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REVIEW ARTICLE

INSTITUTIONALISATION OF ON-FARM RESEARCH WITH FARMING SYSTEMS PERSPECTIVES (OFR/FSP) IN EASTERN AND SOUTHERN AFRICAN REGION: ACHIEVEMENTS AND FUTURE DIRECTION¹

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SUMMARY

Farming Systems Research (FSR) procedures have been used in East and Southern Africa in an attempt to generate technologies for specific target groups. The FSR procedure has generally followed the steps: diagnosis, planning, experimentation. Institutionalisation of these procedures within national agricultural research systems, however, has occurred in two main forms. One approach has been establishing an FSR department or unit, and the other approach has been incorporation into existing commodity programmes. Both approaches have had advantages and disadvantages. A number of factors are important in successful institutionalisation and these include a formal recognition of FSR in the research-extension service, permanent staff positions and a budget. A number of accomplishments can also be noted as evidence of growing institutionalisation of FSR in the region. There has been greater farmer orientation in the research-extension process. FSR has fostered an interdisciplinary approach to research and this has introduced a new element in planning and priority setting. Linkages between research and extension have also improved. Those areas where accomplishments are not as notable include budgetary and resource allocation to FSR by national governments, incorporation of social scientists in the research system and there is still no substantive technological breakthroughs. Given the wide acceptance of FSR concept and procedures in the region, the future has to address the sustainability of FSR in the national agricultural research systems.

INTRODUCTION

On-Farm Research (OFR) or Farming Systems Research (FSR) concept and activities were introduced into the East and Southern African region in the mid seventies and have gone through several phases in their development. The FSR methodologies have been accepted, adopted and institutionalised in various forms and at different levels. In some of these countries FSR has been able to attract a considerable amount of donor funding. Some countries have adopted the procedure without structural changes within the research and extension services, while some other countries have made some structural changes to

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accommodate the concept, but in both cases there has been an uneven record of accomplishment. Questions are already being raised about the impact of FSR at the national level. In this paper, an attempt is made to assess the current status of institutionalisation of FSR in the region, its accomplishments, and future direction.

ON-FARM RESEARCH/FARMING SYSTEMS RESEARCH CONCEPT AND PROCEDURE

The apparent lack of adoption of high yielding technologies by African smallholder and resource poor farmers was the main justification for the adoption of the FSR approach in the region. A considerable amount of literature has been published over the years on the need for a departure from the conventional approaches to agricultural research. Small farmers basically operate a production system with multiple objectives that have to be met with limited resources. The number of enterprises is also usually considerable and the introduction of technology in these farming systems has to be consistent with farmer circumstances.

In literature, several terms are used to describe the process, often with different meaning to different people; but in this paper OFR and FSR have been used synonymously. Attempts have also been made to classify the FSR related activities (Merrill-Sands 1986, Simmonds 1985) but this paper will not deal with those aspects. In general, OFR can be defined as a procedure to generate and diffuse technologies/recommendations for a specific target group of farmers with their participation in focussing on identified priority problems and constraints of the production system. However, defined or termed, it has been widely accepted that the process has several steps, namely: diagnosis, planning, experimentation, evaluation/assessment, replanning, recommendation and wider dissemination. The process is farmer oriented, problem focused, multidisciplinary, and explicitly introduces a systems perspective, including systems interactions in developing recommendations which are compatible with the farming systems, farmers' objectives and preferences. Even though the procedure is system oriented, the actual research and extension activities are still carried out on a commodity or disciplinary basis, keeping the broader system implications in mind.

There are several possible misconceptions about the process. It is conceived by some practitioners that on-farm research means that all activities should be carried out in the farmers' field. At the same time research and extension activities at the farm is not necessarily a sign of well focussed research. OFR includes both surveys and experiments (including demonstrations) and may well involve on-station as well as on-farm experimentation. Appropriateness of the location, among other things is determined by the nature of the problem, objective of the trial/experiment, available research information, and the representativeness of the site.

There is also some argument about the suitability of the approach to a wide range of farmer groups. Because of its over emphasis on the small resource poor farmers, some argue that this approach is applicable to that group only. It is important to stress, however, that the enterprises grown, production technology used and the resource base only differentiate the target groups but once the target groups are identified the methodology is equally suitable to a wide range of farming populations. It is important to distinguish between the target group and the approach; after all, the first step in the OFR procedure is the clear identification of the target group.

If properly institutionalised and effectively implemented, OFR can facilitate the National Agricultural Research System (NARS) to accomplish its goals in many ways.

The expected shift from a researcher's perspective of an agricultural production problem to a design which reflect the farmer perception can create a permanent and significant change in the way research programmes are designed and carried out. The sharing of diagnostic information and the intended joint planning and execution of activities by research and extension staff will also encourage participants to appreciate the contribution of other disciplines. This will bridge the gap in information and communication and might foster a more permanent relationship between research and extension.

The feedback of unsolved technical problems to commodity and disciplinary researchers will provide a mechanism for setting priorities for on-station research and base them on observed farmer needs.

Information generated can provide guidelines for policy formulation by identifying the non-technical constraints (institutional, infrastructural and policy related) which might hinder the adoption rate of the selected technology. The micro level data will provide information to bridge the micro-marco linkages with respect to policy analysis.

Some information will enable better planning at the sectoral, regional and district levels. For development policies to be effective they must reconcile local and national priorities. Where national and farmer priorities conflict, programmes based on national priorities alone are likely to fail. At the target group level one could evaluate the suitability of each target group for programmes designed to meet one or several national policy objectives thus reconciling farmer priorities and national priorities; this makes research and development programmes to be relevant to both national and local aspirations.

WHAT DO WE MEAN BY INSTITUTIONALISATION OF OFR PROCESS?

The term institutionalisation means different things to different people. In this paper institutionalisation is defined as the permanent integration of the OFR procedure within the national agricultural research and extension services. It does not necessarily mean a structural change; but in practice, depending on the situation, it may or may not be associated with structural/institutional

changes within the country.

The institutionalisation of FSR is critical to the extent to which research is continually brought closer to its clients. The sustainability of FSR is therefore contingent on the state and extent of the institutionalisation process. Merrill-Sands and MacAllister (1988) allude to the great difficulty of institutionalisation faced by the cases in their study. The authors also conclude that there is no universally applicable model for this process. The dictates of each national research system are the most important consideration in the process of institutionalisation FSR.

Ewell (1988) and Merrill-Sands and MacAllister (1988) highlight budgetary considerations as critical to institutionalisation. The risk of donor dependency for funding is also exacerbated by dependence on expatriate staff and methodologies. Although this paper is not focussed on research-extension linkages, these linkages are also dependent on the institutionalisation of FSR. The effectiveness of research-extension linkages is based on a shared analysis of farmer circumstances, problems (Ewell, 1989) and priorities. Biggs (1988) places importance on the strengthening of links at village level.

In general, there are two institutional arrangements emerging in this region (Table 1). The first approach incorporates the concept and procedure into the existing commodity programme i.e. no separate FSR department or unit. The advantage here is that the senior experienced researchers are able to directly participate in the process. The interaction between on-station research and on-farm research is in-built since the same scientists or disciplines are involved in both activities. The disadvantages, however, are that the pre-determined focus on commodities will often result in limited system perspective and may often lead to duplication of diagnostic activities. In some cases the countries are trying to overcome this problem by reclassifying the research centres and redefining their mandate as in the case of Kenya, (Anandajayasekaram and Muriithi, 1989; Rutto 1990). This arrangement will effectively capture the strength of the commodity research and at the same time linking the commodity research to on-farm research.

The second approach creates separate OFR units or departments charged with the responsibility of OFR activities. Several countries have followed this approach in the region (Table 1). The advantage of this approach is that the responsibility is clearly defined and resources are allocated explicitly. In the case of Zambia, a separate unit avoided incompatibility with the prevailing commodity focus (Kean and Singogo, 1988). In addition, a separate unit facilitated the development of different skills required for FSR. The units have attracted considerable donor support and funding. The disadvantages are that it results in weak linkage and feed back mechanisms within the NARS, and there is uncertainty in career prospects and professional development of staff. Often, the budgetary system has to recognise and facilitate OFR. In places where there was heavy donor involvement as in the case of Zambia and

TABLE 1. — CURRENT STATUS OF OFR INSTITUTIONALISATION IN EASTERN, CENTRAL AND SOUTHERN AFRICA

Country	A	B	C	D	Approach	E	F
Zambia	Yes	Yes	Yes	Yes	Provincial	Near completion	In progress
Zimbabwe	Yes	No	Yes	Yes	Regional	In progress*	In progress
Malawi	Yes	Yes	Yes	Yes	Division (ADD) ¹	Near completion	In progress
Tanzania	Yes	Yes	Yes	Yes	Zonal	Near completion	In progress
Kenya	Yes	No ²	No ²	Yes	Regional & District	Near completion	In progress
Ethiopia	Yes	Yes	Yes ³	Yes	Zones	Near completion	In progress
Uganda	Yes	No	No	Yes	Station/projects	In progress	In progress
Somalia	Yes	Yes?	Yes	Yes	Project/Region	In progress	No
Sudan	Yes ⁴	No	No	No	Project	In progress	No
Rwanda	Yes	Yes	Yes	Yes	Regional	Good progress	No
Burundi	Yes	No	No	No	Project	In progress	No
Botswana	Yes	Yes	No	No	Region	In progress	No
Lesotho	Yes	No	No	No	Project	In progress	No
Swaziland	Yes	No	No	No	National	In progress	No

* AGRITEX is also extensively involved in OFR activities

1. Agricultural Development Divisions

2. At the lower level i.e. district level FSR teams are operating

3. Agricultural Economic Division is responsible for all FSR activities

4. At Project level

LEGEND

A. Acceptance of the Concept

B. Incorporated into National Agricultural Policy

C. Separate FSR Department/Unit

D. National Co-ordinating Body

E. Institutionalisation of the Process

F. Institutionalisation of Training

Tanzania, the country was divided among the donors, and often resulted in differences in procedures adopted.

No single option appears the best for all situations. In order to arrive at a decision, a number of factors relating to a specific country need to be considered. These include the existing research organisational structure, national agro-ecological complexity, financial and human resource base, capacity and the structure of the extension services, existing linkage mechanisms, and so on (Singogo 1990). Another critical factor in determining the institutional arrangement is the issue of sustainability.

Singogo (1988) argues that a well articulated and a permanently institutionalised OFR process should have the following characteristics:

- * The process should be recognised by the existing institutions and managers as an integral part of the research-extension services.
- * There should be a permanent list of established positions/personnel allocated to OFR activities.
- * There must be a permanent line item in the official Government or institutional budgetary instrument.

Avila, Whingwiri and Mombeshora (1989) list four determinants for successful institutionalisation as: clear research priorities for resource poor farmers, rewards for staff interaction, adequate operational resources and clear responsibility for adaptive research. In countries where the FSR process is incorporated into the existing research-extension services without creating a separate department or unit, one may, however, not find a permanent list of staff attached to OFR activities and cannot find a separate line item in the budget. In such cases a planning process should be institutionalised which ensures the full participation of research-extension staff. Research activities should be planned based on diagnostic information, and location of activities, allocation of responsibilities and resources should be based on the planning process. If this is the case, then, one could consider that the process is completely integrated into the commodity programme and research services.

The institutionalisation process in this region began in 1980 with Zambia and Malawi. These countries are at different stages with respect to institutionalisation. The process is not completed yet. A study by USAID (1989) concluded that the total time needed to institutionalise the FSR/E process is probably 15-25 years or more. If we accept this time frame as realistic, then one could argue that it may be pre-mature to assess the achievements in institutionalising the process at this stage in East and Southern Africa. It is against these settings that the paper is attempting to evaluate the accomplishments in the Region.

PRE-CONDITIONS FOR THE SUCCESSFUL INSTITUTIONALISATION OF OFR AT THE NATIONAL LEVEL

Several conditions must be satisfied for the successful institutionalisation of the process:

- * Clear demonstration of the utility of the process

- * Policy and institutional commitment to integrate the process into NARS
- * Experienced and qualified research and extension staff
- * National commitment to allocate financial and other resources such as transport
- * Effective and functional research-extension linkages
- * A clear strategy for institutionalisation
- * Exposure to the methodology by all parties involved
- * National commitment and mechanism for continuous training of new staff

Unless these conditions are met the institutionalisation process will be very slow and it may even not be sustainable.

ACCOMPLISHMENTS

This section will examine the various accomplishments to date in the process of institutionalising OFR in the Region.

FARMER PERSPECTIVE AND CLIENT ORIENTATION IN RESEARCH EXTENSION PROCESS

In almost all countries in Eastern and Southern Africa the concept has been accepted and adopted (Table 1). This has assisted in introducing the systems perspective, farmer orientation and problem focus into the research extension services. Introduction of the concept has changed the impressions that the researchers and extension staff used to have about their clients. Farmers are accepted as rational individuals and increasingly accepted as partners in the technology generation and dissemination process. Much attention is given to the conditions and problems of the farmers in planning research programmes. In some cases it has gone too far, that unless the particular activity is addressing a problem identified through the diagnostic process the planning/review committee will not approve the implementation of that activity.

HARMONISING TERMINOLOGIES AND METHODOLOGIES

Several countries within the region (Kenya, Tanzania, Uganda, Zambia) has given careful thought to this and resolved that they should no longer waste their time in arguing about this issue. At the national level the countries have chosen a terminology and the general procedure of OFR is also defined.

CREATION OF NECESSARY POLICY AND INSTITUTIONAL CHANGES

The concept and procedure is accepted at the national level in Zambia, Malawi, Tanzania, Ethiopia, Kenya, Rwanda, Botswana and Somalia and it is explicitly articulated into the National Agricultural Policy. These countries have also made the necessary structural and other changes to facilitate the implementation of the concept. In other countries the top managers of the NARS have accepted the concept but the OFR procedure is incorporated into selected

research stations or projects as in the case of Uganda, Burundi, Lesotho and Zimbabwe.

MULTIDISCIPLINARY APPROACH TO RESEARCH

In the past, individual scientists used to work in isolation. The introduction of the OFR procedure has encouraged the scientists to work as a team. They began to understand the contribution of the other scientists in shaping up their activities. However, in many cases it is restricted to the teams only. There has been limited success in attaining true multidisciplinary approach to research and extension. This is heavily affected by the institutional arrangement (commodity research group vs OFR teams) location of OFR teams (Research station vs Extension services) and the existing linkage mechanisms (commodity — OFR: research-extension).

Even in countries where on-station and on-farm research activities are carried out by the same researchers, unless the diagnostic information is widely circulated and used in planning, it is difficult to accomplish multidisciplinary participation.

PLANNING AND PRIORITY SETTING

FSR approach has introduced an explicit mechanism for priority setting. The process of planning is given adequate emphasis. Countries are establishing procedures and mechanisms and in some cases may have to pass through several stages before an activity is approved for implementation. In Kenya, a proposal has to pass through the Department/Unit level, then through the internal review process at the station and finally it will have to be approved by Centre Research Advisory Committee represented by researchers, extension staff, farmers and other institutions. In Tanzania the activity had to be approved by the FSR team, Zonal Advisory Committee and eventually by the FSR National Coordinating Committee. Thus FSR has been responsible for promoting a much more rigorous approach to priority setting, planning and evaluation (farmer assessment, statistical issues related to on-farm trials) of technologies.

COMMODITY OFR LINKAGES

Linkages are important where there are separate OFR departments or units within NARS. The interaction between commodity researchers and the OFR teams are on the increase. Although the process made is very slow, some success has been accomplished. Several factors contributed to this: location of the OFR units, special status of OFR units due to donor influence and young and inexperienced researchers carrying out OFR activities.

RESEARCH-EXTENSION LINKAGES

The OFR procedure explicitly recognises the fact that the researchers and extension staff are parties in the process. The team approach is expected to bring the researchers and extension staff much closer so that they begin to

trust each other. Countries have had mixed experiences with respect to strengthening of research-extension linkages. The slow progress is attributed to several factors:

- * Institutional arrangements within a country e.g. research and extension in separate ministries.
- * Resource control, especially if both activities are heavily donor funded
- * OFR is too often regarded as a research strategy, not as a means of integrating research and extension.
- * Lack of problem solving approach to extension.
- * Lack of joint planning and resource allocation mechanism.

It is being increasingly acknowledged that the research-extension linkage at the top level is informal and in some cases virtually non existing. But in locations/areas where the OFR activities are implemented, a very strong informal linkage mechanism often exists. There is a need to formalise this informal linkage at the grassroots level to make it sustainable. Closer interaction between researchers and extension staff is vital to make the technology generation and dissemination process efficient and to make the OFR process cost effective. Much remains to be done in this area. Several countries are creating new positions such as Research-Extension Liaison Officers (Zambia, Ethiopia, Kenya) to make the linkages formal and effective. One encouraging sign is that the participation of extension staff in OFR activities are on the increase. In Zimbabwe for instance, the Committee for On-Farm Research and Extension (COFRE) was established as a link between research and extension. This has brought the extension service, AGRITEX, closer to the research process than hitherto (Shumba and Fenner, 1989).

One notable change with respect to extension in the region is the adoption of Training & Visit (T&V) methodology. T&V assumes that technology is available for farmers and that the critical factor is the organisation of clear extension messages and methods for delivery. After several years of experience, it is being recognised that this assumption is not true in many cases. T&V has been introduced without much consideration to its linkages with FSR, and the approach should be modified to suit the needs and environment of the individual countries. At the target group level, both T&V and FSR activities should be planned jointly, and resources should be allocated accordingly.

RESOURCE ALLOCATION

In almost all countries in the region OFR activities were started with donor assistance and are still largely funded by the donors. If OFR were to be sustainable then the national programmes should gradually reduce their dependence on donor assistance and should allocate their own resources to OFR activities. Table 2 indicates the total number of human resources allocated

TABLE 2. — STAFF DEPLOYMENT IN FSR IN SELECTED COUNTRIES IN THE REGION 1985 AND 1990

	MALAWI		ZAMBIA		TANZANIA		UGANDA		ETHIOPIA	
	1985	1990	1985	1990	1985	1990	1985	1990	1985	1990
Economists	10	9	6	8	6	9	0	6	10	19
Agronomists	6	6	6	10	2	9	7	12	2	**
Livestock	—	—	—	2	—	4	1	2	—	—
Rural Sociologists	—	—	2	3	—	—	—	—	—	—
FA's/TO's	11	11	20	28	7	19	4	8	7	10
Biometrician	—	—	—	—	1	—	0	1	—	—
Total	27	26	34	51	16*	41	12	29	19	29

* Supported by 7 commodity researchers and 8 extensionists on a part-time basis

** Transferred back to Agronomy department

to OFR in some selected countries. There has been a more than 50 per cent. increase on the staff allocated to OFR between the period 1985 and 1990. Despite the fact that the allocation of funds to research activities in real terms is declining in many countries, they have given considerable attention to staff recruitment and deployment for OFR activities.

With respect to national financial commitment to OFR, only a few countries such as Zambia, Tanzania, Ethiopia and Zimbabwe have made changes in the budgetary process. In Tanzania, at the national level, budgetary contribution to FSR activities started in 1984 and the 1990 contribution is at 16 million Tanzanian shillings. In Zambia a line item in the budget for Adaptive Research Planning Teams was introduced in 1987 and the Government's contribution for the year 1991 is estimated at 2 million Kwachas. In Ethiopia the 1989 OFR budget was 0.424 million birr. In Kenya the ongoing OFR related activities at the Regional Research Centres are supported by the national budget through the Kenya Agricultural Research Institute. In the majority of the countries, the OFR activities still depend heavily on donor funds. The picture in this respect is not very encouraging.

INCORPORATING OF SOCIO-ECONOMISTS/AGRICULTURAL ECONOMISTS

The role of social sciences in the technology generation and dissemination process (especially in problem identification, prioritisation and evaluation) has been widely accepted in the region. One of the consequences of incorporating OFR activities within NARS is the recruitment and deployment of agricultural economists and rural sociologists into the research services. Table 3 shows the total number of economists in selected countries in 1985 and 1990; the number has almost doubled and is still on the increase.

One of the problems with respect to agricultural economists in the region is that they are young and inexperienced relative to other disciplines in the

TABLE 3. — NUMBER OF ECONOMISTS WITHIN NARS IN SELECTED COUNTRIES IN THE REGION

Country	Year	
	1985	1990*
Zambia	6 (3)	8 (3)
Uganda	0	6
Tanzania	6	9
Ethiopia	10	19
Malawi	10	9
Somalia	0	1
Swaziland	4 (2)	6 (5)
Kenya	12	17
Zimbabwe	0	3
Botswana	0	1**

* Number also includes those on training

** Seconded from other ministry

Figures in parenthesis represent sociologists

research services. Though the number is on the increase, in general their role and place is not well defined and the research managers are finding it difficult to effectively utilise their services except in OFR oriented activities. As partly a result of this, a surfacing problem in countries like Malawi and Zimbabwe is the attrition rate of economists after getting additional training.

In some relatively older programmes such as Zambia and Ethiopia, the economists are expected to play a greater role in priority setting, programme planning and policy analysis. The job description of the economists are accordingly rewritten to reflect this new role. There is growing awareness that there is a need to build up the socio-economic research capacity within NARS.

INSTITUTIONALISATION OF OFR TRAINING

Even today most of the OFR related training in the region are offered by or with the assistance of International Agricultural Research Centres (IARCs) and donors. One aspect of sustainability is the ability of the national agricultural higher learning institutions to take over this role so that the much needed training could be offered on a continuous basis. Several Universities and diploma colleges in the region are currently responding to this challenge. OFR concept and procedures are already included in several Universities (Alemaya University in Ethiopia, Makerere University in Uganda, Sokoine University in Tanzania, University of Zimbabwe and University of Zambia).

It is important to realise though, that the universities and diploma colleges can create an awareness of OFR but will not be able to provide all the field training needed. The efforts of the academic institutions should be supported by in-service and on the job training. The Universities can also play a crucial role in developing the local specific training materials.

DEVELOPMENT OF USEFUL TECHNOLOGIES

Despite the considerable research efforts, the impact of FSR in generating new technologies is very limited. This is not to say that no new technologies came from OFR activities, but there are very little documented evidence on the information generated. There are several reasons for the very limited success in this area. Most of OFR workers are young graduates with very little research experience. The second problem is the very weak links with commodity programmes. Thirdly, FSR method has not been integrated into the research-extension systems to an extent needed to attain the desired expectation. Fourthly, there is an over emphasis on technology as the sole vehicle for increasing agricultural production and productivity. Too little attention has been given to institutional constraints that impede farmers access to support services. Finally there has been little emphasis on documentation of research results by NARS.

In a review of OFR activities in Southern Africa, Low, Waddington, and Shumba (1990) concluded that even well designed and well executed OFR programmes will have limited impact unless they are well integrated with commodity and disciplinary research, link well with extension and address serious deficiencies in the input service sector. The practitioners are beginning to realise that technology is a necessary condition but not sufficient to bring about the needed change in production and productivity. There is an urgent need to identify and document cases of successful technologies developed through OFR process to maintain the resource commitment.

FUTURE OF OFR IN THE REGION

It was pointed out earlier that several countries in the region have created a separate FSR unit. At the early stages there was a necessity to have these separate units for several reasons. For a start, the approach was new and many were sceptical.

There was a need to document the utility of the process, and since most of the early activities were donor driven, it was easier for donors to fund and support a separate group.

Commodity researchers had very little interest in OFR at the beginning and there was also a need to have an intermediary group to initiate the diagnostic activities and introduce the system perspective and farmer orientation into the research process.

A separate unit would also move quickly to do the broad identification of target groups. Once the broader target groups are identified, the system description completed and the problems and constraints are identified, then all activities fall within commodity or disciplinary lines. It follows therefore that once the systems perspective, farmer orientation and problem focus are introduced into the commodity and disciplinary programme, there is very little need for this separate group. Even in countries where the same commodity researchers are carrying out both on-station and on-farm work, there is a need at the early stages to identify a core group to undertake the diagnostic activities.

The attitude of the commodity programmes are changing, and now value the farmers' participation/contribution in research planning and are willing to undertake on farm research activities. Thus in due course the OFR unit will be gradually transformed into a socio-economic unit. Ethiopia has gone through this cycle and a recent recommendation made by the senior research and extension administrators in Tanzania also confirm this change of direction (Samgalawe, and Anandajayasekeram 1990). It was recommended that the OFR unit will continue as it is until the OFR activities are fully integrated into the commodity programme. Full integration of FS perspective and OFR methods will improve the efficiency of commodity and disciplinary research. This will in fact foster a strong multidisciplinary approach to research.

POLICY RELATED ACTIVITIES

At the early stages of FSR activities in the Region, it was assumed that the policy, institutional and infrastructural parameters as given and most activities were concentrated around technological issues. But, as it was pointed out earlier, it is becoming increasingly evident that unless one addresses the serious deficiencies of the input sectors, including institutional, infrastructural and policy related issues, it is not possible to realise the full potential of the FSR activities.

In the future NARS will have stronger socio-economic units and the scope of the economists will be broadened to undertake disciplinary oriented research in addition to participating in OFR related activities. The socio economic units will be institutionalised and will play a much stronger role in planning and priority setting with respect to research.

DONOR PARTICIPATION

Traditional donors who have supported FSR activities are now withdrawing, but are being replaced by non traditional donors (GTZ, SIDA, JICA) as well as IARC's who are increasingly involved in one form or other in OFR consultation and training. For the next few years, at least, the countries need the donor support to continue OFR activities. In order to make the efforts sustainable, the national governments could increase their contribution to FSR activities. As pointed out earlier, some countries have started moving in that direction. In Zambia three Provincial ARPT's are being fully financed by the Government of the Republic of Zambia, funded by (GTZ). Singogo (1990) concludes that considering that current GTZ's financial standing, it is unlikely that it will be able to sustain the current level of ARPT's activities when donor financing is withdrawn. That means one will have to find alternative ways of reducing the cost of implementing the procedure. One should reasonably conclude that the national financial contribution to OFR activities would have to increase in the future.

Given the budgetary constraints of these countries this will be an important challenge facing the region. There are several possible ways for accomplishing this. If, for instance, there is complete integration of FSR activities into the commodity programmes, this will not call for a separate budget. Increased participation of extension staff in OFR activities will also ease the budgetary strain. NARS could also provide in-service and on the job training to meet local requirements. This effort could be further supported by increased participation of the training institutions in providing conceptual and methodological training.

A more careful selection of priorities and joint planning and execution of activities by research and extension could also lead to a streamlining of the activities and budgets.

SUSTAINABILITY ISSUES IN OFR ACTIVITIES

In future, issues of developing sustainable production systems will be a key consideration in technology generation and dissemination. This is particularly important, once NARS are able to efficiently incorporate farmers' criteria into technology design and dissemination. Even though the issue is critical and will be given due consideration during planning and evaluation of technologies, it is unlikely that the OFR group will be able to address the exceptionally difficult problems associated with sustainability issues in the near future.

CONCLUSION

The concept and methodologies of OFR has been widely accepted and adopted within the research, extension and training institutions in the region. The institutionalisation process in this region began in the early eighties and in most countries the process is not yet complete. The approach, however, to a larger extent succeeded in changing the orientation to research and extension activities. It has brought the researcher and farmer much more closer, and provided an avenue for much more interaction between research and extension services.

There are still a number of issues that need to be addressed for effective integration of the OFR procedures into research and extension programme planning as well as to sustain the process. These include: research policy, organisational structure, research-extension efforts in working out a joint strategy for full incorporation of the OFR procedure into programme undertaken, complete integration into commodity and disciplinary research and extension services management strategies, resource commitment (funds, staff, vehicle) and support for field operations. Institutional and infrastructural support, including input service sectors are vital for effective institutionalisation and realisation of the desired impact of the OFR procedure. Countries are moving in the right direction in addressing these issues and challenges.

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