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Participation of Female Farmers in Water Management in Rahad Irrigation Project

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Abstract

This article is based on survey conducted in 2009. The main objective is to examine the participation of female farmers in water management in Rahad Project. Other objectives include investigating the gender role in agriculture, irrigation and knowledge of water management possession. The study adopted the analytical descriptive approach using the qualitative and quantitative tools such as questionnaire and interview checklist. The study sample is a multi-stage stratified random sample consisted of 30 farmers equally selected from both sexes. SPSS was used to generate frequency distribution tables. The results have shown that female farmers perform more than half of the entire labor process (56%), payment arrangement is entirely a male activity, male farmers possess a high degree of water knowledge. Female farmer largely lacked such knowledge the situation that reveals a gender gap in information access and decision making. The study recommended the set up of a gender sensitive effective information dissemination system for water management at all levels.

Keywords: Participation, Gender, Water Management, Rahad Irrigation.

Introduction

Despite the increase in water consumption by sectors other than agriculture, irrigation continues to be the main source of excessive water consumption on a global scale. However, there is an increasing pressure for water to be used more efficiently in agriculture. On the other hand, irrigation is regarded as one of the main ways to increase food production and rural incomes. It is therefore imperative to improve water management in order to achieve both, high water productivity and higher rural income (FAO, 2002). Accordingly, water management is concerned with the activity of planning, developing, distributing, managing, and optimum use of water resources under defined water polices and regulations, (FAO 2002.)

Women are critically involved in the provision and management of domestic and agricultural water supplies. Women often govern the collection and use of water, making it a serious oversight to ignore their inputs. In addition, it is important to give prominence consideration to distinct aspects of gender relationships, such as, the gender division of labour or the analysis of relationships between men and women and also tend to be associated with different objectives, e.g. efficiency or empowerment (Warren, 2007). Thus, gender perspective is then called for which focuses on the roles of both men and women in access to and control of precious water resources. Both women and men are given the opportunity to influence and participate in decisions affecting water management. (Cleaver, 1998; Boelens. and Zwarteveen, 2002).

As such this study is concerned with investigating the water management processes among men and women in the area of Al Rahad irrigation project that has been considered as one of the highly mechanised major schemes and most extensive irrigated area (Holt and Coulter 2011).

The study is based on the field survey conducted by the authors as part of a study on participation of farmers in water management in 2009. The main aim is to analyze the following three parameters that provide an indication of the situation of female farmers in water management, with respect to their actual roles and knowledge. Evidently, the parameters have also been applied to the men

- The role of female farmers in agriculture
- The role of female farmers in irrigation
- Female farmers' knowledge of water management issues

Rahad irrigation project is established in the 2nd half of the seventies and extends through Gadaref and Gezira States. The project covers an area of about 800,000 feddans, out of which 30,000 feddans were cultivated. The project is irrigated from the Blue Nile by giant pumps pushing water through the main canal at the Southern parts of the Scheme. Then it passes through a siphon crossing the Dinder, river to flow on the Scheme. (Elahadi, 2004; Hamidand Adeeb, 2009).

Rahad Irrigation Project is considered to be among the agricultural development projects that could have a huge potential to improve agricultural production for food security and income. There were 15,661 farmers in the project . Females contribution to the agricultural labor in the Rahad Irrigated project takes four forms: _ Family labor (unpaid) where women work on their husband's or father's farm._ Female farmers, which represents 10% (1,271 female farmers)_ Permanent migrant labor, where the women are hired to do seasonal operations. _ Seasonal migrant labor, who works in cotton picking where women represent 80% of this labour force (Mohammed, 2001).

Methodology

The methodology of the study involved using of a multi-stage stratified random sampling procedure for selection of a representative sample of male and female farmers in the Rahad Irrigated Project. In the first stage of the sampling procedure, one of the three administrative Groups of the project (the Southern, Central and Northern Groups) was randomly selected. This turned to be the Central Group. The second stage of sampling involved random selection of one Block from the selected Group. The block thus selected was Block 6. The third stage of sampling involved random selection of two villages from the selected Block. The two villages selected that way were villages 12, 26 (the villages in the scheme are known by their assigned numbers). The fourth stage of the sampling procedure involved the preparation of separate sampling frames listing male and female farmers in each of the selected villages for the purpose of drawing sub-samples (15 female farmers and 15 male farmers).

Data collection involved individual interviews with members of the sample. Data analysis was conducted to generate frequency distribution tables.

Results and Discusion

Contribution of Female Farmers on Agricultural Tasks Compared to Male Farmers

The water management situation of the female farmers is not only confined to their role in irrigation. Since water management is a comprehensive concept, and since we are dealing with farmers, it is important to find out the agricultural tasks of the selected women. This sheds more light on their status, role and interests in the water management domain. The general understanding is that the tasks performed by women in agriculture do not exceed weeding, harvesting of "easy" crops such as cotton and vegetables, and other minor work. However, the result indicates that most of the selected women who farm perform many more

tasks such as planting seeds and seedlings, adding fertilizer, spraying insecticides, and even helping to prepare the land. Transporting harvest is entirely male activity (Table 1).

Table 1: Involvement of male (M) and female (W) farmers in agricultural activities

Activity	Always	Often	Seldom	Never
Preparing land (Plowing and level	M	W		
Planting of seeds(seedling)	M	W		
Adding fertilizers	M	W		
Weeding	W		M	
Spraying insect side	M		W	
Harvesting	M	W		
Transporting harvest	M			W

Source: Field Work 2009

Participation of Female and Male Farmers in Activities Related to Water Management

It is almost impossible to analyze the water management situation of female farmers without gaining an insight about their role in irrigation. It is important to obtain a clear answer about whether women irrigate or whether this is a strictly male domain. Table 2 provides a detailed distribution of male and female farmers with respect to the different tasks related to water management.

Table 2: Involvement in activities related to water management by male (M) and female (W) farmers

Activity	Always	Often	Seldom	Never
Operate –irrigation pump	M		W	
Fetch water	W			M
Open water to the field	M	W		
Supervise water in the field	WM			
Arrange with and pay labors	M			
Clean ditch	MW			

Source: Field Work 2009

Women contribute substantially to the labor process related to water management at the field level, (which include fetching water, opening water to the field, supervising water in the field and cleaning the ditch. However, female farmers underestimate their role in irrigation. They do not realize that by deciding when to switch the pump on and off, by asking the assistance of men to switch on the pump for them, and by channeling water in the fields, they are in fact irrigating the land. Most of them share the misconception that the person who irrigates is the one who operates the pump, and that all other tasks – which are perhaps more important – are secondary.

Knowledge of Female and Male Farmers in Water Management

In relations to the knowledge and awareness of women concerning their role in water management situation, in relations to the male farmers, the selected farmers were individually asked if they knew of the following water management topics:

- The name of the branch canal within the farmer's command area.
- The name of the main canal.
- The name of the District Irrigation.

Table 3 indicates that the majority of the selected male farmers possess a high degree of knowledge of these topics, compared to female farmers. The majority of the female farmers were found to lack of the knowledge that would facilitate their participation in decision making concerning water management.

Table 3: Frequency distribution and percentage of female and male farmers by Knowledge about aspects of water management

Knowledge of aspects of water management	Female Farmers- N=15		Male Farmers Number=15	
	Freq	%	Freq	%
1. Name of the branch				
Known	12	80.0	14	93.3
Not known	3	20.0	1	6.7
2. Name of the main canal				
Known	5	33.3	15	100.0
Not known	10	66.7	0	0.0
3. The name of the District Irrigation Engineer				
Known	0	0.0	12	80.0
Not known	15	100.0	3	20.0
4.The best time for irrigation				
known	7	46.7	15	100.0
Not known	8	53.3	0	0.0
5.When to operate and when to switch off the pump				
known	2	13.3	10	66.7
Not known	13	86.7	5	33.3
6.When the maintenance is performed				
known	2	13.3	10	66.7
Not known	13	86.7	5	33.3

Source: Field Work 2009

Table 3 above shows the distribution of the respondents by Knowledge of aspects of water management.

Level of knowledge about the name of the branch is very good 80% of female farmers know it, 66.7% of women do not know the main canal, 100% of the female farmers did not know the District Irrigation Engineer, only 46.7% of the female farmers know the best time of irrigation, 86.7 % of the female farmers do not know when to operate and when to switch off the pump and 86.7% do not know the maintenance is performed.

Very few of the selected female farmers are knowledgeable about the aspects directly related to irrigation, namely: when to switch the pump on and off, the best times for irrigation, and the entity responsible for maintaining the waterway. However, many of them 80% of the female farmers (12 out of 15), especially those who farm, knew the name of the branch Canal. 100% of the female farmers did not know the District Irrigation Engineer indicating gender segregation.

Conclusions and Recommendations

Conclusions

1. Female farmers in Rahad Project play an important role in water usage. They are most often the collectors, users and managers of water in the household as well as farmers of irrigated crops.
2. Female farmers in Rahad Project have limited roles in water management matters requiring decision making, such as when to operate and switch off the irrigation pump, the duration of irrigation, and the channeling of water in the fields..
3. It can be said that despite the important role that women play in water-use-related activities in Rahad Project, they still lack a knowledge about water management, compared to their men counterpart. Some knowledge about issues relating to water management does exist among female farmers, but it is noticeably inferior and less articulate than that of the male farmers. This reveals a gender gap in information access among both partners working in the agricultural sector in Rahad Developmental project.
4. As such the study results have indicated that the female farmers have less access to information and weaker knowledge of water management issues than the men. This is a hindering factor that makes

women passive and reluctant to participate in water management decision making process. If they do not know enough about their water management situation, how can they feel confident to become effective members of the water user associations and discuss water management issues with their male peers? It is a well-known fact that access to information and proper knowledge are essential pre-requisites for effective participation. In most rural areas, however, these pre-requisites are not made available to women.

Recommendations

1. There is a need for setting up a gender-sensitive information dissemination system in the Rahad Irrigation Project. If female farmers have easier and greater access to water management information, they will be encouraged to participate more in water management activities. At the very least, they will not be alienated or isolated. In setting up such an information system, Project staff should consider cooperation with other local institutions such as agricultural extension or NGOs to sustain effective provision of information to the water users in the Project.
2. Socioeconomic and Gender Analysis (SEAGA) framework should be used to ensure women participation in water management.
3. Female farmers should be encouraged to participate in grassroots institutions and water user associations.
4. Female farmers should be empowered to participate in decision making activities of the farmers union

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