1990). It emphasizes shared diagnosis, reflection, clarification and coordination at a strategic level. Its main concern is achieving a better understanding of complex development situations, an achievement that is seen as being beyond the power and scope of any one of the single agencies alone.

In line with the foregoing, the third leads to what may be labelled an *"upshift"* amongst NGDOs. It emphasizes the need for articulating and advocating alternative development proposals. It leads networkers to engage in communication activities to reach a broader public, and to influence governmental and private actors in the society at large.

In one way or the other, *all three "U"s* reflect a genuine concern with improving the *quality and impact* of NGDO work, and their contribution to grassroots development. However, it will be seen later on that each network as such clearly reflects a very particular "brand", or combination of the foregoing, from the local network of service-oriented NGDOs, which are mostly interested in upgrading their performance vis-à-vis their clients, to the global strategic networks (Korten 1990), which almost entirely embrace advocacy and upstreaming, focusing their efforts on a very particular case or issue.

WHAT MAKES NETWORKS ENDURE?

If, as we claim, networks are the more or less formalized, more or less durable relational patterns that emerge as a result of networking efforts, we may also ask: why do certain networking efforts lead to the effective establishment of institutionalized networks, and others don't?

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[5] David Korten cites Hazel Henderson as the one who coined this term.

efforts. It will always require a *sponsor*, either directly or indirectly, in order to cover (part of) the operational costs of "planned activism".

A number of recurrent issues emerge during the phase of planned activism. The first to emerge is the importance of *communication and participatory methods*. These must be allowed to play a major role in the formulation of its objectives, approach and organization in order for the network to be carried by a wide group of NGDOs and their staff. This is easier said than done: for those working in often isolated rural areas, it is not automatic to take time and develop a custom for sharing ideas and experiences with others from elsewhere, as enriching as it may be. Also, the time and energy required for doing this often competes with already overloaded agendas.

However, the more difficult yet essential task seems to be the development of a shared *conceptual framework* that facilitates the exchange of ideas, experiences, and knowledge. Enrique Kolmans describes the RAE experience (Kolmans 1993 [RAE, Perú]), and notes the unrealistic goal-setting and the extensive theoretical discussions during the first year of preparations. But he also indicates why they were necessary: to overcome ignorance and the lack of information on the topic of ecological agriculture amongst prospective members; to overcome "one-sided" views, such as *all that is traditional and Andean is ecological and sustainable* (interpr. by the author); to integrate social/anthropological ways of thinking with insight into technical/ecological processes; and, last but not least, to explain to donors and other supporters the actual needs of rural people.

Kolmans seems to be referring to a process of making sense out of the idea of setting up a network to stimulate sustainable development, checking the actual need for it, and defining its potential in supporting its members in doing their work better. It takes a lot of time, yet seems to be an essential ingredient of networking. In a way, it helps to transform a diverse set of people and organizations with an "ill-defined" sense of purpose, into a "like-minded" group with many interlocking relationships and a shared perspective, thus enabling them to effectively learn from each other.

This process of achieving a common understanding and shared purpose is in all cases linked closely to *concrete activities* that the (prospective) members of the network are already performing in their respective areas. *The immediate needs arising from the fieldwork of each of the institutions are the basis and reason for being a network* (Manrique & Bueno de Mesquita 1993 [CAME, Perú]).

From the very beginning of "planned activism", networking activities are to provide support to the actual work of the NGDOs involved. This is the only way that the potential and intended value of networking can be evaluated by them, and set against their other obligations. Only then can the principal of reciprocity be applied from the very first instant: *when an NGO (member) doesn't contribute (to the network), the network can't (effectively) support the NGO* (Ibid).

In a more general way, the creation and facilitation of networks of NGDOs to help increase the quality of development interventions should reflect such guiding principles as the NGDOs themselves apply to their work. "Positive technological elements of traditional and modern agriculture, which fit the social, economic and ecological criteria" eventually served as a "catch phrase" for setting the agricultural standards underlying RAE network (Kolmans 1993 [RAE, Perú]).

In this case, as in many others, concrete activities meant direct support to field-level projects. The discussion on their significance and meaning is obviously more important in setting out general principles than the actual choice of words and the implications of adopting them as guiding principles for developing the network.

In the case of EL TALLER, such key values formulated during the first "think-tank" meeting were: internationalization; (open) communication; solidarity; awareness of one's own identity as non-governmental organizations; reflection; and education (EL TALLER 1990, p. 4). Concrete activities were (inter)national seminars and workshops, and training courses.

The phase of planned activism is possibly the most difficult for a financial donor to support. The network will not be able to articulate its process, services and products in a way that is completely satisfactory to a donor because of the necessarily ill-defined nature of such initiatives, and because no shared frame of reference, values and discourse has yet been developed.

A network needs a *sponsor* during this phase. It needs the financial support of an institution that is prepared to be a "prime mover" at the donor level, without interfering too much in network preparations[6]. Rather than "knowing" the network is going to be a success, a sponsor shares the "belief" that the network is going to be an important benefit to the work of the NGDOs involved.

In many cases, a considerable investment was made by financial donors, either directly, indirectly or both, to support the networking initiatives of a number of NGDOs. All of them did not necessarily receive financial support, as they believed the network would take off. The use of *seed money* by ILEIA to support network-building during its initial stages is a prime example of such sponsoring (Quintal and Gandhimathi 1993 [Tamil Nadu and Pondicherry, India]).

"A GOOD BEGINNING IS HALF THE JOB"

This old Dutch saying seems to also be apropos for network-building. The foundation of a successful network is laid at the beginning, not by pushing things as fast as possible, but by taking them one step at the time. From the cases reviewed here, the following issues seem to be related to the successful establishment of institutionalized networks:

- Planned activism, facilitating and supporting, never replacing or bypassing concrete activities already performed by the NGDOs involved.
- Energy, time, and opportunity to discuss, negotiate, and agree upon a shared perspective, a conceptual framework, and guiding principles, which enable the network's mission to be formulated in such a way as to be transparent and agreeable to all or most (prospective) members.
- A body of prime movers, network facilitators, prospective members and sponsors who are willing and able to carry the networking process through its first "ill-defined" phase.
- Broad, effective participation of (prospective) members designing and implementing network activities.

[6] In the case of El Taller, NOVIB, a Dutch NGDO, played this role, financing initial El Taller activities without (too) many strings attached.

- A number of enthusiastic network facilitators, equipped with the minimum resources required to establish and maintain vital communication facilities, to create opportunities for interaction, to stimulate participation and to otherwise orchestrate the network definition process.

WHICH ACTIVITIES CHARACTERIZE NETWORK ORGANIZATIONS?

Networks span an enormous range of activities: from technical consultancy to communication, from project planning to education and training, from newsletters to conferences and from advocacy to monitoring, to name just a few. This is one of the reasons why it is hard to make sense of networking as a phenomenon.

The main categories of activities that NGDO networks engage in are grouped together in the following section, the aim being to define net*working* more systematically. The author proposes that networks are generally concentrated around four different clusters of activities: (1) learning-through-joint-reflection; (2) services; (3) advocacy; and (4) network management.

"Learning-through-joint-reflection" embraces all activities related to increasing the participating NGDOs' level of understanding of the complex situations with which they are dealing. It aims at increasing the quality of operations by facilitating the sharing of ideas, knowledge and experiences, making use of the combined analytical powers of staff of like-minded NGDOs.

This area of activity may include mutual appraisals, exchange visits, workshops, meetings and conferences. Sometimes permanent working groups on specific topics are set up as well. Emphases between networks differ, but common elements are *diagnosis*, *exchange*, *reflection* and *systematization*.

Many networks stress the importance of visits and workshops not as ends in themselves, but as a starting point for reflection (Graham 1993 [ALIN, Africa]). A diagnosis of the situation and an inventory of available technological and methodological options would generally be part of it. A gradual systematization, or even standardization of scientific and technical principles is often part of it as well (Kolmans 1993 [RAE, Perú]; Manrique & Bueno de Mesquita 1993 [CAME, Perú]).

"Services" refer mostly to training, communication, documentation and information services. In providing these services, the network organization tries to make optimum use of existing capabilities and facilities amongst its members, and from elsewhere if necessary.

A needs assessment and/or a diagnosis of strengths and weaknesses amongst network members would generally serve as a starting point. Typically, the network secretariat is attached to the member NGDO considered most capable of running its most important services. The service function is supported by what might be called the *network communication infrastructure*.

Almost all networks publish a newsletter that supports the exchange of ideas and practices. Documentation and library services are also among the general services offered, as is the development of training materials. Documentation and didactic materials are not generally limited to events, technical matters or development issues. Methodological and project support scores high on the agenda as well.

Services may also expand into other domains, such as technical and project consultancies (Ibid), monitoring, quality certification (Kolmans 1993 [RAE, Perú]), or input supply coordination (Alebikiya 1993 [ACDEP, Ghana]). The common denominator in the services provided by networks is their response to the immediate needs of the participating NGDOs. Therefore, apart from a general emphasis on training, communication, documentation, and information, network-specific packages of services evolve in each particular case.

"Advocacy" refers to those activities performed or facilitated by the network organization on behalf of its members to participate in the public or governmental development debate. It requires that the network formulate proposals on contemporary development issues and voices these in the public media. For the same reason, the network may organize conferences, contribute articles to scientific journals and distribute relevant publications.

Coalition-building with relevant parties from outside the network, or with other networks is often on the agenda as well. The advocacy function of current NGDO networks is not as generalized, or as transparent as its learning and services functions. As we have seen in the preceding box, NGDO leaders may chose *not* to include advocacy among the tasks of the network they are building.

At the same time, as Korten points out, strategic networking gains a lot of momentum among NGDOs (Korten 1990). One may indeed recognize the potential for conflicts of interest between a service-orientation on the one hand, and the advocacy function on the other, as Korten does. As such, a dedication to advocacy in a network is very much a matter of *choice* although it does not seem an "either/or" choice at all. Advocacy and services are very much two sides of a coin in networking: if we take "learning-through-joint-reflection" as the core of networking, how could we possibly do without either one?

In the more permanent networks, there seems to be greater emphasis upon the services and learning functions, particularly during the early stages of network development. "Planned activism" has to be oriented towards providing "value for energy", in order for NGDOs to be willing and able to participate in networking efforts. Moreover, a shared understanding, based upon mutual support and learning, might well be a prerequisite to effective advocacy in the first place.

Network management: Finally, "network management" refers to facilitating the networking process, including supervision of the network communication infrastructure and network operating procedures; the monitoring of network resources, activities and outputs and coordination with other organizations and networks. The following are a number of characteristics that are common to network management today.

First and foremost the emphasis on *distributed intelligence* catches the eye. Networking secretariats are kept as lean as possible, delegating as many tasks as possible to member organizations. The decentralization of functions and autonomy of members are aspects that are emphasized continuously.

The network facilitators' *mandate* generally stems from a meeting of prospective members who decide to initiate a more formal networking process. The importance of *not* engaging in the management of funds for network members, however convenient this may seem at a certain point in time, is often highlighted. It would cause the network to become a *battlefield for funding* (Manrique & Bueno de Mesquita 1993 [CAME, Perú]).

A list or *directory* of member organizations is among the first concrete results most networks produce. It is generally motivated by the wish to facilitate networking without always involving the network secretariat. The organization and structure of networks may vary, but discussions generally concern membership, the role of the secretariat and regional or task-oriented subgroups, network facilitators and decision-making procedures.

It seems important to clearly define the composition, responsibilities and prerogatives of the network board, secretariat, and, if applicable, implementing bodies. The role of outside agents in facilitating the early stages of network development is mentioned frequently.

An important recurrent issue is the degree to which the secretariat, or network facilitation unit, should actively engage in implementing activities itself, or whether formal rules should replace the largely unwritten rules of network operation that generally reign during the early stages.

Although it is difficult to make generalizations on such issues, experience seems to indicate that a convenient measure of formality is necessary, with a mandate for organizing members, staff, and other decision-making bodies. Or, as Manriquez & Bueno de Mesquita put it for the CAME organizations and structure: *its functionality is based on the capacity to pass from individual actions of the members to integrated programming, and after the discussion and approval by the Assembly and Board of Directors, to implement the execution by the technical team and the staff of the NGOs with the supervision and coordination of the Executive Committee* (Ibid).

A final point concerns resources for networking operations. Even if network activities are mostly delegated to member NGDOs, they still require time, energy and money. Therefore, the moment networks become more permanent, the issue of fundraising is raised. Generally, during the early days, by virtue of their own efforts, participating members and particularly "prime movers" liberate the energies, time, and funds from somewhere, mostly from within their own programme resources.

Sponsors move in only when networking contours have been already worked out. This may often mean that exchange and communication is limited to a number of NGDOs, or NGDO leaders, who are able to actually provide for facilities and funds themselves. Needless to say, this limits the participatory process during the early stages, although a widely participatory process seems to be mandatory precisely at the beginning.

A NETWORKING PARADIGM FOR EXTENSION?

What sets networks apart from other types of human organizations? Or, better still, what dimension does networking add to our repertoire of cooperative strategies? One might conclude from the foregoing analysis that the emphasis on joint reflection and learning particularly sets successful networks apart. Networks, as it were, are "learning organizations" by definition.

Networks are designed and operated to break through relative isolation and facilitate social learning processes amongst actors within the development arena, in order to jointly achieve a more comprehensive and innovative understanding of complex development situations. The emphasis on services, advocacy and learning-through-joint-reflection all point in that direction.

NGDOs and their leaders are motivated to net*work* because it helps them to improve their operations. If one takes this as a point of departure, one may look at networks of NGDOs as "quality circles",

designed and operated to help sustain and raise the quality of our work, outputs and impact, which is exactly what networks ought to be.

Networks are successful when they help us improve our performance. If they don't, they collapse easily under the pressure of everyone's day-to-day obligations. Such a contribution to performance can be of a temporary or a permanent nature, so not all networking activities become permanent or get institutionalized. However, if they do, it is because those investing in the network expect its contribution to continue.

In conclusion, networks reflect the actors' intentions to create a space for joint learning and innovation, contributing to *upgrading, upstreaming, and upshifting* NGDO activities and impact. They engage in four types of activities: (1) learning-through-joint-reflection, (2) services, (3) advocacy and (4) network management. Elsewhere (Engel 1993a), the author has tried, based on the same evidence, to develop a more thorough understanding of the performance of networks in order to be able to suggest criteria for (self-) evaluation and management.

WHAT CAN BE LEARNED FROM NETWORKING?

What can extension students learn from networking? What can a networking approach contribute to a fundamental shift in emphasis in rural extension? Looking at the concrete experiences of these five NGDO networks, the answer to both questions is: a lot.

The roles these networks play are, in fact, the orchestration of grassroots extension work with respect to sustainable agriculture. Without insisting that all grassroots organizations give up their own identities and specific local characters, they provide a flexible, overall framework or "quality circle" to jointly improve the quality of their interventions. By doing this, they increase the scope for knowledge and information retrieval, and learning and understanding for each of their member organizations.

Networks help local organizations become part of a learning environment that is directly relevant to their own work. This is exactly what I would like to consider as a new definition of the ***extension function:*** *to facilitate joint learning among stakeholders* in order to more effectively face the challenges thrown at them by a continuously changing environment, and/or created by continuous shifts in intentions and perceived opportunities.

The facilitation of networking would have to be one of the tools of the trade of modern extension workers. In fact, I believe it already is, only we have not yet paid much systematic attention to it, fascinated as we were with studying the single interface transfer and feedback processes.

Networking, or the simultaneous activation of multiple interfaces to facilitate the social construction of sustainable solutions, has already gained enormous momentum in practice amongst both non-governmental and private extensionists and their organizations. In social science, sociologists and political scientists have taken up the study of networks. More on the applied side, public administration and organization researchers have also taken up the challenge. The author believes extension researchers will have to make an effort to catch up quickly.

What can a networking approach contribute to a paradigm shift in extension?

It may be a necessary yet not sufficient condition to achieve such a shift. Here one must differentiate between *networking* as an approach to intervention, and a *network perspective*, as a way to see the world. We will first discuss networking as an approach to intervention.

Emphasis on networking may help shift attention in extension work to facilitation, social learning and building "platforms" for sustainable natural resource management (Röling, this conference). It may help extension agencies to better understand their role as one among many relevant stakeholders, and sources of knowledge, practices and information. It may also help redefine the role of (former) government agencies in light of privatization, reduced government funding and shifting policy objectives. If we train our extension students and workers as *net*workers, they may have less difficulty shedding the "source syndrome", and may be helped to look at the contribution of scientific knowledge and technology in a more realistic manner.

On the other hand, networking alone will not be enough to have such effects. Networking has been developed and generally is found among partners who consider themselves if not equal, then at least commensurate: they recognize each other as "like-minded", "equally committed", "solidary". Such conditions are not necessarily available in such mixed arrangements of groups, organizations and institutions that we generally refer to as the agricultural knowledge and information systems (see for example: Röling 1990:1).

At the same time, due to past experiences, many non-governmental and private organizations may not be among the first to recognize "win-win" situations in cooperating with government or (semi-) government organizations. Extension agencies will therefore not be automatically recognized as the ideal "facilitators" for rural networking efforts.

Still, the precedents exist. As in the establishment of the Netherlands' Horticultural Study Clubs (NTS): the government extension service was widely recognized to have played a significant role as the actor who provided the "process facilitators" for the establishment of study groups of farmers. This, however, was during a time when (a) the government still considered it its duty to finance extension services, and (b) the government and the horticultural sector had basically the same interests and agenda. It is doubtful whether such a situation can be created given the conditions of the moment.

On the other hand, it may be argued that given the withdrawal of the government from active participation in the rural arenas, the one area where it may still have some influence might be in facilitating or sponsoring cooperation and networking. Government or semi-government agencies sponsoring and facilitating strategic cooperation in research and technology development are a common feature nowadays. Why can't the direct or indirect facilitation and sponsoring of strategic innovation processes in rural development be on the agenda?

It is necessary to focus once again upon the perspective or world view from which extension interventions are designed, implemented and evaluated. The implementation of networking strategies can only work within a global view that does not assume the world to be in rational order. In industries, networking strategies have emerged as an answer to the over-rationalization of work processes. Among NGDOs, they have emerged to create a space for joint learning and innovation among relatively isolated partners in development. Globally, networks often take the shape of strategic network (Korten 1990) based upon the (temporary) coincidence of interests between organizations.

In other words, networking strategies fit within a global view that recognizes the complexities and diversities of the rural development theatres of the world, but at the same time recognizes the potential benefit of planned intervention. It fits the government who sees itself not as a controller of development, but rather as an "enabler" supporting relevant social actors to take up their part in the play.

Such a *network perspective* might be the single most important condition for networking to become an accepted strategy for (semi-) government extension agencies. In the meantime, private and non-governmental agencies will definitely continue to develop the art and craft of networking. Extension researchers might be interested in adding some "applied science" to it.

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SYNTHESIS OF THE CONCLUSIONS AND RECOMMENDATIONS OF THE WORKING GROUPS

The conclusions and recommendations of each thematic working group, as well as the remarks made by the other participants during the plenary discussion, were summarized by Dr Tchala Abina (University of Dschang, Cameroon) and Mr Marcel Nzondo (Director of Research Development, Training and Extension, Ministry of Agriculture and Livestock, Congo). Dr Tchala Abina presented the following synthesis to His Excellency Mr Steven Njinyam, Minister of Agriculture, Cameroon during the closing session of the workshop.

The workshop on agricultural extension in Africa gathered together about 70 participants representing seven international and regional organizations and representatives from governmental and non-governmental organizations from 17 African countries and six European countries from the 24th to the 28th of January 1994 in Yaoundé. After hearing the introductory reports and presentations of case studies from individual countries, participants at the workshop on agricultural extension in Africa were divided up into working groups.

The groups first had to design and analyze posters. They then discussed the following topics:

- The financing of Agricultural Knowledge and Information Systems.
- The role of research and training in Agricultural Knowledge and Information Systems.
- The role of farmers in Agricultural Knowledge and Information Systems.
- The role of women in Agricultural Knowledge and Information Systems.
- "Daring to share": the necessity of working together.

The workshop participants had a field trip to the Mbam and Ndé Departments. The observations made there contributed positively to the working group discussions. Each thematic working group made observations and analyses that lead to numerous conclusions and recommendations. The main points made were as follows:

The financing of Agricultural Knowledge and Information Systems

- Countries should make extension a priority when allocating financial resources, due to its importance in agricultural development, and in order to reduce their considerable dependence on outside funding.
- Mechanisms that could be responsible for agricultural extension should be established. Increasing the costs to the farmers, whose contribution to the economic development of the country is already substantial, should be avoided.
- Both non-governmental and private organizations should be encouraged to participate actively in agricultural extension.

- The establishment of technical experts in the agriculture sector should be encouraged, taking the necessary accompanying measures, namely with regard to land-tenure problems and financing their activities.

The role of research and training in the Agricultural Knowledge and Information Systems

- The farmer should be the focus of attention in the Agricultural Knowledge and Information Systems.

In research:

- Give priority to the systemic procedure and the multidisciplinary approach by integrating the farmers in all phases of developing the traditional knowledge base, as well as in the capitalization and validation of technical, socio-economic and organizational solutions that are available to research.

- Define research priorities, with the farmer's participation, in order to gain new knowledge, taking into account the necessity for agrarian societies to master their ecological, technical, social and economic environment.

In training:

- To teach agricultural sciences at all levels of education, while fostering relationships between students, instructors, researchers, developers, farmers and farmer organizations.

- Considering the countries' insufficient resources, and the necessity of having high-level specialists who are aware of the problems of the countries concerned, the strengthening and the development of regional centres of excellence must be encouraged.

- Organize practically oriented training sessions for extension agents in the countries of the region.

- Promote the education of instructors/trainers, researchers and extension agents in communication techniques, and give more priority to the media for the dissemination of agricultural information.

The role of farmers in Agricultural Knowledge and Information Systems

- Foster the participation of producer countries in the diagnosis and design of development programmes with multidisciplinary teams.

- Promote the formation of farmer interest groups, so that they may be responsible for their own development.

- Encourage interaction between government organizations, NGOs, farmers and farmer groups when defining national policies in the agriculture sector.

Monitoring and evaluation of the Agricultural Knowledge and Information Systems

- Get farmers and farmer groups to participate in the different phases of the monitoring and evaluation of the extension programmes and train them in the self-evaluation of their activities.

The role of women in the Agricultural Knowledge and Information Systems

- Generate research, extension and training topics that involve all the farm operations carried out by women.

- Increase the number of female supervisors involved in training farmers in general and rural women in particular.

"Daring to share"

- Conduct a feasibility study in view of establishing an extension network to promote exchanges between the different actors, and ensure its effective use.

- The necessity of training modular groups on specific topics.

These conclusions and recommendations are the results of an intense week. The general feelings about the workshop can be expressed by the following remarks of two participants. "I have attended several workshops, but I have never seen people work so hard" and "I am enriched by those whose opinions differ from mine."

WORKSHOP CONCLUSIONS AND RECOMMENDATIONS

The second half of the workshop provided the opportunity to discuss the challenges facing agricultural extension within the current economic climate. Special attention was paid to specific topics, as recommended at the regional seminar held in Libreville in 1991. These topics were considered from an AKIS perspective during the first part of the workshop. Six thematic working groups were formed during the second half of the workshop to discuss:

1. The funding of extension services
2. The role of farmers in Agricultural Knowledge and Information Systems
3. The role of research and training in Agricultural Knowledge and Information Systems
4. The role of women in Agricultural Knowledge and Information Systems
5. The role of monitoring and evaluation in Agricultural Knowledge and Information Systems
6. "Daring to share": the need for networking.

Each theme was introduced by a resource person. The papers on which their introductions were based are available in this volume. The groups were asked to identify key issues based on their discussions that they could elaborate on during the visit to the field the next day. The discussions held and observations made during this visit were debated in the final working group session and incorporated in the conclusions and recommendations.

The group discussion allowed for lively debates on the topics of preference. Different perspectives were brought into the discussion by having extensionists, researchers, representatives of farmers' organizations, academic scientists and representatives of national and international development organizations all working together in one group.

The time was spent constructively: efforts were made to understand each other's language and make the different perspectives a little more transparent. It proved to be challenging to consider the different themes from an AKIS perspective, resulting in new courses of action to enhance the social organization of all relevant actors in the search for sustainable innovations.

An important outcome was that the actions foreseen propose to grant farmers their rightful place at the centre of Agricultural Knowledge and Information Systems. They were considered to play an active role in the development and dissemination of acquired knowledge and technologies, rather than a passive one.

SUMMARY OF GROUP DISCUSSIONS

In this section, we will summarize the discussions, conclusions and recommendations made by the different working groups, as well as the observations made during the subsequent plenary discussion.

THE FUNDING OF AGRICULTURAL KNOWLEDGE AND INFORMATION SYSTEMS

After examining Mr Moïse Mensah's paper on the foregoing subject, the Finance Committee for Agricultural Knowledge and Information Systems reported that the main concerns may be summed up in five major points.

Three general points to be considered within this framework are:

1. Extension is dependent on outside funding for up to 80% of its financial resources.

2. Extension should be profitable if it is considered part of production. Those who use it should be responsible for its cost. Moreover, governments, which are gradually withdrawing from the agriculture sector, should hand over extension-related tasks to local NGOs.

3. The road to progress in technology development and transfer is long. Twinning between research and extension may shorten it, together with the rational use of the resources currently available to these two mechanisms.

After analyzing the concerns expressed in this report, the Finance Committee for Agricultural Knowledge and Information Systems came out with five main points:

Point 1: What are the constraints and possibilities for financial support for agricultural extension in developing countries?

Point 2: How can extension's dependence on outside sources be reduced?

Point 3: How can the necessary political basis for supporting the funding of development and technology transfer in our countries be created or improved? And how can both the government and users be involved in this effort?

Point 4: How can the costs of running research and extension services be reduced while increasing their level of technical competence?

Point 5: What are the most urgent measures that need to be taken regarding agriculture policies in order to implement the conclusions made with regard to funding extension?

The Committee then analyzed each of the foregoing points and made the following comments and recommendations.

Point 1.

With regard to the constraints and potential for funding extension, the Committee recognized that the current economic crisis that is plaguing the treasuries of the different countries means that there is a lack of available counterpart funds for projects. The Committee recommends that governments and funding agencies set priorities for those activities that need to be financed by these counterpart funds.

It also recommends making funding mechanisms more flexible in order to make funds available according to the demands of the agricultural calendar. Lastly, the Committee recommends that governments make every effort to ensure that extension mechanisms and agencies are eventually taken over by the beneficiaries.

Point 2.

With regard to reducing extension's dependence on outside sources, the Committee recommends that:

- Governments/countries clearly and effectively indicate the importance of the agriculture/extension sector.
- High-level national authorities have confidence in their national experts.
- National experts give their technical advice on requests for funding before project agreements are signed.
- Available human and financial resources should be used rationally.
- National experts design extension systems. Outside intervention in this process should only be used when necessary.

Point 3.

In order to improve the necessary political basis for supporting the financing of extension, the Committee recommends that the government promote the formation of farmer organizations and national-level federations.

Some of the responsibilities that these groups must assume include extension, production, marketing, storage and even a substantial part or all of the self-financing. The government should analyze the economic situation and determine the opportune time for implementation, so that it can reduce certain costs that may arise due to the often overly superficial preliminary analysis of the economic situation.

Point 4.

In order to improve extension and research services, the Committee proposes that:

- Extension agents should be trained in socio-technical areas, to ensure their competence in various technical fields.
- There should be considerable *synergy* between those disseminating the information (researchers - extension agents - instructors) so that their messages may be harmonized.
- The government should facilitate the voluntary establishment of agricultural agents on farms in rural areas, where they may serve as an example.
- The extension service should instruct the contact farmers on topics that concern them. If they are well trained, the contact farmers will be able to manage with fewer visits from the extension agent.
- In an attempt to shorten the "Research - Extension - Field" road in technology transfer, the Committee proposes that *committees* of researchers, extension agents, instructors and farmer

associations should be established on a short-term basis, and that training institutions should *train agronomists* who are also field-based *researchers/extension agents* on a long-term basis.

Point 5.

The Committee proposes the following as the most urgent agricultural policy measures that must to be taken:

- The government should facilitate the formation of farmer organizations and federations.
- National senior-level staff members should participate effectively in the *decision-making process* regarding project *design* and *negotiations*, and in establishing plans for using human and financial resources for these projects.
- The government should give priority to the agriculture/extension sector when allocating (financial) resources.
- The government should review the national funding policy and encourage the implementation of activities by internal groups.

THE ROLE OF FARMERS IN AGRICULTURAL KNOWLEDGE AND INFORMATION SYSTEMS

The group benefitted greatly from the paper presented by Mr Tchéïn Gnon on the experiences of World Neighbors in Togo, which focused on agricultural extension activities. During the group discussion, some nine different issues were raised and reviewed in detail, drawing on the experiences of different members of the group. Their main findings can be summarized as follows:

a. Initial diagnostic surveys

- These should be carried out in a participatory fashion (assisted by multidisciplinary teams).
- They should involve the existing groups and leadership structure, as well as a cross-section of individuals representing various types of households.
- The process should be iterative, and define different sub-groups, their constraints and potentials and the strategies they use to cope.
- Consensus should be reached on the present situation and possible remedial interventions including ranking in order of priority. Even an intervention proposed by an individual should be looked upon in the holistic village context to ascertain who it will benefit and whether or not it deserves priority.

b. The formation and structure of farmer groups

- The existing leadership structure and the role of existing groups should be clearly understood before deciding whether or not there is a need for farmers to form new groups.

- If there are no groups or those that exist do not seem to be useful, new groups should be formed based on the members' common interests. This must take place over a two-year period, placing emphasis on discussions and training.

- New groups should be formed based on the members' common interests.

- Farmer groups should decide on their own structure and by-laws (outsiders may suggest options), and elect their own officials.

- Government extension services or NGOs may be involved in encouraging, advising and helping to train new groups, though the latter often have a relative advantage in this field; and

- Groups may benefit from forming special sub-committees or task forces to assist with planning and implementing proposed new interventions.

c. The role of farmers in the planning process

- Initial planning involves a participatory diagnosis of the current situation and identification of needs, as discussed in point 1.

- The needs then have to be prioritized by group members, who must reach consensus on their decisions.

- Farmers (group members) must be fully involved at all stages of identification, planning and appraisal of proposed interventions.

- Specific mechanisms need to be developed for planning, be it an overall physical and development planning process for a village, or annual local and regional research and extension programmes. The latter requires the prior analysis of the previous season's trials or adoption rates of improved recommendations as a key tool in the planning of programmes with government/NGO support services for the coming season.

- A four-way matrix is likely to be needed for planning, involving those indigenous activities that can be monitored by the village farmers with local support, and those requiring exogenous support (e.g. credit or prior on-station research) on the one hand, and those that can be tackled in the short or long term on the other.

- The planning process should cover likely costs compared to the available or potential budget, and a clear time frame for conducting the necessary activities should be developed with those responsible.

- The longer-term maintenance and recurrent cost implications must be taken into consideration to ensure sustainability.

d. The role of farmers in implementation (extension/research and training)

- This is a crucial activity and needs to be well organized. It is essential to develop key committees to oversee important activities, as witnessed on the field trip in the Kalikoto Village with SODECAO-assisted farmer groups in Central Cameroon, with special committees for marketing and plant protection for instance.

- Training needs require early identification, including the full orientation of both members and the outside "actors" involved. Farmer representatives can be used effectively to assist in training their fellow farmers as demonstrated in the successful Zimbabwe Gweru T&V programme, where farmers were trained in pairs to train their fellow farmers, and different farmers in the groups were trained in different disciplines according to their abilities and inclinations.

- Farmers can also be used as research testers, and the value of indigenous knowledge has often been overlooked. Farming Systems Research for diagnosing problems needs to be a joint activity between farmers, extensionists and researchers, followed by a continuum of on-farm trials that are both research- and farmer-managed. Researchers should also use farmer representatives to visit their stations regularly to comment on trials for which effective mechanisms have been developed by CIAT (e.g. CIAT bean programme in Arusha, Tanzania).

- Farmer groups need to ensure that special attention is paid to poorer households after defining varying household types, which may require lower input graduated recommendations, and a provision for resolving savings groups to overcome a key constraint, or creating food banks to cater for families that run short of food annually, as in the case of Togo as presented by Mr Gnon; and

- Special sub-groups and some form of empowerment may be needed to ensure that marginalized groups have an effective voice. Likewise, farmer groups need representation on committees at sub-district, district, regional and national levels to ensure that they are not cut off from the policy-makers.

e. Incentives for farmers as promoters/testers?

- Farmers should not be paid by the government when they are used as promoters/ representatives or testers. If they are, they tend to become mini-civil servants and may lose their close identification with their group. Usually, early access to improved technology, status in the community or a desire to serve their fellow farmers is sufficient motivation for them to become farmer representatives or testers. Any payments in cash, kind or labour should come from other group members and not from the government or NGO.

f. Government policies, and government-farmer-NGO interaction

- Farmers should be consulted on policies and proposed projects/programmes affecting them, and their views need proper representation. Mechanisms are needed to make this effective. Appropriate fora are needed at local, regional and national levels on which the views of varying types of farmers should be represented. Care has to be taken that this representation is not hijacked by the non-representative farming elite.

- Better coordination between government and NGO activities is necessary to make better use of the latter and reduce the recurrent burden on government services. This also implies strengthening farmer self-reliance, and making research and extension more demand-driven by farmers themselves. This can only be effectively done gradually and progressively, and will facilitate longer-term sustainability.

- Outside NGOs must fit into the national policy framework, and not bring various agendas of their own with the goal of improving the well-being and incomes of farmers.

g. The role of farmers in monitoring and evaluation

- Farmers should be involved in the design of the M&E process, and carry out much of the monitoring; they should also play a part in the subsequent regular evaluation of their programmes.

- Farmers should be jointly involved in the evaluation of the preceding season's research and observation trial results and of the adoption rates of improved practices by different types of farmers as an input for deciding on future short and longer-term research and extension programmes.

h. Income generation and value added through processing at the farm or village level

- Too little attention has been paid thus far to adding value to farm production at the farm and village levels by improved storage and processing, and effective traditional processing methods have often been neglected or not transferred to other areas where they would be highly appropriate.

- The case of oilseed processing (sunflower, sesame, groundnut) through the ram press in Tanzania over the past eight years through an NGO Project is a good example that is now being replicated more widely in Tanzania and in many other parts of Africa, resulting in higher incomes and improved human and animal nutrition at the village level. Many others can be cited.

- For any intervention of this type, special sub-groups of interested farmers can be set up to facilitate introduction at the village level.

i. Management of an improved participatory process

- It is important to have democratically elected group committees that represent the views of the poorer as well as the relatively wealthier farmers.

- The participatory process must be an evolutionary and iterative one. If the government or NGO tries to do everything for the farmers, the groups will never become self-reliant and will collapse when additional project funding ceases. Conversely, if the farmers are left to decide everything at the outset, they may get into difficulties and the groups may collapse, with serious consequences. Sound initial orientation must therefore be followed by training and continued assistance, including management training for village and community leaders, so that over a 10 to 15-year period, true self-reliance is inculcated into village communities and enables their development to be sustainable and independent of continued project assistance.

AGRICULTURAL KNOWLEDGE AND INFORMATION SYSTEMS: THE ROLE OF RESEARCH AND TRAINING

The group reviewed the sources of knowledge and information at its disposal, placing the farmer at the centre of research and training concerns. The farmer himself is one of the sources of knowledge. He also learns from other farmers and research and training mechanisms, which are additional sources of information, as are the media, markets (up and downstream), extension and agro-industries.

The group then acknowledged the various research institutions in different countries, which have made efforts to promote the farmers' knowledge and information.

However, the group feels that *research* can increase its contribution in certain areas by strengthening the systemic and multidisciplinary procedure and adopting the following strategies:

- Taking the farmers' particulars into account (experiences, failures, objectives), from the technical, socio-economic and organizational points of view.
- Conducting diagnoses with the farmer's participation, taking into account their objectives.
- Taking inventory and evaluating autonomous solutions that are available at the local level.
- Validating organizational solutions that are available in the farmers' environment within the research context.
- Defining research priorities for the pursuit of new knowledge, taking into account namely the necessity for agrarian societies to master their ecological, social and economic environment.

The group discussed successively the potential input of continuous *initial training*, and the possibility of initiating on-site training cycles with the extension agents.

With regard to initial training, and with a focus on future managers in development and research, the group recommends:

- Emphasizing the pursuit of knowledge that is appropriate to the environment in which they are working.
- Fostering "system 1" and "network" approaches.
- Training students in the practices of diagnosis and management advisory services, and fostering their relationships with developers, farmers and farmer organizations.
- Introducing students to environmental problems and how they may be overcome.
- Considering the lack of resources of the individual countries and the need for high-quality experts, the group encourages the strengthening and development of regional centres of excellence.

With regard to *continuous training* and with an emphasis on senior-level research staff, the group recommends:

- Organizing re-training courses in schools, development organizations and NGOs with the participation of researchers.
- Organizing appropriate internships within experienced teams and farmer organizations.
- Organizing seminars and workshops on specific topics.
- More concretely, the group recommends that CTA and other donors institutionalize the organization of regular training courses with a practical field orientation for extension agents in the countries of the region.

Finally, with regard to the role of research and training in the Agricultural Knowledge and Information Systems, the group recommends that CTA and other donors:

- Examine available case studies, analyzing their successes and failures.
- Encourage exchanges of experience between researchers, instructors, extension agents and farmers from different countries, and finally
- Promote the training of researchers and extension agents in communication techniques and allow the media to play a greater role in disseminating information on agriculture.

THE ROLE OF WOMEN IN AGRICULTURAL KNOWLEDGE AND INFORMATION SYSTEMS

To examine the role or roles of women in agricultural knowledge and information systems, Ms. Victorine Kpohazounde first presented a paper on "The Role of Women in Agricultural Research and Extension", in which she examined the contribution of women in agricultural production, animal husbandry, processing, storage and marketing.

After the presentation, the group analyzed the roles of women as supervisors as well as farmers. The following points were raised during the discussions:

- Women are major contributors to the Agricultural Knowledge and Information Systems, but they do not interact with other actors in the system. This is namely due to the fact that:
  - ▸ Women are poorly represented in the management teams at every level.
  - ▸ Traditions prevent them from being in direct contact with the sources of knowledge.

    All knowledge and information must first go through the men, even when the topics mainly concern the women.
  - ▸ Women do not have access to training and do not participate in designing various programmes

that target them or the entire community.

- Women are generally poorly educated.
- Extension topics do not cover the production and processing activities for which the women are responsible.
- The lack of priority given to domestic tasks on the one hand and the absence of an equal division of domestic tasks between all members of the family on the other do not allow women enough time to access the Knowledge and Information Systems.
- Development programmes do not take into consideration the farmers' problems in general, and those of women in particular, in their environment.
- Women are not represented during the decision-making process and are not involved in outside linkages.

The following resolutions have been proposed to improve their links with other parties in the Knowledge and Information Systems:

- Educate children without differentiating between the sexes, to help change the way of thinking.
- Generate research, extension and training topics that cover all production activities, both up and downstream, that are generally carried out by women.
- Encourage the participation of women farmers at the same level as the men in relations with the outside.
- Increase the amount of female staff at all levels.
- Involve all members of the community (men and women) in the design and evaluation of the programmes that target women and the entire community.
- At the university level, topics such as home economics and agricultural economics should be more emphasized, and finally
- The "gender" aspect should be an important topic in courses given by technical extension agents, researchers and others.

AGRICULTURAL KNOWLEDGE AND INFORMATION SYSTEMS: THE ROLE OF MONITORING AND EVALUATION

The discussion began with an introduction on monitoring and evaluation (M&E) by Ms. A. Groot. Ms. Groot explained some principles of M&E and provided some statements to facilitate the ensuing discussion. Group members decided that the discussion should focus on the role of farmers in M&E in development programmes, and how to improve it. In this light the following questions were raised:

- What can be considered the level of participation of farmers in M&E in ongoing projects?
- What types of M&E systems exist?
- How can M&E processes like interventions, organization and autonomy be used, and who should be involved in it?

Group members made the following conclusions and recommendations:

- M&E systems are not easy to identify, probably due to the lack of a systematic approach and its informal properties.
- Farmers participate very little in M&E in most of the current programmes. In cases where some farmer participation is observed, it is still questionable whether their contribution plays an important role in programme management and policy making. Farmer participation in M&E should be more than providing answers to questions asked by donors and ministries.
- Farmers should participate more in diagnostic surveys regarding 1) programme identification, 2) programme planning in order to identify farmers' needs, opportunities and constraints (ex-ante evaluation) and 3) determining the effects and impact of a programme.
- More farmer involvement implies that the role of the traditional consultant has changed. Consultants should act less like experts and more like interpreters between farmers and donors or other institutions.
- A more important role for farmers in M&E is their participation in the identification and formulation of indicators that will be used. Indicators for evaluating social processes like innovations, organization, empowerment of farmer groups etc. should come from the farmers themselves.
- M&E is often perceived as an activity to control people. Programme stakeholders are therefore not very encouraged to participate in these activities. More focus should be placed on M&E as a series of learning activities that improve the decision-making processes of all those involved.
- Studies on M&E are recommended. They should focus on questions such as:

  What different M&E systems are being used in development programmes?

  What is the level of farmer participation in M&E?

  If necessary, how could farmer participation in M&E be improved?

  What M&E systems/concepts/methods do farmers traditionally use?

  What type of information should be collected by extension and what type should be collected by other sectors?

  What are the experiences with M&E in Latin America?

- Training in M&E (concepts, techniques etc.) should be organized at all different levels (including the farmer level). Special attention should be paid to training in self-evaluation at the farmer level to improve their knowledge and skills for participating in M&E.

"DARING TO SHARE": THE NEED FOR NETWORKING

The group discussion was based on the introduction of Mr P. Engel on networking. In his presentation, Mr Engel pointed out that the transfer of knowledge, practices, technology or information can no longer be considered the purpose of extension. Extension should be regarded as facilitating the identification, mobilization and integration of different relevant types of knowledge, so that new, sustainable innovations may emerge locally. The focus of extension professionals should be the facilitation of social learning processes amongst the actors involved, rather than its transfer. Mr Engel proposed networking as one practice that should play an increasingly important role in rural extension.

Networking enables people to exchange information and experiences and consequently enhances learning among the members of a given network. It can be done at different levels; national, regional and international, depending on the objectives. It has been learned through experience that the networking activities must have clear objectives right from the start. Group members discussed their experiences and ideas about networks and networking. The following conclusions and recommendations were made:

- The working group and many other participants expressed the need to establish a network on extension in order to improve the exchange of information and experiences and to document these experiences. Use should be made of existing networks wherever possible, e.g. ECCAS.

- It is considered important that other actors such as farmer organizations/NGOs, researchers and universities take part in the extension network. Farmer leaders should be identified and trained to become qualified members of networks.

- It is essential that a qualified person head the extension network.

- The extension network should have a Secretariat, but be informal and equipped with the minimum resources. CORAF (?) has been named as an example for this.

- Donors should provide money for the exchange and documentation of experiences acquired at the different stages of a programme.

- Technical agents should be trained in new alternative approaches to rural development.

- A study should be carried out on the desired frequency of network meetings.

- Working groups should be established for specific topics.

- Establishing a network means establishing linkages between the players to enhance the synergy of the system.

- There is a need for both geographic and thematic networks.

- Following the efforts of this workshop, a similar workshop should be organized every two years in which farmer organizations, NGOs, research institutes and extension services participate equally. These workshops should take place in rural areas.

- It was recommended to regroup the partners present (farmers, researchers etc.) on the basis of specific themes such as: environmental degradation (*dégradation de l'environnement et désertification*) and rural marketing and financing (*commercialisation et financement ruraux*).

These network meetings should provide concrete outputs such as training in communication and techniques for marketing products.

ANNEXES

OPENING SPEECH
DELIVERED BY
D. ASSOUMOU MBA, DIRECTOR OF CTA

Excellencies
Distinguished Guests
Ladies and Gentlemen,

The Technical Centre for Agricultural and Rural Co-operation ACP-EEC (CTA) is pleased to be in Yaoundé once again for this workshop on agricultural extension in Africa. In fact, this meeting is the third of its kind that CTA has organized in the capital of Cameroon, following the seed production seminar in 1985 and the training workshop for agricultural documentalists in 1991.

I would thus like first and foremost to thank the Government of Cameroon for having not only authorized the venue for the present workshop, but also for all the facilities that it has placed at our disposal to ensure its success.

Secondly, I would like to introduce the Technical Centre for Agricultural and Rural Co-operation for those present who do not know it yet. Created in 1983 within the framework of the ACP/EEC Lomé Convention, CTA's mandate is to ensure that the countries of Africa, the Caribbean and the Pacific (ACP) have better access to necessary scientific and technical information (STI) in the areas of agriculture and rural development.

The Centre was established according to the mandate of the Second Lomé Convention that was signed between ACP countries and the European Community. At that time, it had to establish that proficient knowledge in scientific and technical information contributes to food security, income generation, natural resource conservation and environmental protection.

The Centre first became involved with identifying and analyzing the needs of the main target groups, which include planners, researchers, instructors, extension agents and specialists in the areas of information and documentation. It then began to implement pilot information activities, including the promotion of information exchanges between different players in agricultural development, the publication of research results, rural development exercises and studies.

The mid-term evaluation of the first decade of CTA's existence concluded that CTA had "fulfilled is mission, and often exceeded its objectives". The Centre took this affirmation as an invitation to further develop its activities undertaken thus far in order to meet the needs of ACP countries in the area of technology transfer.

One of the lessons learned from the first phase was to appreciate the limitations of the Centre's activities due to the near absence of national and regional scientific and technical information policies. In addition, the weaknesses of national institutions in charge of managing STI in ACP countries, difficulties gaining access to sources of information, the lack of human and financial resources and problems related to telecommunications were further obstacles.

Due to this situation, the Fourth Lomé Convention increased the Centre's sphere of activity, emphasizing in particular the integration of STI in agricultural and rural development strategies and the provision of scientific and technical support to programmes in ACP countries.

CTA has thus contributed to establishing necessary mechanisms and conditions, to promoting STI as an input for improving agricultural productivity and competitiveness and to pool "local knowledge" and experiences.

The procedure followed and the tools prepared by the Centre within this framework may be used as a basis for creating development policy mechanisms, with support from alliances and synergies with national, regional and international institutions.

The Secretary General of ECCAS has been closely involved in all of our activities in the region. I would therefore like to gratefully acknowledge the institution that spares no effort in its fruitful collaboration with CTA. This recently culminated in the official recognition of ECCAS as the CTA Regional Branch Office for Central Africa.

The cooperation between the two organizations was initiated in 1991 during a process of evaluating the different needs of various ACP countries for agricultural information that was undertaken by CTA. This process had three stages: first there was a preliminary consultation with experts from different agricultural institutions from the region concerned, followed by an *in situ* study among CTA target groups and finally a regional workshop with representatives from the different groups to discuss the results of the study and establish the course of a concerted agricultural information programme.

Central Africa was covered in 1991, followed by West and East Africa, which were covered between 1992 and 1993. A monitoring mechanism is established after each workshop, which is called the *Comité Régional d'Evaluation et de Suivi des Activités d'Information Agricole* (Regional Committee on the Evaluation and Monitoring of Agricultural Information Activities).

Excellencies
Distinguished Guests
Ladies and Gentlemen,

I wanted to inform you of our regional planning process because this workshop on agricultural extension corresponds to a need expressed by the participants at the regional workshop organized by CTA in Libreville in October 1991.

The topics of the workshop were decided during the meeting of the monitoring committee, which took place in January 1993 in Bujumbura in Burundi. While organizing this meeting, CTA lent its support to ECCAS for implementing the agricultural sector of its programme.

Moreover, the importance of this topic was also recognized during workshops on the needs for agricultural information that were organized by CTA in West and East Africa, and by all the institutions that work in rural development worldwide.

This workshop is taking place at a time of deep economic crisis, which has been heightened recently by difficult macro-economic decisions involving all those working in development, particularly in the agriculture sector.

Within this context, economic liberalization, the withdrawal of governments from the agricultural sector and the emergence of private or non-governmental players has had a substantial effect on all of the efforts in the area of agricultural extension, and on the fostering of harmonious and complementary relationships that truly contribute to the progress made by rural communities.

This explains the presence at these sessions of representatives of different governmental agencies involved in extension, research and training, but also delegates from non-governmental organizations that are active in this area as well as experts representing European institutions specializing in rural development.

Several distinguished African experts have also accepted not only to join us, but also to concretely contribute to our debates with presentations on the different topics that are specific to this workshop. We would hereby like to express our gratitude to them.

I would also like to express our thanks to the National Organizational Committee, which mobilized itself with efficiency and determination in a limited period of time to ensure the necessary conditions for the successful running of this workshop.

Before I conclude, I would like to express my sincere appreciation to the dynamic agricultural extension team of the University of Wageningen (Netherlands), which was deeply involved in the scientific and pedagogical organization of this workshop.

Excellencies
Distinguished Guests
Ladies and Gentlemen,

The great challenges that African countries must face to ensure their economic and social development obliges them to make serious changes in the agriculture sector, which is the basis for this development.

These changes require the revision and adaptation of the principal chain of agricultural extension organizations, so that they may contribute to the exchanges of agricultural knowledge and information between all actors concerned.

The tactics necessary to arrive at this must first and foremost bear in mind the beneficiaries rather than the promoters, and be inspired by the long term rather than by conjectural problems and be based especially on the resources available or those that may be mobilized locally so that their effects may be sustainable.

I am convinced that the necessary expertise and conditions are joined together here, so that the present workshop may respond to our needs and hopes.

Thank you for your attention.

WELCOME ADDRESS
PRESENTED BY KASASA CINYANTA MUTATI
SECRETARY GENERAL OF ECCAS

Excellencies
Ladies and Gentlemen,

It is a true honour for me to participate in this workshop on agricultural extension in Africa.

As Secretary General of the Economic Community of Central African States, I would first of all like to take this occasion to thank CTA on behalf of ECCAS for the interest that it has continuously shown in the Central African sub-region, and for the initiative that it has taken to organize the present workshop on agricultural extension.

I would also like to thank the Government of the Republic of Cameroon for having accepted to host the present workshop, which confirms the importance of promoting Central Africa's economic integration and its active involvement in activities that will increase agricultural development in the sub-region.

Excellencies
Ladies and Gentlemen,

The workshop on agricultural extension in Africa, which begins today, is the result of a series of steps undertaken in Central Africa by CTA, in close collaboration with organizations of the sub-region (ECCAS, UDEAC, EDPGL and IRAZ). These steps have had numerous fruitful results, among which we would like to mention:

- The culmination of a study on agricultural information needs in Central African countries in July 1991.

- The regional workshop on the needs of Central African countries for agricultural information held in Libreville in October 1991. Various conclusions were reached and recommendations made in the area of agricultural research, information and documentation, rural radio and agricultural extension. Among these recommendations, we would like to mention the organization of a workshop of national decision-makers in agricultural extension, which was to facilitate exchanges of experience and information among these specialists.

- The signing of an agreement on cooperation with ECCAS in view of facilitating collaboration between the two institutions.

- The establishment of a Regional Committee on Evaluation, Programming and Monitoring in Central Africa for implementing conclusions and recommendations from the Libreville workshop. Their first meeting took place from 8-10 February 1993 in Bujumbura (Republic of Burundi).

- The establishment of a CTA Branch Office for Central Africa at ECCAS (February 1993).

- The identification of regional programmes whose funding is ensured by CTA. Some of these programmes are already in the preliminary stages.

The present workshop on agricultural extension in Africa concurs fully with the objectives of ECCAS.

In fact, as part of the founding treaty of the Economic Community of Central African States, the member countries that are concerned with developing and strengthening their cooperation in the area of agriculture, are largely involved in:

- Holding regular meetings to harmonize their agricultural policies.
- Exchanging information regularly on their experiences and results of ongoing research in their respective regions, as well as on rural development programmes.
- Creating, based on need, collective training and retraining programmes for management-level positions in existing or soon-to-be-created institutions.
- Taking all measures necessary for progressively developing a common policy, namely in the areas of research, training, production, processing and marketing agricultural products.

Although efforts have been made to ensure cooperation between the countries in order to fulfil the aforementioned objectives, a great deal of work still remains to be done especially in the following areas:

- Intra and inter-regional exchanges of scientific and technical information, namely resulting from research work generally done in Africa.
- Effectively utilizing research results.
- Allowing the farmers access to technology transfer services.
- Training and retraining managers in the field of rural development.
- Establishing linkages between research and extension.

The objectives of the present workshop on agricultural extension in Africa will attempt to fill the aforementioned gaps through:

- Exchanges of experience on extension approaches in this and other sub-regions.
- Examining ways and means of establishing and strengthening the linkage between extension and other sectors, namely research, technology transfer and agricultural training, production and marketing.
- Examining the possibilities of establishing a network of information exchange on agricultural extension.

This workshop thus gives those experts now present, particularly those from Central Africa, the opportunity to evaluate the path to be followed to improve their work, in view of an essential collaboration involving all those concerned with the process of agricultural development in the sub-region. We should take advantage of the presence of agricultural extension specialists at this workshop, as their contributions and knowledge will be highly enriching for our sub-region.

Excellencies
Ladies and Gentlemen,

At a time when economic, financial and monetary vicissitudes spare practically no African country south of the Sahara, regional economic integration is more than just current events. In this context, the organizations that promote the integration of African countries must take on a serious challenge.

The General Secretariat of ECCAS is ready to assume its responsibilities. May the member countries grant it the necessary means.

I would like to wish the participants at this workshop a successful meeting on agricultural extension in Africa.

Thank you.

MOTION OF THANKS

The participants at the workshop on Agricultural Extension in Africa, held in Yaoundé, Republic of Cameroon, 24-28 January 1994, would like to express their deep and sincere gratitude to His Excellency Mr Paul Biya, President of the Republic of Cameroon, to his Government and to the people of Cameroon, for the warm reception they received during their stay in Cameroon.

Yaoundé, 28 January 1994

The participants at the workshop on Agricultural Extension in Africa

CLOSING ADDRESS
DELIVERED BY
D. ASSOUMOU MBA, DIRECTOR OF CTA

Excellencies
Distinguished Guests
Ladies and Gentlemen,

It is a great honour and a true pleasure for me to take the floor at the closing ceremonies of the workshop on Agricultural Extension in Africa.

On behalf of CTA and all the participants, and on my own behalf, I would like once again to thank the Government of Cameroon for all the attention that it has bestowed upon us since our arrival in Cameroon.

I would particularly like to thank His Excellency Steven Njinyam, Minister of Agriculture, as well as the National Organizing Committee, which spared no effort in ensuring the success of this workshop. This gesture is a further indication of the importance attached to agricultural extension by the Cameroonian authorities.

I would also like to take this occasion to thank the General Secretary of the Economic Community of Central African States (ECCAS), who personally participated in the workshop sessions. CTA takes great pleasure in witnessing this interest, which confirms that the centre maintains cooperative links and relationships with true partners in the development of IST in Central Africa.

Finally, I would like to express my sincere thanks to all of the workshop participants for taking such an active part in this meeting.

Excellencies
Distinguished Guests
Ladies and Gentlemen,

The interest shown in this workshop proves once again the importance of the role that extension must play in the agricultural and rural development of the different ACP countries. It also proves the relevance of the regional process initiated by CTA, which consists of helping ACP countries to define the regional and national policies of IST themselves.

For Central Africa, the present meeting is additional proof that cooperation between CTA and ECCAS regarding the implementation of this regional process is becoming more concrete.

In fact, this workshop, which closes today, is one of the results of the conclusions and recommendations of the Regional Committee on Evaluation, Programming and Monitoring (on agricultural information activities) (CREPS/Central Africa) held in Bujumbura in January 1993, which was established at the end of the regional workshop held in Libreville in October 1991, organized jointly by the Centre and ECCAS.

Over the past five days, you examined the challenges to be faced so that agricultural extension would be a dynamic component in the transfer of technological innovations and the increase of agricultural production. The introductory presentations delivered by distinguished individuals on the development of the role of the extension services within the framework of economic liberalization, on the role of research and training in agricultural extension, on the funding of extension services, on the main problems of agricultural extension in Central Africa and finally on the various extension approaches, enabled you to further distinguish the problems of extension and to hold fruitful discussions on the different topics.

The competence of the participants and the high level of the discussions that have characterized the different sessions enabled conclusions and recommendations to be made that help define national and regional extension policies for ACP countries.

By organizing this workshop, CTA wanted to assemble the different players involved in extension so that they may discuss their experiences with the different approaches being applied in their countries. The Centre has no particular system to propose, nor does it favour one approach over another. Its objective is to help countries examine the main points and the gaps in their systems and, based on experiences gained elsewhere, to find new directions or bring about eventual improvements.

Excellencies
Ladies and Gentlemen,

I can assure you that CTA will make every effort to ensure that the recommendations that fall within the framework of its mandate will be included in its regular programme, or in its cooperation with national and regional mechanisms such as ECCAS, namely through Regional Committees on Evaluation, Programming and Monitoring.

CLOSING SPEECH
DELIVERED BY KASASA CINYANTA MUTATI
SECRETARY GENERAL OF ECCAS

Excellencies
Ladies and Gentlemen
Honoured Guests,

We have reached the end of the meeting on agricultural extension in Africa. Over the past five days, we have heard:

- Introductory presentations delivered by specialists and field workers on agricultural extension, research and training; on assistance in agricultural technology systems; on the funding of agricultural extension services and agricultural development; and presentations of case studies on national extension systems.

- Systems of agricultural information were analyzed based on these case studies; this analysis facilitated the formulation of relevant conclusions and recommendations.

The foregoing activities were further enhanced by technical field trips, which enabled participants to observe experiences in the field and provided the occasion for them to immerse themselves in the concrete problems of farmers and farmer groups.

The workshop participants made the following recommendations for strengthening national extension systems: agricultural information systems must be funded; establish the role of research and training in these systems; define the role of farmers, women and monitoring and evaluation in these systems; promote networks within the context of agricultural knowledge and information systems at both national and regional levels. A summary of these recommendations was just presented to you by one of the speakers who preceded me at this podium.

Excellencies
Ladies and Gentlemen
Dear Guests,

As I stated at the beginning of this workshop, the member states of the Economic Community of Central African Countries attach great importance to dialogue. Thus, support measures should enable national experts on extension:

- To hold regular dialogues to compare approaches, and to exchange information and experiences with the different national systems of agricultural information. The establishment of a network of specialists in agricultural extension should thus be encouraged.

- To participate in internships or retraining seminars.

- To participate in study trips to member countries or other African countries.

- To benefit from the different experiences in agricultural extension and to widely disseminate the knowledge thus acquired.

I would like to congratulate the participants on the quality and the relevance of their contributions, and wish them a safe return to their respective countries.

Long live regional cooperation. Thank you.

WORKSHOP PROGRAMME

Monday 24.1.1994 (Palais des Congrès)

Morning

8:00-9:00	Registration.
9:00-10:00	Presentation of the programme.
10:00-10:30	Official opening (CTA, ECCAS, Ministry of Agriculture).
10:30-11:00	Coffee Break.
11:00-12:00	Introductory presentation on the changing role of extension services in the current context of economic liberalization and the participation of "new" actors in agricultural development in Africa. Mr Niels ROLING Wageningen Agricultural University, The Netherlands
12:00-13:00	Introductory presentation on the role of research and training in agricultural extension. Mr D. SENE President of the Commission of Rural and Hydraulic Development of the National Assembly, Senegal
13:00-14:30	Lunch.

Afternoon

14:30-15:00	Brief presentation of the activities of ISNAR: Providing Assistance to Agricultural Technology Systems. Mr Thomas EPONOU International Service for National Agricultural Research (ISNAR), The Netherlands
15:00-15:45	Introductory presentation on the implementation of the "Training and Visit System" in Africa. Mr Venkatachalam VENKATESAN Senior Agricultural Services Specialist, The World Bank
15:45-16:00	Coffee Break.
16:00-17:00	Introductory presentation on alternative approaches to extension. Mr Etienne BEAUDOUX IRAM, France

Evening (Mont Fébé Hotel)

21:00-22:00	Brief presentation on the role of audiovisual means in extension. Mr Felicisimo GONZALES Dept. of Agricultural Extension, Ministry of Agriculture, Fisheries and Nutrition, Spain Video: "Who knows the land?" (Documentary on Agriculture in Benin)

Tuesday 25.1.1994 (Mont Fébé Hotel)

Morning

8:30-9:30	Introductory presentation on the main problems of agricultural extension in Central Africa. Mr Marcel NZONDO Ministry of Agriculture, Brazzaville, Congo
9:30-10:30	Introductory presentation on the funding of extension services. Mr Moïse C. MENSAH Former Vice President of FIDA
10:30-11:00	Coffee Break.
11:00-12:00	Discussion on the RAAKS approach (Rapid Appraisal of Agricultural Knowledge Systems): A plan for analyzing the development of the role of extension in Africa. Mr P. ENGEL Wageningen Agricultural University, The Netherlands
12:00-13:00	Presentation of the Cameroon case study.
13:00-14:30	Lunch.

Afternoon

14:30-15:30	Presentation of a case study.
15:30-16:30	Presentation of a case study.
16:30-17:00	Coffee Break.
17:00-18:30	Poster preparation. (After a brief introduction, representatives of each country will prepare a poster using information from the case study. The posters will be exhibited and examined during the workshop).

Evening

21:00-22:00 Poster preparation continued.

Wednesday 26.1.1994 (Mont Fébé Hotel)

Morning

8:30-9:00 Formation of working groups for analyzing the posters.

9:00-11:00 Analysis of the posters in working groups (agricultural knowledge and information systems will be analyzed based on the posters).

11:00-11:30 Formulation of conclusions and recommendations in working groups.

11:30-13:00 Plenary discussion on the results of the poster analysis.

13:00-14:30 Lunch.

Afternoon

14:30-15:00 Preparatory introduction for the field trip.

15:00-15:30 Presentation of topics and formation of thematic working groups.

The topics proposed are as follows:

- Financing of agricultural knowledge and information systems.
  Introduction by Mr Moïse C. MENSAH
  Former Vice President of FIDA

- The role of research and training in agricultural knowledge and information systems.
  Introduction by Mr D. SENE
  President of the Commission of Rural and Hydraulic Development of the National Assembly, Senegal

- The role of farmers in agricultural knowledge and information systems.
  Introduction by Mr T. GNON
  World Neighbors, Togo

- The role of monitoring and evaluation in the agricultural knowledge and information systems.
  Introduction by Ms. A. GROOT
  Wageningen Agricultural University, The Netherlands

- The role of women in agricultural knowledge and information systems.
  Introduction by Ms. V. KPOHAOUNDE
  African Confederation of Cooperative Savings and Credit Association (ACECA, Kenya)

- "Daring to share": the necessity of net*working*.
  Introduction by Mr P. ENGEL
  Wageningen Agricultural University, The Netherlands

15:30-18:00 Discussions on specific topics in working groups. (The discussions will be preceded by a brief introduction and will be based on the results of the poster analysis.)

Thursday 27.1.1994

7:00-18:00 Field trip.

The group will visit two different sites: the first in the NDE region (Training and Visit System), and the second will be in the MBAM region (Group Self-Promotion System).

Friday 28.1.1994

Finalization of programme.

Work sessions at the Mont Fébé Hotel from 8:30 to 16:30.

Departure at exactly 16:30 for the closing ceremony at the Palais des Congrès.

Morning

8:30-10:30 Working group discussions on topics proposed (formulation of conclusions and recommendations).

10:30-11:00 Coffee Break.

11:00-12:30 Plenary discussion (conclusions and recommendations).

12:30-14:00 Lunch.

Afternoon (Palais des Congrès)

14:00-15:30	Plenary discussion. (Conclusions and recommendations continued.)
15:30-16:00	Summary of workshop discussions.
16:00-16:30	Coffee Break.
17:00	Official closing.
	Cocktail party.

Afternoon (Palais des Congrès)

14:00-15:30	Plenary discussion. (Conclusions and recommendations continued.)
15:30-16:00	Summary of workshop discussions.
16:00-16:30	Coffee Break.
17:00	Official closing.
	Cocktail party.

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