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SUSTAINABLE IRRIGATION FARMING: THE ROLE EXTENSION OFFICERS TO SMALLHOLDERS IN SOUTHERN DISTRICTS OF LESOTHO

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Abstract
Water resources could be used to improve the lives of Lesotho's citizens. However, the country is currently experiencing food shortages due to severe droughts. This paper aims to explore the role of extension support in developing sustainable irrigation farming in Lesotho. A survey was carried out among irrigation farmers and extension officers in four districts of Lesotho. A structural questionnaire was administered amongst 153 irrigation farmers and 31 extension officers randomly. The results revealed that 70% of irrigation farmers did not consider extension as important for their management decisions. Although extension workers are highly skilled, they are not qualified to provide irrigation management support. This is a critical component of sustainable irrigation farming. The findings indicate that more political and institutional involvement in irrigation farming should be considered in order to improve the performance of the sector.

Key words: extension support, smallholder irrigation, training, competencies

Introduction

Knowledge is an important component of sustainable agriculture. Knowledge is information that has been organized and evaluated by humans, and it influences their actions and attitudes. Ehrlich, Wolff, Daily, Hughes, Daily, Dalton & Lawrence (1999) define knowledge as accurate information that has been organised and evaluated by human mind and that has shaped actions, beliefs, attitudes and institutions or mental states.

It is the responsibility of extension organizations to have the right people in place to handle the various aspects of agriculture development. The role of extension in the agricultural knowledge information systems is also related to the transfer of technical knowledge and skills. This includes the transfer of knowledge and skills, as well as the establishment of effective and efficient systems for monitoring and analyzing agricultural activities (World Bank, 2006).

Extension services are also important components of the development of sustainable agriculture. They play a vital role in sustaining farmers as they must adapt to the changes brought about by the environment. To gain the trust of the clients, extension personnel should have a defined body of knowledge and skills. This should include a variety of technical and extension skills (Stevens, 2006). The paper presents the role of extension in the support of smallholder irrigation farmers in Lesotho. It focuses on the perceptions of the farmers and the extension staff about the services they provide.

Research Methodology

The study focused on the four major irrigation schemes in Lesotho, namely the Maseru, Mafeteng, Quthing, and Mohaleshoek. The irrigation scheme are situated in four major regions of the country. The study focused on the characteristics and operations of the four irrigation schemes in Lesotho. Through a random sampling, 153 smallholder irrigation farmers were identified. Most of the farmers are males, and most of them mainly farm for food security reasons. The data was collected through a structured questionnaire and interviews with key informants. A separate structured questionnaire was also used to interview extension staff members. The objective of the study was to determine the knowledge and skills of the farmers and extension personnel regarding irrigation management. The data collected were then analyzed using the SAS version 8.2.

Findings and Discussion

The study focused on the perceptions of small irrigation farmers regarding the abilities of extension staff members. The second part of the study explores the perceptions of the staff members regarding their abilities to serve the small irrigation farmers in Lesotho.

Competence and knowledge of extension staff

Irrigation has a significant role in the production of food. It not only raises the productivity of specific crops, it also prolongs the effective season through the multiple cropping. However, irrigation alone is not enough to increase the production. Other inputs such as disease control, fertilizer management, and improved varieties are also needed to sustain the production.

The role of extension in the development of smallholder irrigation is evidenced by the increasing number of farmer groups in Lesotho. This is because the knowledge and skills of extensionists are acknowledged by the farming communities in the country. This is of critical importance to ensure that the knowledge and skills of extensionists are acknowledged by the farming communities.

Technical knowledge and competence

Smallholders were asked to indicate on a scale of importance the various technical aspects that they consider important to the extension of their farming operations.

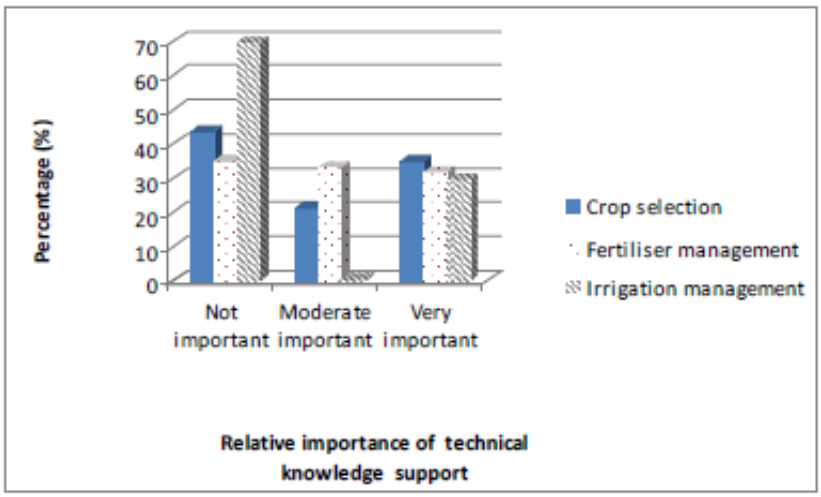

Figure 1: Technical and extension knowledge of extension staff as perceived by smallholder irrigation farmers (N=153)

Figure 1 shows that many smallholders in Lesotho do not consider the technical knowledge of extension workers as important to their decisions on the farm. They only consider the expertise of the extension workers to be of use to them. They often seek advice from their fellow farmers in the Country when it comes to choosing the appropriate crops and fertilizer management.

When asked about their irrigation management decisions, 53% of the respondents stated that they get irrigation advice from fellow farmers, while 34% of them stated that they buy irrigation equipment from private companies. Only 2% of farmers indicated that they receive technical support from extensionists, which correspond with findings by Dűvel and Williams (2005).

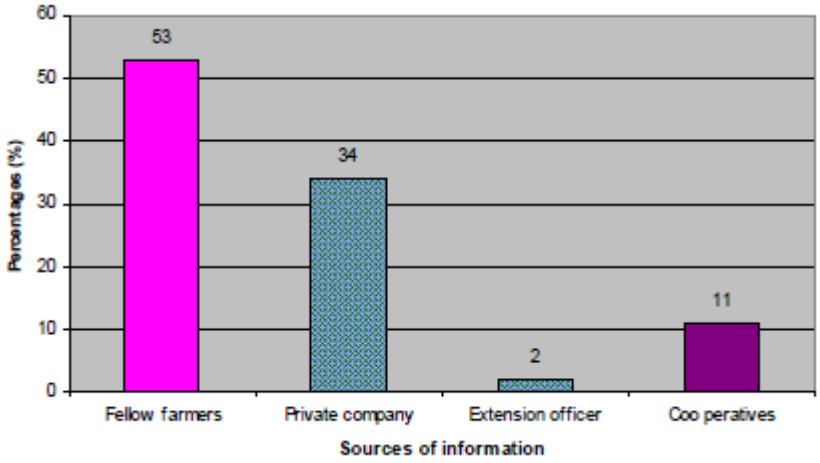

Figure 2: Frequency distribution of information sources used for irrigation farming by smallholder irrigation farmers (N=153)

The findings of this study indicate that the technical expertise of extension staff members in irrigation areas is perceived as inadequate.

Contact between smallholders and extension

Table 1 illustrates that 89.7% of farmers indicated that they meet once a year with extensionists. This suggests that they are not only concerned with the development of their farms, but also with the transfer of technology. Once every year, national agricultural shows are held, and these shows are attended by extension officers. This suggests that regular contact between the two parties is needed to ensure the effective transfer of technology.

Table 1: Frequency of contact (N=134)

DISTRICTS	Once a fortnight		Once a month		Twice a month		Once a year		*Ad hoc*		Total	
	n	%	n	%	n	%	n	%	n	%	N	%
MASERU	3	8.33	1	2.77	3	8.33	26	72.22	3	8.33	36	25
MAFETENG	0	0	0	0	0	0	34	97.14	1	2.85	35	24
MOHALES HOEK	0	0	0	0	1	2.70	36	97.29	0	0	37	25
QUTHING	2	5.26	0	0	1	2.63	35	92.10	0	0	38	26
TOTAL	**5**	**3.42**	**1**	**0.68**	**5**	**3.42**	**131**	**89.7**	**4**	**2.74**	**146**	**100**

Role of extension in the formation of farmer groups

A farmer group is an appropriate way for farmers to learn and distribute new ideas. Kelley (1995) and Black (2000) suggest that group activities help farmers develop and implement action plans. One of the goals of sustainable farming is to improve the flow of ideas and information among farmers (Colliver, 2001). This can be done through the formation of farmer groups. Stevens (2006) notes that farmer groups have proven to be an effective way of sharing information and knowledge between farmers. 93% of the farmers indicate that they do not belong to any farmers associations or groups (Table 2).

Table 2: Frequency distribution of respondents belonging to farmer associations (N=134)

DISTRICTS	Member of a farmer group		Not a member of a farmer group		Total	
	n	%	n	%	N	%
MASERU	4	13.79	25	86.20	29	21.64
MAFETENG	0	0	33	100.00	33	24.63
MOHALE'SHOEK	5	15.15	28	84.85	33	24.63
QUTHING	1	2.56	38	97.44	39	29.10
TOTAL	10	7.46	124	92.54	134	100

Most respondents indicate that extensionists do not encourage them to form farmer groups. Also, they perceive them as having inadequate knowledge regarding this subject.

Table 3: Perceived knowledge of extension officer in forming farmer groups (N=142)

DISTRICTS	Poor		Moderate		Good		Total	
	n	%	n	%	n	%	N	%
MASERU	19	63.33	8	26.67	3	10.00	30	21.13
MAFETENG	36	100.00	0	0	0	0	36	25.35
MOHALESHOEK	33	86.84	2	5.26	3	7.89	38	26.76
QUTHING	34	89.47	3	7.89	1	2.63	38	26.76
TOTAL	122	85.92	13	9.15	7	4.93	142	100

The findings also reveal that most extensionists have little or no experience in the field of agriculture extension, Since only 6% of the extensionists have acquired training in agricultural extension. This suggests that they are not prepared to play key roles in the organization and management of farmer groups.

Perceived constraints that impact on extension delivery

Most extensionists are not able to provide adequate technical assistance to farmers in various aspects of their farming operations. This is a common complaint among farmers. 60% of farmers complained that most extensionists are not able to help them with technical aspects such as measuring of the fields and minor irrigation advice on irrigation equipment.

According to the respondents, they are not able to effectively implement irrigation management systems mainly due to the political influence of the Ministry of Agriculture. 30% of the respondents indicate that irrigation engineers are not available to assist them with irrigation planning and design.

They also noted that the lack of coordination between extension and the farming community is very poor. Farmers complained that in general poor linkages existing between extension, research and the farmers (22%) and as such, coordination is very poor. They also stated that some extensionists are not very cooperative when it comes to addressing issues related to irrigation management.

Table 4: Perceived constraints that impact on extension delivery as perceived by smallholders (N=153)

Limitations observed in extension service delivering	**Percentages (%)**
Incompetence (technical knowledge)	60
No irrigation engineers available	30
Poor linkages between research and extension	22

Office oriented/lack of practical experience	18
Poor training through institutions (colleges)	6
No evaluation of work	5
No follow-up from superior	2
Negative attitude towards irrigation management	2

Perceived competence and ability to serve smallholders as reflected by extension staff

The performance of extension workers in an organization is influenced by various factors such as their abilities and competence, as well as their level of motivation and role perceptions.

Profile of the extension worker

According to Marom and Blustein (1978), personality traits can help improve the effectiveness of extension workers. These include the ability to handle unexpected situations and develop an interest in learning.

Although many individuals are well trained in agriculture and engineering, many of them do not have the necessary knowledge and skills in extension and crop production. Extension workers are well trained in general agricultural (41%) and engineering (16%), with the minority any qualifications in extension (6%) and crop production (16%). Even though they have a well-

rounded education, many of them are not qualified to handle the various tasks and responsibilities of agriculture.

This is mainly due to the lack of training they received before they joined the extension service. Aside from not being able to reflect on the various aspects of an extension program, they also did not know about the Unified Extension System (UES) or the Client Demand System.

The findings of this study reinforce the notion that many extensionists do not want to participate in the development of programs and systems proposed by the UES, but rather stick to the ad hoc and piecemeal extension approach they have used traditionally.

Perceived constraints that impact on effective extension delivery

According to extension workers, the lack of proper facilities and infrastructure is their main impediment to achieving efficient extension delivery. 78% of extension workers indicate that the main constraint that hinders them from efficient extension delivery is the lack of infrastructure and facilities.

The lack of in-service training is regarded as a major obstacle to the training of extension workers, which is required to enable them to effectively deliver services to irrigation farmers. In-service training should ensure that learning experiences help extension workers to acquire a proper understanding of the job and the skills to operate satisfactorily.

In-Service program aims to strengthen the skills of extension workers so they can provide better and more efficient services to the farming community. Since there is no in-service training program

for extension workers in terms of irrigation management, most of them consider themselves as not competent enough to provide these services.

The skills and expertise of extension workers are not enough to provide effective advice to small irrigation farmers. This, combined with the low morale of the workers, makes them ineligible to fulfill the Ministry of Agriculture's objectives.

Differential perceptions regarding the efficiency of extension delivery

Most of the farmers surveyed stated that extensionists do not support them with their decisions. The other respondents indicated that they are doing a good job in this regard. Table 5 illustrates the perception of extension staff using a three point semantic scale

Table 5: Perceived satisfaction regarding technical subject matter support provided (N=31)

Subject Matter	Poor	Moderate	Good
Fertilizer management	10.0	16.7	73.3
Crop management	29.1	0	70.9
Weed management	19.4	0	80.6
Interpretation of agro climatology data	77.4	0	22.6
Irrigation management	80.5	9.7	9.8

The majority of extensionists (68%) believe they are adequately equipped regarding their knowledge and skills in agricultural extension.

Perceived challenges for irrigation management

The extension staff rates the general performance of smallholder farmers as poor, with many of them citing major constraints such as access to financial support and an inappropriate land tenure. The extension staff rate the general irrigation performance of smallholder irrigation farmers as poor with major constraints perceived as access to the financial support (50%) and an inappropriate land tenure system (28%).

According to extension staff, many of the country's smallholders are also dependent on government support and donor subsidies. This contributes to the poor performance of many of them. These constraints, together with the fact that only 5% farmers and 3% extensionists received any training in aspects of irrigation management contribute to a situation where many smallholders are producing far below the potential of the respective irrigation areas in Lesotho.

Conclusions and Recommendations

It is highly questionable that extensionists can provide credible and competent guidance to farmers in various aspects of farming. There is a need for stronger linkages between extension and research institutions in order to improve the efficiency and effectiveness of their work. Effective training of extensionists and farmers is the top priority to improve their performance in Lesotho. This is because the majority of them do not receive training. Aside from having the necessary knowledge about plants, extensionists also need to acquire the necessary skills in order to manage the

complexity of implementing complex farming systems. This is evidenced by the lack of training institutions that offer courses that prepare extensionists for the tasks they have to perform. Only a few farmer associations and groups exist in Lesotho. This suggests that extensionists should be trained on how to mobilize farmer groups in order to address the challenges faced by them. Land tenure and the security of land use rights are among the most critical factors that should be considered when it comes to developing a sustainable agriculture system in Lesotho.

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