

THE ROLE OF EXTENSION SUPPORT TO IRRIGATION FARMERS IN LESOTHO

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ABSTRACT

Lesotho has plenty of water resources which could be used to improve the livelihoods of Basotho as a nation in many aspects. However, this seems not to be the case as Lesotho suffers from food security mostly during severe droughts, to an extent of seeking support from international communities. The purpose of this paper is to elaborate on the very important role extension support should play in the practising of sustainable irrigation farming by smallholders. A structural questionnaire was administered amongst 153 irrigation farmers and 31 extension officers randomly in the four southern districts of Lesotho, namely Maseru, Mafeteng, Mohale's Hoek and Quthing. Extension credibility is highly questionable as 70% of irrigation farmers do not regard extension as important for irrigation management decisions. Although extension workers are generally well qualified, no in-service training is offered to help with the skilling of extensionists regarding irrigation management. Consequently the extension workers consider them not competent to provide support for irrigation farming. These results suggest the need for greater political and institutional input in irrigation farming; in particular there is a need to revisit institutional policy instruments and institution for extension, technical assistance, training and credit services that will facilitate performance of irrigation farming in Lesotho.

1. INTRODUCTION

The investment in knowledge - especially in the form of science and technology is important for sustainable agriculture development. 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. Since the context of agriculture development has evolved it is important that extension organisations should ensure to have the necessary *cadre* of professionals with an appropriate skill and mindset (Stevens & van Heerden, 2006). The role of extension in Agricultural Knowledge Information Systems (AKIS) includes apart from transferring technical knowledge also facilitation, brokering and coaching of different actors and role-players (World Bank, 2006). Extension therefore plays an important role in the investment of human and social capital required for sustainable agriculture development. Farmers have to adapt constantly if they are to survive and compete in a rapidly evolving environment. In order to perform core tasks, extensionists should retain the trust of their clients. To gain this trust and help farmers with informed decisions, extension staff should have a defined body of technical and extension knowledge and skills. There is however a growing concern in South

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Africa that the role played by extension is not in line with the demand of the clients (Stevens, 2006).

This paper reflects on the role of extension in the provision of support to irrigation smallholders in Lesotho as perceived by smallholder irrigation farmers and extension staff from the Ministry of Agriculture in Lesotho. It further provides a brief overview of the implications these findings have on sustainable irrigation development in Lesotho.

2. RESEARCH METHODOLOGY

The study was conducted in the four major irrigation schemes of Lesotho namely Maseru, Mafeteng, Mhaleshoek and Quthing. These irrigation schemes are situated in three major catchments of Lesotho namely:

- Senque catchment (Maseru and Quthing irrigation schemes): This catchment drains two thirds or 24 485 km² of the country. Four large dams occur in this catchment.
- Mohakara and Mkhaleng catchment areas (Mhaleshoek and Mafeteng irrigation schemes): These catchment areas are approximately 9 801 km² in size.

The selection of the survey areas are representative of typical situation that exist on small scale irrigation schemes in Lesotho. 153 smallholder irrigation farmers from these four irrigation schemes were identified by random sampling through information of farmer names provided by extension staff from the Ministry of Agriculture of Lesotho. The majority of the farmers (75%) are males, with 71% full time farmers mainly farming for food security reasons. Data was collected through the use of a structured questionnaire and face-to-face interviews with farmers and key informants. Thirty two extension staff members serving these four areas were interviewed using a separate structured questionnaire. This assessment was used to determine their technical competency, knowledge and training needs with regard to irrigation management. The majority (77%) of the extension staff interviewed was males. Descriptive statistics were used to analyse and compare the responses of farmers and extension staff by using the Statistical Analysis System Version 8.2 (SAS).

3. OVERVIEW OF FINDINGS

The first part of the discussion of the research findings reflects the perceived role and competency of the extension staff by smallholder irrigation farmers. The second part portrays an overview of perceptions of extension staff regarding their own competency and ability to serve smallholder irrigation farmers in order to attain sustainable irrigation agriculture development and secure food production in Lesotho.

3.1 Perceived competence and knowledge of extension staff as reflected by smallholders

Irrigation has played a key role in producing food (FAO, 1986). It does not only raises the yields of specific crops, but also prolongs the effective crop-growing season through the permitting of multiple cropping (two or three crops per annum). However with the security provided by irrigation, additional inputs are required to intensify production further (disease and pest control, fertiliser management, improved varieties and appropriate seedbed preparation). The role of extension in the context of smallholder irrigation development embraces not only the transfer of technical knowledge but also to support farmers in the mobilising of farmer groups and networking with all role-players involved in the agricultural

innovation system. Therefore it is of critical importance to identify the perceived technical and extension competence and knowledge of extensionists as reflected by smallholder irrigation farmers in Lesotho.

Perceived technical knowledge and competence

Smallholder farmers were asked to indicate on a 5-point Likert scale the importance of extension support regarding certain technical aspects like crop selection, fertiliser recommendations, irrigation water management and the support in mobilising and facilitating of farmer groups, with 1= not important and 5= very important.

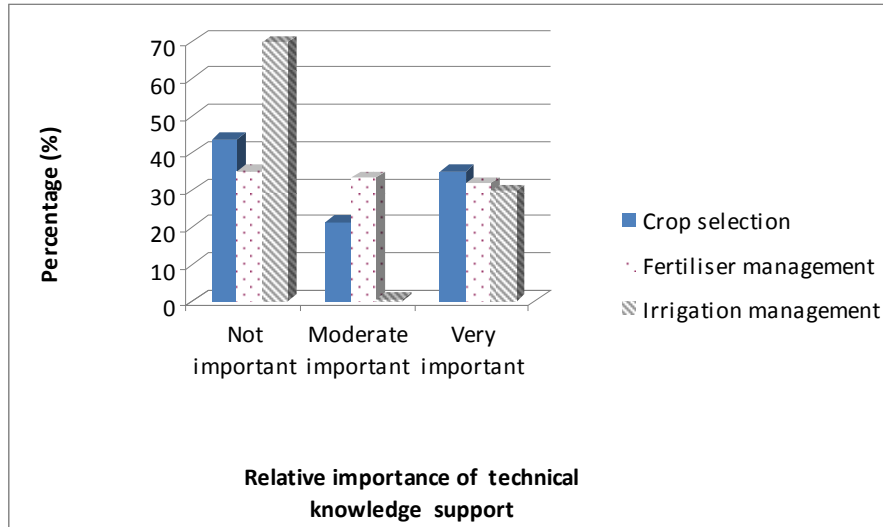


Figure 1: Technical and extension knowledge of extension staff as perceived by smallholder irrigation farmers (N=153)

Figure 1 illustrates that smallholders in general do not perceive the technical knowledge and competence of extension staff as important for decision making on the farm. The only irrigation scheme where farmers were relatively satisfied with the technical knowledge of the extensionists was Quthing where the extension workers portrayed adequate technical knowledge to share with farmers. Smallholder irrigation farmers in Lesotho indicate that they often seek advice regarding the selection of appropriate crops, fertiliser management and marketing from their fellow farmers in the Republic of South Africa.

On a question who farmers consult when they need to take irrigation management decisions on the farm, 53% of the respondents indicated that they acquire irrigation information from fellow farmers, while 34% of farmers get support from private companies where they buy irrigation equipment (Figure 2). Only 2% of farmers indicated that they receive technical support from extensionists, which correspond with findings by Düvel and Williams (2005).

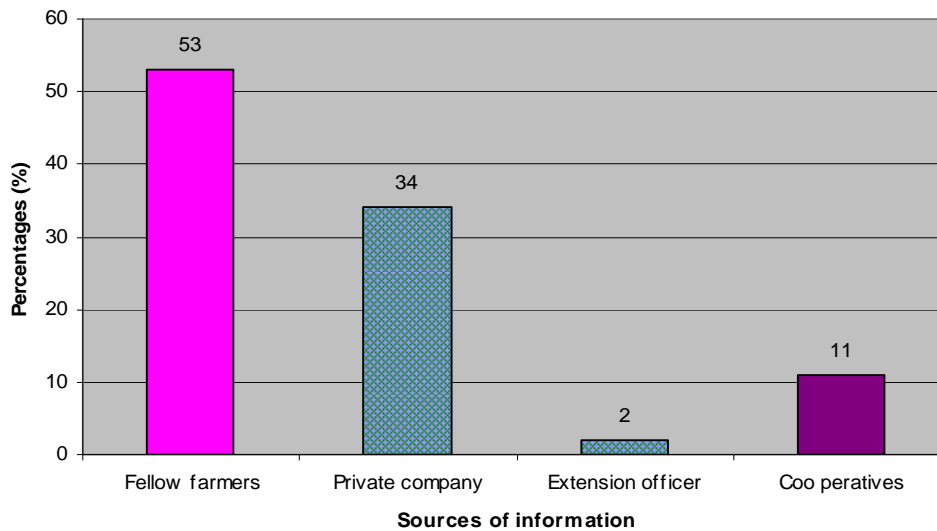


Figure 2: Frequency distribution of information sources used for irrigation farming by smallholder irrigation farmers (N=153)

These findings illustrate that the technical competence of extension staff is perceived to be inadequate, and therefore also impact on the credibility of extension in these irrigation areas.

Contact between smallholders and extension

Table 1 illustrates that 89.7% of farmers indicated that they meet once a year with extensionists. They indicated that extension officers usually meet them during the preparations for the national agricultural shows which are held once a year. More regular contact between extension and farmers is required for effective technology transfer and agricultural development. These findings should raise huge concerns amongst extension managers and their staff within the Ministry of Agriculture.

Table 1: Frequency distribution of contact between farmers and extension staff (N=146)

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

Perceived role of extension in the formation of farmer groups

Farmer groups are one of the most appropriate ways in which farmers learn and distribute new innovations. Kelley (1995) and Black (2000) indicate that group activities are usually seen as important to give people an opportunity to participate in planning and implementing of action plans for farmer groups, and to take ownership for decisions. According to Colliver (2001), one thing that will produce faster evolution of sustainable farming systems is a better flow of ideas and information in which farmer groups can play an important role. 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

On a question how knowledgeable the extensionists are regarded the guiding of farmers to form farmer groups; 86% of farmers indicate that extensionists have never encouraged them to form any farmer group. Therefore respondents in general perceive extensionists to have inadequate knowledge in this regard (Table 3).

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

Further findings illustrate that most extensionists have less than five years experience in extension and therefore the necessity for mentorship and in-service training is of utmost importance. Since only 6% of the extensionists have acquired training in agricultural extension also explain the possible reason why they are not playing or prepared to play a prominent role in the mobilising and functioning of farmer groups.

Perceived constraints that impact on extension delivery

From the farmers' point of view, there are numerous constraints surrounding the delivering of efficient extension services (Table 4). 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. They indicated that extensionists lack basic irrigation management knowledge and are appointed mainly because of political influence from the top management in the Ministry of Agriculture. 30% of the respondents indicate that irrigation engineers are not available to assist them with irrigation planning and design. Farmers complained that in general poor linkages existing between extension, research and the farmers (22%) and as such, coordination is very poor. Farmers also perceived that some extensionists have a negative attitude towards fixing problems experienced in irrigation management.

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

Constraints perceived 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

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

The performance in organisational settings appears to be a function of at least three important variables namely: abilities and competency, motivation levels and role perceptions. This part of the discussion focuses on the profile of the extension workers and the perceived competencies of extensionists as rated by them.

Profile of the extension worker

Marom and Blustein (1978) as cited by Bembridge *et al.* (1983) indicated that a number of character and personality traits should supplement training, since this influence the effectiveness of an extension worker. These include traits like sensitivity to people, ability to deal with the unexpected and uncertain situations, ability to improvise, creativity, initiative and foresight.

Extension workers are well trained in general agricultural (41%) and engineering (16%), with the minority any qualifications in extension (6%) and crop production (16%). So although they are well qualified (certificate, diploma or degree in agriculture), they are not adequately qualified in agriculture extension and subject matter like irrigation management. This mainly because of the inadequate training they received before joining the extension service. On a question what specific extension approach or approaches they are implementing, not one of the 31 extension workers were able to reflect to either the Client Demand System or the Unified Extension System (UES) which are applied in the Ministry of Agriculture since 2001. These findings also confirm the findings of Mokone (2004) that very few extensionists have made effort to get involved in the programmed extension proposed by the Unified Extension System, but rather stick to the *ad hoc* and piecemeal extension approach they have used traditionally.

Perceived constraints that impact on effective 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. Vehicles allocated to them to perform field work are sometimes used for other purposes such as the transporting of directors to attend family matters.

Secondly the lack of appropriate in-service training is perceived by 44% of the respondents as a major constraint in equipping extension staff with the necessary skills and competency to serve 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. It is a programme designed to strengthen the competencies of extension workers while they are on the job (Malone in Swanson, 1984). Since no in-service training is offered in subject matters like irrigation management and extension, the majority of extension workers consider themselves not to be competent to provide support for irrigation farming. Consequently extension workers lack the necessary skills and ability to supply sound practical advice to smallholder irrigation farmers and therefore cannot fulfil the objectives of the Ministry of Agriculture. These constraints together with motivational drivers such as dissatisfaction with salaries contribute to the general poor motivational status amongst extension staff.

Differential perceptions regarding the efficiency of extension delivery

The majority of farmers are of the opinion that extensionists are not supporting them with decision-making on the farm. Farmers clearly indicated that the technical subject and extension support from extension staff is inadequate, while extension workers believe they are doing well in this regard with the exception of irrigation management and the ability to interpret agroclimatology. Table 5 illustrates the perception of extension staff using a three point semantic scale (1=poor; 3=good).

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 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%). Many farmers indicated that they rent land based on very informal contracts with the landlords. Extension staff is also of opinion that the majority of smallholders are very dependent on government and donor subsidies. 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. 75% of the respondents are of opinion that if these issues could be addressed, irrigation efficiency and water use efficiency will improve.

4. CONCLUSIONS AND RECOMMENDATIONS

The credibility and competence of extensionists is highly questionable in many aspects of farming operations. It is recommended that Agricultural Extension and Research organisations should form very strong linkages in the country in order to help guide farmers to attain their goals and objectives. Greater political and institutional support is recommended to enhance irrigation development in Lesotho. There is a need to design and develop alternative policy instruments and institutions for extension, technical assistance, training and credit service.

Effective training of both extensionists and farmers should receive the highest priority to improve irrigation performance in Lesotho. This priority is highly accentuated with the low percentage of farmers and extensionists recorded that actually receive training and the related absence of training courses being presented by colleges and universities. Smallholders and extensionists need to understand the basic principles regarding the biological functioning of plants and to gain the necessary insight into the complexity of soil-plant-atmosphere systems management skills before entering into complex irrigation farming system. These findings show very similar tendencies identified in a study conducted in South Africa where very few of the tertiary organisations present courses that prepare extensionists appropriately for the extension tasks they have to perform on the irrigation schemes (Stevens & van Heerden, 2007).

According to the findings, very few farmer associations or groups exist in Lesotho. It is therefore recommended that extensionists should be properly trained on aspects of mobilising of farmer groups so that farm communities are encouraged to form associations. Extension services are without doubt very important and therefore it is important that the country develop agricultural extension institutions with competent staff to address the challenges of farmers.

The security of land use rights and improved land tenure systems for land users is absolutely essential for sustainable agriculture development in Lesotho.

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