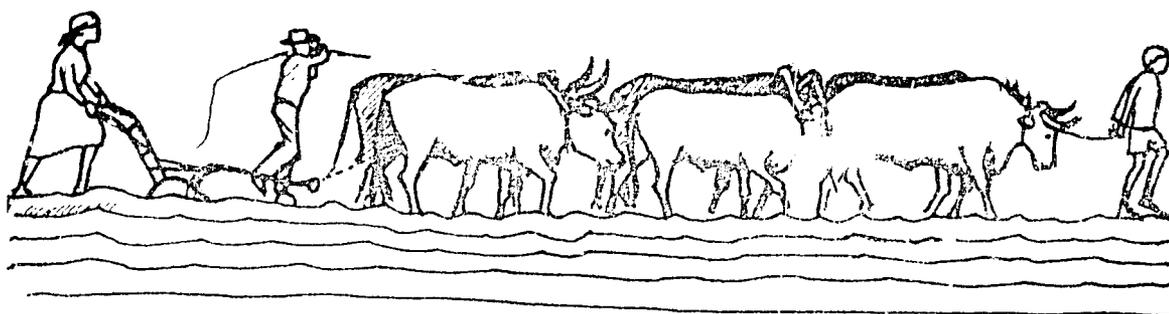


**AGRICULTURAL TECHNOLOGY
IMPROVEMENT PROJECT (ATIP)**

**TECHNICAL SUMMARY OF
ATIP'S ACTIVITIES 1982-90:**

**Research Extension Liaison
Office Achievements**

ATIP RP-7



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AGRICULTURAL TECHNOLOGY IMPROVEMENT PROJECT

ATIP

**TECHNICAL SUMMARY OF ATIP'S ACTIVITIES, 1982-90:
RESEARCH EXTENSION LIAISON OFFICE ACHIEVEMENTS**

ATIP RP 7

BY

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PREFACE

The Agricultural Technology Improvement Project (ATIP) has primarily a farming systems research orientation and has been in operation for a period of eight years (1982-1990). The project has been sustained through funding on the part of the Government of Botswana (GOB) and the United States Agency for International Development (USAID). The USAID funding has been mainly channelled through the contractor, the Mid-America International Agricultural Consortium (MIAC) with Kansas State University (KSU) as the lead institution. With the scheduled end of the KSU/MIAC contract in September 1990, it was considered desirable to produce a Technical Summary of ATIP activities. This compilation is available in three parts. These are as follows:

- (a). Technical Summary of ATIP Activities, 1982-1990: Research Results [ATIP RP 5].
- (b). Technical Summary of ATIP activities, 1982-1990: Promising Guidelines [ATIP RP 6].
- (c). Technical Summary of ATIP activities, 1982-1990: Research Extension Liaison Office Achievements [ATIP RP 7].

This report is the one listed under (c) above.

It is anticipated that report (a) will be of most relevance to those interested in research, while report (b) will be more relevant to extension staff interested in undertaking widespread testing of promising technologies and approaches. Reports (c) will be of interest to those concerned about fostering linkages between research and extension by means of a Research Extension Liaison Office (RELO).

The staff of ATIP would like to express appreciation for the support over the years given by the leadership in the Ministry of Agriculture, by USAID personnel, by MIAC/Kansas State University staff and, above all, to the many farmers who have enthusiastically participated in the multiple trials, studies, surveys and training courses undertaken by ATIP, often in association with other agencies in the Ministry of Agriculture.

This particular report is published with the approval of the Director of the Department of Agricultural Research (DAR), Dr. L. Gakale. It has been reviewed by the Acting Chief Arable Research Officer, DAR, Mr. O. Mmolawa; Mr. K. K. Mmopi, Principal Agricultural Officer, Department of Crop Production and Forestry; Mr. G. P. Chilume, Coordinator of the Arable Lands Development Program (ALDEP); Mr. A. MacPherson, ALDEP; Dr. G. Heinrich, ATIP Francistown; and Mr. R. McColaugh, Agricultural Development Officer (ADO), USAID/B. The constructive comments of the reviewers are gratefully acknowledged. However, any problems with the contents of the report remain the responsibility of the authors.

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RESEARCH EXTENSION LIAISON OFFICE ACHIEVEMENTS

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

The Research Extension Liaison Office (RELO)¹ activities commenced at the initiation of the ATIP project in August 1982. The stated purpose of ATIP was to improve and expand the capacity of the Ministry of Agriculture's (MOA) research and extension programmes to develop and effectively extend farming systems' recommendations relevant to the needs of resource poor farmers. The project paper indicated that the project was essentially institution-building in nature, requiring a long-term commitment in participant training and technical assistance. As a result of these efforts, it was hoped that a catalytic role could be played in institutionalizing farming systems' research activities in Botswana, and in helping research to respond to the needs of limited resource farmers.

To fulfill this purpose, two farming systems' teams were established -- one at Mahalapye and one in Francistown. At the same time a Research-Extension Liaison Office (RELO) was set up with the individual posted to the Crop Production Division in the Department of Agricultural Field Services (DAFS)² at MOA headquarters in Gaborone. The ATIP Team Leader was posted to the Department of Agricultural Research (DAR) headquarters at Sebele.

The RELO post was designed to facilitate linkages not only between research and extension staff, but also with farmers, mainly in field level activities in conjunction with extension -- that is, usually Subject Matter Specialists (SMSs) -- and farming systems team staff in the regions. Improving communication, joint activities and transfer of information between the different groups were considered to be major responsibilities of the RELO.

A RELO position was funded under the ATIP/USAID contract³ until December 1989 when it was localised. During the period of ATIP, which is due to finish in September 1990, the staffing situation has been as shown in Table 1.

1.2 SUMMARY OF ACTIVITIES OF THE RELO

Activities of the RELO can be grouped into two major areas, summarized as follows:

-
- ¹. Sometimes the office has been known as the Research-Extension Coordinating Unit (RECU), while RELO has also often been used to mean the Research-Extension Liaison Officer.
 - ². More recently (1990) this has been split into two departments, Crop Production and Forestry, and Animal Health and Production.
 - ³. The contract was implemented by the Mid-America International Agricultural Consortium (MIAC) with Kansas State University as the lead institution.

- (a). Those involving linking research and extension in some way, at the national (headquarter) level, within the regions, and between headquarters and the regions.
- (b). Activities relating to the effectiveness of extension staff and the transfer of information to farmers.

TABLE 1: STAFF ASSOCIATED WITH THE RELO

SOURCE OF SUPPORT	NAME	--- DATES OF ASSOCIATION ---	
		START	END
USAID	A. Hobbs	August 1982	August 1985
	C. Trent	July 1985	November 1987
	B. Hill	November 1987	November 1989
GOB ^a	G. Moremedi	December 1982	July 1983
	G. Ramolemana	September 1983	August 1986
		July 1988	Present

a. The dates exclude the periods staff were on long-term training.

1.3 LAYOUT OF THE REPORT

The main body of the report is devoted to a discussion of the various activities under the general areas described above. Therefore Chapter 2 is devoted to research-extension linkage activities and Chapter 3 to issues relating to the efficiency and effectiveness of the extension service. Finally Chapter 4 deals with some of the problems and constraints that continue with reference to the effectiveness of the various activities and the RELO position, and examines possible strategies for overcoming some of the constraints that have been identified.

Only activities and issues relating to the RELO are discussed in this paper. Other staff associated with the ATIP project have been extensively involved in activities with extension staff, but are reported elsewhere.⁴

⁴. Examples have included Farmer Training Courses [Siebert et al., 1990], organizing competitions at Agricultural Shows [Modiakgotla et al., 1990], and organization of Farmer Field Days [Heinrich et al., 1990], and Extension-Oriented Farmer Groups [Heinrich et al., 1990].

CHAPTER 2: LINKAGE RELATED ACTIVITIES

2.1 INTRODUCTION

Table 2 summarizes the various activities undertaken by the RELO and the time frames within which they were implemented. As can be seen from Table 1, there have been some continuity problems in staffing the RELO office. Also differing needs and requirements necessitated a change in the emphasis put on different activities. Efforts have been made in the body of the report to explain why activities were instituted, and if terminated, why these ceased to be undertaken. An important point to note is that RELO activities have been largely confined to those relating to crops.⁵

One major support system initiated by the RELO was the purchase, by ATIP, for use by Agricultural Information Services,⁶ of a desk top publishing system plus related equipment for printing, stapling, trimming, etc. This system which has been fully operational for about two years has had a major impact on improving the level and timeliness of communication in MOA. Thus this should have a major beneficial impact on improving the degree and quality of the research-extension linkage activities. The publishing and printing press now not only produces the major extension publications -- *Agrinews* and *Agrifacts* -- but also many other types of papers and reports produced by agencies and individuals associated with the MOA.

To facilitate a structured discussion, RELO activities associated with linkages can be generally grouped into the following areas:

- (a). Membership of specific committees.
- (b). Facilitating specific research-extension meetings.
- (c). Other linkage activities.
- (d). Liaising between FSR teams.
- (e). Publications.

Activities in each of these areas are briefly discussed in the following sections.

2.2 COMMITTEE MEMBERSHIP

The RELO has, over the years, been represented on a number of committees including the following:

- (a). National:
 - i. Arable Research Priorities Committee (ARPC).
 - ii. Arable Agricultural Development Committee (AADC).

⁵. In the early days of ATIP an individual involved in similar activities on the livestock side was stationed in the Animal Production Division in DAFS. However, this position was discontinued later in the project period. At no time was it associated with the RELO or ATIP.

⁶. When DAFS was split into two departments, the Agricultural Information Service was moved under the office of the Deputy Permanent Secretary where it could more easily serve the needs of MOA as a whole.

TABLE 2: TIME FRAME OF RELO ACTIVITIES

TYPE OF ACTIVITY	MAJOR ACTIVITY	DETAILED ACTIVITIES	PERIOD WHEN UNDERTAKEN	
Linkage related activities	Committee membership	Arable Research Priorities and Agricultural Development	1982 to 1985	
		Forage and Fodder	1988 to 1990	
	Facilitating specific research-extension meetings	ALDEP Inter-Agency Coordinating Committee (AICC)	ALDEP Inter-Agency Coordinating Committee (AICC)	1983 to 1990
			National Training Committee (NTC)	1986 to 1988
		Soil and Water Management	Soil and Water Management	1988 to 1990
			Annual Crop Division Meetings	1982 to 1990
		Semi-Annual Crop Production Officer Meetings	1984 to 1987	
		Farmer Field Days	1983 to 1990	
		FSR Workshops	FSR Workshops	1983 to 1990
			Other linkage activities -- between headquarters and regions	Visits to RAOs and DAOs
		-- within regions	RAOs and Heads of Divisions Meetings	1982 to 1987
			Visits to AD District Monthly Management Meetings	1982 to 1990
	Feedback requests from field to headquarters		1982 to 1990	
	Liaison between the FSR teams	Southern Region Agricultural Committee	1984 to 1985	
		Help in research-extension linkage type activities of ATIP	1987 to 1990	
Publications	Arrangements and chairmanship of Gaborone meeting	Arrangements and chairmanship of Gaborone meeting	1983 to 1990	
		Soliciting and processing FSR articles and stories for Agrinews	1985 to 1988	
	Facilitating production of Agrifacts	1982 to 1990		
Extension related activities	Organizing production of The Link	Organizing production of The Link	1987	
		Encouraging production of Extension Leaflets, Circulars and Bulletins	1987	
	Surveys	Surveys of extension staff	1983, 1986, 1987	
		Direct training	1982 to 1987	
	Training	Training the Trainers Programme	1987	
		Organizing long-and short-term training	1982-1989	

- iii. ALDEP Inter-Agency Coordinating Committee (AICC).
 - iv. National Training Committee (NTC).
- (b). DAR:
- i. The Forage and Fodder Committee.
 - ii. The Soil and Water Management Group.

All of these committees have both research and extension representation and therefore there is an obvious role for the RELO to provide a linkage function. The ARPC and AADC -- which used to meet twice per year -- have not met for a number of years, thus there is currently no active membership. Both the committees in DAR, which developed more recently, are currently active. The Forage and Fodder Committee meets about twice a year, while the Soil and Water Management Group meets about once every two months.

2.3 FACILITATING SPECIFIC RESEARCH-EXTENSION MEETINGS

Activities where the RELO has made special efforts to encourage interaction between research and extension staff have included the following:

- (a). Extension staff have been encouraged to attend the Annual Crop Division Meeting of DAR. At this meeting the results of the previous year's research and plans for the next year are discussed and approved. Efforts to encourage participation by extension staff have continued throughout the period of ATIP's existence.
- (b). The RELO, over a two to three year period, organized semi-annual meetings of regional and headquarter-based Crop Production Officers, during which visits were made to trials and demonstrations, and presentations were given by the Botswana Agricultural College (BAC), planning and statistics, research and extension staff. These proved to be quite popular and helped to encourage dialogue between research and extension staff. It is unclear why these are no longer being held, but probably the drought, logistical difficulties, and scheduling difficulties have all been contributing factors.
- (c). The RELO has encouraged attendance by research and extension staff in Farmer Field Days and Workshops. For example, all of the regionally-based farming system research (FSR) teams⁷ have encouraged, in one form or another, the holding of Farmer Field Days, and have also hosted -- on a rotating basis -- Workshops during which research and extension personnel visit and discuss the field activities. There has in general been, especially in recent years, some success in these type of activities, although the success cannot be attributed to the efforts of the RELO alone.

2.4 OTHER LINKAGE ACTIVITIES

Other linkage activities with which the RELO has had some involvement can be grouped into two main areas:

- (a). Activities involving linkages between headquarters and regions have included the

⁷. These included the Agricultural Ngamiland Development Project (ANDP), Molapo Development Project (MDP), Farming Systems Southern Region (FSSR), and of course ATIP.

following:

- i. When possible, regular communication -- sometimes through visits -- to RAOs and DAOs, and attendance at RAO and Head of Division Meetings.
 - ii. On occasion attendance at selected AD District Monthly Management Meetings, particularly in the Francistown and Central Agricultural Regions where ATIP has operated. Because of the time consuming nature of such activities, it has not been possible to do this on a regular basis. Also it is doubtful whether it would be a very good use of the RELO's time to devote a great deal of time to such an activity.
 - iii. Occasionally feeding back from the field, requests for information and help to research and extension staff at national headquarters.
- (b). Activities within regions have been primarily supportive in nature involving responding to requests for help and/or participation. Examples have included the following:
- i. Being a member of the Southern Regional Agricultural Committee which brought together FSR and extension staff working in Southern Region.
 - ii. In the Mahalapye area, responding to requests for help in organizing Farmer Training Courses, row planting competitions at Agricultural Shows, meetings involved with bringing together regionally-based research and extension staff, etc., and attending Farmer Field Days.
 - iii. In the Francistown area, attending meetings of the Extension-Oriented Farmer Groups, Farmers Field Days, etc.

2.5 LIAISON BETWEEN THE FSR TEAMS

The RELO has played an important liaising function between the various FSR teams that were, until recently, not all located under one department.⁸ To encourage communication and cooperation between the teams, the following activities were organized with the help of the RELO:

- (a). Two meetings of all the FSR teams have been held per year almost throughout ATIP's existence. The first one has usually been held just before the DAR Annual Crop Division Meeting (see Section 2.3(a)) while the second one has been the Workshop (see Section 2.3(c)) held at a convenient time during the cropping season. The first one has been chaired by the RELO, who has also been responsible for soliciting agenda items and related presentations from the various interested parties. The second meeting, the Workshop, has primarily been organized by the host FSR team. However, the RELO has played an important role in both meetings in encouraging participation by individuals -- mainly extension -- from outside the FSR teams themselves. Some years there has been considerable success in encouraging such participation.

⁸. They are all now being located under DAR. MDP and FSSR were formerly under DAFS or more recently the Department of Crop Production and Forestry.

- (c). In order to publicize the activities of the various FSR teams, the RELO has solicited feature articles on specific activities (e.g., trials, studies, field days, farmer groups, etc.) which have appeared in *Agrinews*. In addition, for a two to three year period a special FSR page appeared in *Agrinews* which featured smaller news items about the activities of the various FSR teams. For a period there was considerable success in terms of obtaining material for *Agrinews* and with a monthly distribution list of about 5,800 there was a great deal of publicity about FSR activities. However, the contributions became dominated by those from the largest FSR team (i.e., ATIP) and efforts to get increased contributions from other FSR teams were largely unsuccessful. Possibly the only practical way of getting greater contributions under such circumstances would be for the writing of such items to be undertaken by the RELO or *Agrinews* staff themselves. This is probably not very realistic. An alternative is to have one person in an FSR team designated as being responsible for ensuring that such material is made available.⁹ ATIP has had some success in providing information because of a staff member who took particular interest in submitting material, and because staff from Agricultural Information Service -- the publisher of *Agrinews* -- were, on occasion, invited to visit specific ATIP activities.

In addition, when possible, the RELO has visited the FSR teams in the field in order to keep up-to-date with current activities.

2.6 PUBLICATIONS

The RELO has been involved with a number of publications produced by Agricultural Information Services^Z that were important in improving communication and the potential productivity of extension staff. Points with reference to specific ones are as follows:

- (a). ***Agrifacts***. Early in the ATIP project it was found that most ADs did not possess a set of *Agrifacts*, either in the form of the loose-leaf *Agricultural Extension Handbook* or the loose sheets. Also no stocks of *Agrifacts* were available for distribution within Agricultural Information Services. Therefore a new supply of *Agricultural Extension Handbook* binders was ordered and a list of the *Agrifacts* in crop production, that needed to be reprinted after possible revision, was drawn up.

Before re-printing, contacts were made with the appropriate research staff to determine whether modifications were necessary.

This exercise prompted a number of meetings between DAR and DAFS staff to agree on a procedure for getting *Agrifacts* prepared, approved, produced and distributed. The RELO was assigned a critical role in directing and expediting this process -- particularly with respect to those *Agrifacts* relating to crop production. At that time it was agreed that the RELO would:

- i. Solicit topics for new *Agrifacts* -- from research and extension staff.
- ii. Obtain approval from DAFS -- mainly Crop Production Officers (CPOs) -- and DAR staff, that the topic suggested was worthwhile and there was sufficient information on which to base an *Agrifact*.
- iii. Pass approved topic to DAR -- or other agency -- for preparation.
- iv. Receive two copies of edited manuscript from DAR, after they had been

⁹. Now all the FSR teams are under the umbrella of DAR it may be easier to designate one person in DAR itself to perform this role.

- approved.
- v. Pass one manuscript to the Senior Agricultural Officer (SAO), Agricultural Information Services.
 - vi. Receive three photocopies of the type-set manuscript from the SAO.
 - vii. Distribute photocopies to author(s) and to CPO(s).
 - viii. Proof read and note needed corrections.
 - ix. Collate comments of author and CPO together with own and correct photocopy.
 - x. Pass corrected photocopy to SAO.
 - xi. Receive supply of new **Agrifacts**.
 - xii. Distribute copies to Regional CPOs for onward transmission to ADs at district Monthly Management Meetings.

In general this procedure has been used in recent years although the initiative for topics and preparation of the **Agrifacts** has been mainly the preserve of research staff. Over the years a large number of **Agrifacts** have been reprinted, sometimes after revision, and several new ones produced.

- (b). **The Link**. In 1986 RELO and other staff in the Crop Production Division in DAFS felt that there was a need for a research newsletter. The idea was that the short articles in the newsletter would be mainly written by the CPOs, which, if necessary prior to publication would be approved by the appropriate researcher. The idea was to encourage technical writing by the CPOs and force communication between extension and research staff. Unfortunately only two or three issues of the newsletter, named **The Link** appeared. The major reasons for it not continuing were the lack of individuals prepared to spontaneously contribute articles, and the time involved by the RELO in soliciting, preparing and editing the newsletter.¹⁰
- (c). **Extension Leaflets, Circulars And Bulletins**. In an effort to disseminate more agricultural information to staff in the field, the RELO has worked closely with Crop Production staff to prepare extension leaflets, circulars and bulletins. Some have been produced and authored by staff in their areas of specialty. This exercise which received quite a lot of emphasis in 1986-87 needs continued emphasis if the early momentum is to be re-established.

¹⁰. One of the reviewers strongly recommended that **The Link** should be revived and should contain information from both the Divisions of Crop Production and Plant Protection. Help in preparing and editing **The Link** could be provided by Agricultural Information Services, while an interview to inform the proposed audience about its purpose and production could held via the Farm Broadcasting Section.

CHAPTER 3: EXTENSION RELATED ACTIVITIES

3.1 INTRODUCTION

RELO activities relating to the strategy of improving the activities of the field level extension staff -- primarily ADs -- have been concentrated in two primary areas. These are:

- (a). Surveys designed to ascertain problems constraining the effectiveness of extension staff, to aid in developing strategies that will result in improved effectiveness.
- (b). Training programmes that improved the level of competency of extension, in transferring information to farmers.

These two major groups of activities are briefly discussed in the following sections.

3.2 SURVEY ACTIVITIES

Surveys (Table 3) undertaken by the RELO, or in close association with the RELO have related to the examination of the:

- (a). Activities and perceptions of extension staff.
- (b). Attitudes and competencies of extension staff.

TABLE 3. SURVEYS RELATING TO EXTENSION ACTIVITIES

MAJOR FOCUS	MORE DETAILS OF SURVEY	YEAR*	AREA	SAMPLE	ATTP PAPERS
Extension staff	Factors influencing extension efficiency and crop production improvement	1983	National	213 staff	WP 1
	Subject matter competencies	1986	National	131 staff	WP 6
ADs	Activities, assessment, performance and linkages	1983	Central	52 ADs	WP 14
	Attitude towards jobs	1987	National	135 ADs	WP 23

- a. The year listed is the beginning of the cropping year in question. For example, 1984 refers to the 1984-85 cropping season, and 1984-5 refers to both the 1984-85 and 1985-86 cropping seasons.
- b. Refers to the number of officers sampled.

3.2.1 *Activities And Perceptions*

A 1983 survey of the ADs in the Central Agricultural Region [Baker, 1988] indicated that 92 percent were male, and that extension areas encompassed two or more villages with more than 400 families. Lands areas were, on average, between six and 24 kilometers from the village where the ADs were stationed. In spite of the relatively favourable farmer to the AD ratio, the farmer and extension contact often appeared to be relatively low. Factors such as the distances involved, problems of transport, and activities that competed for time with extension, for example processing applications for farmers to participate in governmental programmes like, ALDEP, Drought Relief, NBA, etc.¹¹ were cited as reasons for the low level of contact. As a result, the 1983 survey indicated that, on average in the extension

¹¹. This survey was undertaken prior to 1985 when ARAP commenced.

areas in the Central Agricultural Region, only 20 percent of the farming families were contacted, and then only once a season. Also only one in 15 farming families was contacted even once per week, and these farmers were often the same week after week. The characteristics of the farmers contacted regularly appeared to indicate they were the more progressive farmers.

In terms of perceptions, the ADs in the 1983 survey indicated resource constraints and a lack of knowledge were the main reasons farmers did not make changes. In terms of the 10 different specific technologies the ADs were questioned about, lack of a proven benefit, or other technical issues, were only cited as major problems inhibiting adoption in the case of fertilizer use, better weed control, and early planting.¹²

Partially as a result of these and other findings, particularly with reference to the need for increasing the effectiveness of the ADs, to ensure that they worked with more farmers, and to help overcome the farmers' lack of knowledge problem, ATIP has been instrumental in developing Extension-Oriented Farmer Groups as a way of addressing these and other issues.

The potential value of these groups was substantiated in other findings in the 1983 survey about the ADs' perceptions of farmers' attitudes to change. Most ADs ranked highest the statement "most farmers want to change and know of changes but lack resources." "Lack of knowledge" of changes received the second ranking, and "lack of interest" in changing received the lowest ranking.

3.2.2 Attitudes And Competencies

In 1985, a nationwide survey, was undertaken involving mainly extension staff [Ramolemana and Hobbs, 1985]¹³ to elicit their perceptions of factors influencing extension efficiency and prospects for improved crop production. Forty-two factors were ranked. The most important factors, in order, were found to be:

- (a). Improved housing for the ADs.
- (b). A system for performance evaluation and promotion procedures.
- (c). Ensured seed supplies.
- (d). Access to motorized transport.
- (e). Increased opportunities for in-service training.
- (f). Increasing the proportion of practical training in extension methods at the Botswana Agricultural College (BAC).
- (g). Organizing specific courses at BAC on identifying farmers' problems.

Therefore it appeared from the survey that, as far as the ADs were concerned, factors relating to their conditions of service plus their articulated needs for further training, including that relating to the extension/farmer interface, appeared to them to be of more significance in constraining their effectiveness than other factors related to improving crop production, such as those pertaining to input availability, draught power, special campaigns,

¹². Other technologies asked about were row planting, fencing, winter or spring plowing, use of certified seed, use of crop rotations, and destumping

¹³. Of the 215 respondents, about 60 percent were ADs, 29 were other extension staff, and 11 percent were research staff.

research activities and research/extension communication.¹⁴

Another nationwide survey, this time confined to ADs and their supervisors, was undertaken in 1986 to evaluate the competency of the ADs in 102 subjects, grouped into 13 selected subject areas [Trent, Styles and Ramolemana, 1986]. The results indicated that the lowest perceived competencies were for farm management, inquiry methods, farm mechanization and administration. The highest areas of competency were for MOA schemes, arable crop production, and group work. With the exception of group work and work with the 4-B organization, there was a high level of agreement between the ADs and their supervisors on the competency rank order of sub-areas within the 13 subject areas. Finally, there were few differences in rank order competencies by sex, age or length of time on the job.

The survey, just discussed, was commissioned by the National Training Committee in DAFS to help identify the needs of the in-service training courses for ADs which were then started in 1987. At the first session of this programme another survey was completed by the 135 ADs from all over the country [Styles and Trent, 1989]. This survey sought to determine the attitudes of the ADs toward their jobs. Some major findings of the survey were:

- (a). In general, the ADs were not very satisfied with their jobs, in spite of finding the work relatively exciting. Male ADs and older ADs felt slightly more positive about their jobs than female ADs and younger ADs. In terms of length of service, those of four to 11 years were the least positive about their jobs. This is a matter of concern since over 50 percent of the ADs sampled were in this group.
- (b). Correlation analysis showed a slight positive relationship between job attitude and age, indicating that job attitude tended to improve with age. There was little correlation between job attitude and sex, years in professional agriculture, and years in present position.

It was hoped that another similar survey undertaken after three years of in-service training courses, would help in creating more positive attitudes on the part of ADs concerning their jobs.

3.2.3 Recommendations

There is nothing new about the following recommendations, derived from the results of the surveys. What the results of the surveys did was to confirm concerns that had often been expressed, and to support recommendations that had often been made. Important points that need to be considered are:

- (a). The proportion of female ADs needs to be increased to ensure that the needs of the many female-headed households are addressed, a trend that has in fact developed since the time of the survey.
- (b). There is a continuing need to improve the conditions of service (e.g., housing, transportation, performance evaluation criteria, and promotional opportunities) of field level extension staff.

¹⁴. It is interesting to note that the relative rankings of the different choices showed a perceptual gap between the few researchers in the survey and the ADs. Not surprisingly perhaps, the researchers tended to emphasize factors influencing the substance of the message being delivered, rather than the conditions of service and training.

- (c). Training, including in-service, needs to be continued for field level extension staff.¹⁵
- (d). There is need to expand the use of Extension-Oriented Farmer Groups, as is currently planned in Phase II of the ALDEP programme.

These recommendations, if implemented, should go a long way in helping to improve the morale and effectiveness of field level extension staff. Unfortunately, these would require a substantial commitment of resources on the part of GOB.

3.3 TRAINING ACTIVITIES¹⁶

3.3.1 *General In-Service Training*

Over the period of the ATIP project there have been a number of changes in the way that in-service training programmes for extension staff have been viewed and implemented. A brief summary is as follows:

- (a). Near the beginning of the ATIP project, an **In-Service Training Coordinating Committee** was set up in DAFS under the chairmanship of the Deputy Director. The RELO was a member of this committee. RELO and other senior extension and later research staff helped in giving refresher training courses to field level extension staff.
- (b). With the appointment of ALDEP Regional Managers in late 1983, increased concentration was placed on instruction relating to the packages available through the ALDEP programme. Non-extension staff provided a major source of instruction for the non-ALDEP package elements of the course. Consequently questions were being raised as to the sustainability of such an approach on a nationwide basis.
- (c). Because there was continuing conviction within the **In-Service Training Committee** that the need for in-service was very great indeed, that the current training effort tended to be sporadic and limited in scope, and that crop research officers could not assume major responsibilities for teaching extension staff, a consultant was hired through ATIP to look at the whole issue [Johnson, 1984].
- (d). As a result of the consultancy and resulting discussions in DAFS, the following actions were undertaken:
 - i. A National Training Committee was set up in December 1985 with nine members drawn from various divisions of DAFS and BAC. The RELO acted as secretary. The purposes and functions of the committee were to advise the Deputy Director of DAFS on training needs of DAFS staff, and to develop and implement training programmes to meet those needs.
 - ii. One of the sources used by the National Training Committee to identify

¹⁵. Unfortunately, the programme started in July 1987 was not sustained and ceased operation in 1988.

¹⁶. Short and long-term training activities that were linked in some way with ATIP are not discussed in this paper. For a discussion of these, see ATIP [1990].

training needs, as seen by extension staff themselves, were the results of the surveys discussed in the preceding section (see Section 3.2).

- iii. The implementation of the training programme was fundamentally different from the one undertaken earlier. To improve the multiplier effect of the limited time of resource personnel -- for example, crop research officers -- they were asked to prepare resource materials and train-the-trainers, that is the regional extension Crop Production Officers (CPOs), who in turn would be responsible for training extension staff in their regions.
- (e). In order to help the DAFS Training Officer get the programme going, the RELO and an ATIP funded short-term consultant¹⁷ spent a great deal of time in 1987 working with about 60 professional staff on preparing and implementing training programmes for the trainers.
- (f). In late 1987 the programme was handed over completely to the Training Officer in DAFS. Unfortunately the original momentum has not been maintained and as a result the National Training Committee does not currently appear to be effective.

3.3.2 Specific In-Service Training

Because of availability of donor funds it has been possible, during ATIP, for the RELO to organize special types of in-service training -- when specific requests have been forthcoming. Two examples were as follows:

- (a). **On-Farm Grain Storage.** In 1983 a Post-Harvest Crop Production Officer was appointed in DAFS to help provide ADs with the best knowledge available about on-farm grain storage. Therefore two consultants¹⁸ from the Food and Feed Grain Institute at Kansas State University provided a two week course at BAC for regional Crop Production Officers, warehousemen from BAMB and individuals from the World Food Programme.
- (b). **Technical Writing.** In order to help professional staff improve their technical writing skills, two consultants came on two different occasions to work with staff from both DAR and DAFS. Substantial quantities of resource materials were provided and handed out [Esslinger and Brandsberg, 1988].

In addition, the RELO staff were often asked to give talks on specific topics to DAOs, graduating extension staff, and at District Monthly Management Meetings.

¹⁷. D. Styles who had just completed a teaching contract at BAC.

¹⁸. Ms. R. Burroughs and Dr. V. Wright.

CHAPTER 4: ISSUES FOR THE FUTURE

4.1 ISSUES

To date, as can be deduced from the previous two chapters, the RELO has only achieved limited success. Probably this has been partly due to the following facts:

- (a). That it was a new post initiated at the beginning of ATIP.
- (b). No "Government of Botswana" job description was drawn up for the post until 1988 with the return of the present staff member from overseas training.
- (c). There was poor continuity in terms of both technical assistance and Botswana staff.

Consequently, partly as a result of the above and the experiences with the RELO position, a number of issues have arisen which need resolution if the RELO is to have a more secure and productive future. Three of these are as follows:

- (a). **Location of the RELO.** The current location of the RELO in the Crop Division has two obvious problems:
 - i. It has only responsibility for crops while a similar function needs to be played with respect to livestock. With the recent split of the extension work into two departments, prospects for this become even more doubtful.
 - ii. In principle it is difficult for the RELO to play a "coordinating" role between research and extension when it is located within a division of one of the two departments responsible for these activities.¹⁹

The issue is therefore, whether there is a better place for locating the RELO.

- (b). **Job Description.** The job description that was developed for the RELO in 1988 is given in the Appendix. At this stage the description probably needs to be improved upon, and will have to be changed if the RELO is physically re-located. As can be seen in Chapters 3 and 4 many different activities have been undertaken by the RELO to date. The issue is whether all these activities are best carried out by the RELO or if there is a need to be more selective, in order to be efficient and productive. Another issue is whether more needs to be done to improve linkages of the RELO to farmers.
- (c). **Authority.** To date, the RELO appears to have had responsibility with little authority. The issue is whether more authority could be given to the RELO position in order to make it more effective. One of the factors determining the degree of authority is the rank, qualifications and experience of the RELO.

¹⁹. Both departments work directly with farmers and therefore, as far as farmers are concerned, the departmental location of the RELO is perhaps not perhaps not so critical, although extension staff do have more widespread and sustained contact with farmers.

4.2 SUGGESTIONS FOR THE FUTURE

For the last two years there has been considerable uncertainty about the future of the RELO. A number of issues still have to be resolved if the RELO is to be established as useful and productive. We feel the critical issues to resolve are those delineated above (see Section 4.1). The following suggestions represent our own thoughts, and do not necessarily represent the official views of the MOA.

(a). ***Location of the RELO.*** Two alternatives have recently been suggested for the location of the RELO. These are:

- i. The Agricultural Sector Assessment Study [Edwards, Amani, Frankenberger and Jansen, 1989, p. 180] recommended that the RELO be re-located under the office of the Deputy Permanent Secretary of Agriculture.
- ii. A more recent review of DAR²⁰ has recommended that the RELO be established in DAR.

In spite of the fact that the RELO would still be located in one of the two -- now three -- main departments, we recommend that the RELO be placed under the umbrella of DAR. Reasons for this are threefold:

- i. It would be relatively easy to bring research-extension activities for crops and livestock together under the research-extension liaison office since research activities for both -- unlike extension activities -- are undertaken in one department.
- ii. The FSR teams are now under the auspices of DAR and would benefit greatly from having a RELO -- whose primary responsibility is to encourage better research-extension linkages -- in the same department.
- iii. The need for a RELO in DAR has been appreciated by staff for some time, and the department is small enough that the RELO could potentially play an important role in furthering links between research and extension staff.

(b). ***Job Description.*** If the recommendation given above is accepted, then the job description (Appendix) will need to be rewritten. Before doing so careful thought needs to be given to what the functions of the RELO should be, differentiating what should be its primary and secondary (supportive) catalytic roles. In principle the following appear to be important:

- i. Both crop and livestock activities should come under the RELO office. In practice this would probably require a minimum of two staff.
- ii. Strategies designed to improve the role of the RELO in transferring information to farmers need to be delineated. Given the location of the RELO in Sebele/Gaborone, this can potentially best be achieved by working with and through staff based in the regions -- such as SMSs (extension) and possibly FSR (research) staff.

²⁰. This was recommended by a review panel provided by International Service for National Agricultural Research (ISNAR).

iii. Primary catalytic roles could be played in the following areas:

- Furthering research-extension linkages at the national level.
- Furthering linkages between the national level and the regional level in both research and extension.

In practice this would mean participating in the appropriate committees, ensuring publication of appropriate materials (e.g., **Agrifacts**, extension bulletins, relevant articles in **Agrinews**, etc.) that foster the research-extension linkages, visits to regionally-based extension staff and FSR teams, etc.

iv. A secondary (supportive) catalytic role could be played in fostering research-extension linkages²¹ within the regions.

In practice this could mean joining regionally-based groups designed to bring together research and extension staff in the areas, to help in the planning and organizing of joint activities (e.g., Farmer Training Courses, Farmer Field Days, etc.).

iv. If the RELO is transferred to DAR, it would be highly desirable for the new job description developed by DAR to be reviewed by the Departments of Crop Production and Forestry, and Animal Health and Production. This is desirable of the close working relationships would be expected to establish with those departments.

(c). **Authority.** Some degree of authority is required to ensure that the responsibilities of the RELO position can be fulfilled. We believe that to provide this authority three areas need to be considered:

- i. All concerned parties must agree to the channels of communication and approval systems that must be used particularly with respect to contacts outside the department.
- ii. Day-to-day functions of the RELO need to be considered very carefully, and sufficient authority must be invested in the position(s) so that the designated responsibilities can be fulfilled. The current move towards greater formalization of research-extension linkages could partly help in this exercise.
- iii. Rank, qualifications and experience of the RELO will be critically important in determining the degree of respect they enjoy, and hence the level of authority they are likely to have. Although there is a general consensus with respect to this observation, there is often a divergence between perceptions of what is practically feasible and what is desirable. Practically it is likely that the RELO is likely to be at the Senior Agricultural Officer (D4 salary scale), although some of the reviewers argued strongly in favor of the RELO being at the Principal Agricultural Officer rank (D3 salary scale).²²

²¹. Currently, these are primarily with FSR staff but with planned decentralization of some station-based researchers, the number of researchers is likely to increase.

²². This evaluation was based on looking at the ranks of equivalent positions in the Department of Crop Production and Forestry.

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APPENDIX: CURRENT JOB DESCRIPTION OF RELO

With the localisation of the RELO position, a detailed job description was drawn up which limited the position to crop production. A detailed structure of how the position would mesh into the DAFS organisational structure was not provided. The job description presented below is a summary of the one submitted to the Civil Service, in 1988.

The main purpose of the RELO position is to facilitate two-way communication between extension and research officers, so as to ensure that farmers' problems are brought to the attention of research workers, and that research results are interpreted and developed into appropriate techniques and packages for farmer use.

The duties specified in the job description include the following:

- (a). To visit regional staff, on a regular basis, to collect information on problems of crop production. Based on these data, solutions may be worked out by research and crop production extension officers, and conveyed to the field staff for use by the farmers.
- (b). To conduct regular visits to DAR (at Sebele and research stations in the field) to inform them of any crop production problems noted by extension workers. The officer will also be involved in the discussion of these problems with DAR staff, will play a role in helping to resolve the situations, and to disseminate such information to extension staff who in turn pass it onto the farming communities. Additionally, this officer will be expected to keep abreast of current research which may be relevant in solving on-going problems.
- (c). Another responsibility is to ensure that appropriate technology, resulting from field trials and demonstrations, is made available to the extension agents, and is disseminated to the farmers in order to improve their crop production.
- (d). Evaluations of the skills and knowledge of the extension staff will also be the responsibility of the RELO. Based on discussions, and observations of field work, the officer will note the relative strengths (knowledge) and weakness of the extension staff in the areas of crop production techniques and extension methodology. Areas of weakness will be brought to the attention of the research specialists (e.g., entomologist, agronomist, etc.) and the DAFS Training Officer, so that the extension staff can be assisted in those areas that need strengthening (e.g. in-service training or further training).
- (e). The RELO will attend, as a committee member:
 - i. Meetings of the Arable Research Development Committee, to ensure that the activities of the crop research officers are directed at solving crucial crop production problems that farmers have pointed out to extension workers; and
 - ii. Meetings of the Arable Agricultural Development Committee in order to point out to policy makers, policies that need to be developed to overcome problems encountered by farmers, and to support the new technological options developed by DAR.
- (f). Based on discussions and visits to the regionally-based crop production officers, the

RELO will monitor crop production programmes in the field. Additionally, this officer will provide the necessary technical and material support to these officers so that they can carry out their duties effectively.

- (g). The RELO will liaise with other Ministry of Agriculture sections, such as Agricultural Information, in order to produce crop production posters and pamphlets for distribution to the extension staff, specialists and farmers. Additionally, this officer will review the **Agrifacts'** publication on crop production; will assist in improving the publications, and ensure that they are widely distributed.
- (h). The annual work plan for the RELO will be prepared and submitted to the Chief Crop Production Officer (CCPO) for approval. Similarly, an annual report will be prepared and submitted to the CCPO so as to assess deficiencies and progress.
- (i). Data, derived from field demonstrations, will be collected on production and cultural practices. These data will be useful in providing feedback to the station researchers, may aid in the development of technological innovations, and will provide information for evaluations. That is, the RELO will help to identify those areas that need improvement or modification. This officer will work with researchers to rank the recommendations according to their performance (production increment) when applied alone or as a package. This will allow extension workers some flexibility in advising farmers (sequential or step-by-step introduction) about the recommendations/available technology.
- (j). The RELO will liaise with other Ministries, parastatal organisations and private business to develop and produce relevant agricultural inputs.
- (k). The RELO will work with extension and research officers to collect data on production, fertilization practices, and other cultural practices from commercial farms (e.g., Pandamatenga farms) so as to be able to advise them on economic, agronomic, and environmental issues/problems.
- (l). Lastly, this officer will undertake any other related duties to meet the exigencies of the service.