International Journal of Agricultural Management and Development (IJAMAD)
Available online on: www.ijamad.com
ISSN: 2159-5852 (Print)
ISSN:2159-5860 (Online)

Fighting Hunger Together: A Case of Women Farmers' Participation in Women Groups in Mwala Division, Kenya

Rebecca Njoki Karaya[1], Christopher Assa Onyango[2] and David Mulama Amudavi [3]

Received: 24 May 2013,
Accepted: 1 July 2013

Abstract

Food security remains a major challenge for most rural households in Kenya especially those in arid and semi arid areas. Women play a crucial role as primary food producers and custodians of household food security. They however face many constraints in their endeavor to secure food for their households. Women, lack access to extension education, land and credit and these challenges are exacerbated by effects of climatic variability, especially drought. In response to the difficulties facing them, women in Mwala have formed organizations (women groups) as safety-nets to help them face these challenges collectively rather than as individuals. This study research was designed to investigate how women's participation in the groups influences them to overcome constraints related to their household food security. The study used a cross sectional survey design. A sample of 156 respondents was selected through simple random sampling, with 94 women farmers being group members and 62 non group members. Ten key informants were purposively sampled from group leaders of the most active women groups influenced in agricultural activities to participate in a focus group discussion. The data was analysed using SPSS package version 17 and presented using frequencies, percentages, multiple regression, and Spearman's Rank Correlation Coefficient. The study revealed that household food security is significantly and positively influenced by participation of women farmers in women groups ($F = 9.980$, $p < 0.001$), that the level of intensity of participation in group activities did not significantly influence household food security ($x^2 = .112$) and that linking with outside agencies was positively and significantly correlated to group performance measured in terms of benefits availed to the members through their groups.

Keywords:
Household, Food security, Group participation, Women groups

[1] *Graduate Student, Department of Agricultural Education & Extension, Egerton University, Kenya.*
[2] *Professor, Department of Agricultural Education & Extension, Egerton University, Kenya.*
[3] *Director, Biovision Africa Trust, C/O icipe, Nairobi, Kenya.*
* *Corresponding author's email: rebeccakaraya@gmail.com.*

INTRODUCTION

Food security is a basic human right; nevertheless millions of people, throughout the world continue to suffer the effects of hunger and malnutrition (World Food Summit, 1996). Food security exists when all people at all times have physical and economic access to adequate, safe and nutritious food to meet their dietary needs and food preference (World Food Summit, 1996). Household food security is the application of this concept at the family level with individuals within the family being the focus of concern. Nyariki and Wiggins (1997) pointed out that food security encompasses food availability through farm production, storage or imports; and the access that people have to food through their purchasing power in markets. On the other hand, food access is determined by an individual's or household's access to adequate resources or entitlements; derived from human and physical capital assets, access to common resources and a variety of social contracts at family, community and state level, over which a person can establish command given the legal, political, economic and social structures of the community (Sen, 1981). A household's access to food is further determined by the opportunities it has to utilize or exchange those resources to meet its food and material needs (FAO, 2003). Purchasing powers of a household, evolution of real incomes and food prices were found to be important in ensuring food access (Schmidhuber and Tubiello 2007). Sanchez *et al.*, 2005 indicated that, people go hungry in spite of an abundant supply of food at the global level because they cannot obtain sufficient quantity or quality food due to poverty. Tweeten and McClelland (1997) concluded that while food availability highlighted the supply of food at national level and production at farm level, food accessibility indicated the effective demand and purchasing power of households.

In the last decade, the number of the undernourished people globally increased slowly but steadily even before the twin food and economic crises of 2009 (FAO, 2009). In the year 2007, the number of people suffering from food insecurity increased from 848 million in 2003-2005 to 923 million (FAO, 2008). In Kenya, a third of the population is food insecure with two million people needing urgent interventions at any given time. This number increases during drought, heavy rains or floods with arid and semi arid areas (ASALs) being more affected.

Empirical evidence has shown that women are the engine that drives agriculture in developing countries especially in the SSA. They play an important role as food producers, natural resource managers, income earners and, caretakers of household food security (Quisumbing *et al.*, 2001). They produce 50% of food globally, while in Africa, Asia and Latin America they produce 60 - 80% of staple food (World Bank, 2008). Women are therefore crucial to ensuring household food security. They make food available in the household by engaging in varied activities such as small-scale farming, livestock keeping, and the gathering of wild foods. They also access food through purchases and the collection of food donations derived outside of the home (FAO, 1987). However, women are faced with a lot of constraints in ensuring household food security. They have limited access to financial, land and social assets and have fewer opportunities to improve their knowledge and skills (Saito and Spurling, 1992). In response to the difficulties and responsibilities facing them, women have formed organizations based on traditional informal structures, governmental and international agencies to help them cope with the myriad of problems facing them and their communities collectively rather than as individuals (Kamar, 2001).

Role of groups in agricultural extension

A key role of agricultural extension in developing countries has been to disseminate technologies generated by public research organizations through suitable dissemination strategies such as demonstrations, field visits, farmers' meetings and use of media (Sulaiman, Hall and Raina *et al.,* 2006). However, in Kenya, dwindling financial resources compounded by the effects of economic and institutional reforms associated with structural adjustment programmes have strained the subsistence economy and led to the collapse of the requisite infrastructure for agricultural production (Rees *et al.*, 2000). To reverse the declining agricultural performance and counter the decline in agricultural productivity the government unveiled the Strategy for Revitalizing Agriculture in Kenya (SRA) (GoK,

2004). SRA identified farmers' organizations as capable of playing a key role in empowering small scale holders by pooling them together to jointly benefit from economies of scale with regard to provision of inputs and marketing of produce among others.

Participation in groups is the involvement of individuals in formal or informal organizations for purpose of realizing not only utilitarian individual interests but also for attaining mutually satisfying collective interests (Amudavi, 2007). Johnson and Johnson (1987), defined groups as comprising of two or more persons in face-to-face interaction, each aware of his or her membership in the group, each aware of others who belong to the group and each aware of their positive inter-dependence as they strive to achieve mutual goals. Amudavi (2007) identified two types of groups, local or community groups and supra groups. He defined local groups as socially bounded entities that individuals form for purpose of achieving given goals, preferences and valued capabilities that bear social, economic or political well being. Such groups include women groups, youth groups, merry-go-round and self-help groups formed around the purpose of supporting economic and social activities. Supra groups are formed by people in a fairly large area in collaboration with outside agencies in response to some anticipated resources and are linked vertically to the outside institution(s).

Farmers have worked in groups since the beginning of agriculture; varying from cooperation in harvesting and threshing, joint storage of produce and collaborative management of animals (Anandajayasekerem *et al.*, 2008). Groups provide members with a social support system consisting of significant others who collaboratively share risks, goals and provide individuals with resources such as materials, money, tools, skills, information and advice to enhance their well-being (Johnson and Johnson, 1987). According to Heinrich (1993), working in groups expands the number of technology options researchers and farmers can examine on farm and increases the number of technologies entering the extension process. Groups have also been found to increase members' access to services especially for female members by bridging the gap between traditional male biases in extension service (Geran, 1996).

Citing groups as being fundamental to agriculture, Kariuki and Place (2006) stated that collective action lowers the cost of access to extension information thereby stimulating technology dissemination and adoption, reduces marketing costs, lowers cost of inputs, facilitate labour sharing and act as informal insurance to the member. Thus groups are considered attractive mechanism for locating and mobilizing information, resources and influence necessary to advance better household welfare and community services (Korsching and Allen, 2004; Lyon, 2003). For this reason, most community and agricultural development agencies have sought the support of those organizations as effective means of changing the structure of communities, harnessing their resources and improving agricultural development (Njoku *et al.*, 2009).

However it is important to note that membership in groups is not automatic but requires payment of dues in return to access of group resources, in cash registration, shares or in kind giving labour or time to activities (Cohen *et al.,* 2005). Requirements for effective membership suggest that not everyone may necessarily benefit from group participation (Pretty and Ward, 2001). Katinka and Johannes (2001) observed that, group participation is not always and not for everybody an acceptable option but the benefits will depend on certain factors like; opportunity cost in terms of money and time, household characteristics and personal characteristics.

Women's participation in women groups

Kenya women have historically organized themselves collectively into women's groups to provide mutual support. The realization that they occupied a marginalized position in society which resulted in common problems motivated them to form cooperative parties which evolved as a coping mechanism in a male-dominated society whose patrilineal structures ensured that they did not have adequate access or control of productive resources (Mazingira, 1992). Collectively, women assisted one another in various activities within household and on farms especially during peak agricultural seasons, illness and child bearing, (Nasimiyu, 1993). The basis of membership to the groups according to Mazingira Institute (1992) was friendship, kinship networks and common needs. Udvardy (1998),

places the origin of modern Kenyan, grassroots women's groups, in the post-World War II period, when colonial European women began to organize the Gikuyu women into groups in order to teach them literacy and 'domestic' skills. Recognizing the utility of the groups, Gikuyu women began to utilize the power of these neighborhood collectivities to improve their own and their households' welfare by purchasing goods in bulk, as rotating credit or savings associations, to effect the establishment of local infrastructure in the post independence period (Udvardy, 1998). The groups also fitted well in the spirit of a mobilizing and organizing concept of harambee ('pull together'), which Jomo Kenyatta, Kenya's first president was advocating as the most effective and realistic path for the development of rural Kenya (Udvardy, 1998). The groups were therefore encouraged and even supported by the then government.

In recent times, women groups have advanced and taken great strides towards self empowerment of women, by moving away from mutual welfare activities into micro finance, micro enterprise and investor groups. Mwaniki (1986) noted that although collective action among African women is not a new phenomenon, women are revitalizing it to enable them to enter the new market economy and assume new opportunities and roles. Karega (1996) also noted that the behavioral patterns exhibited by the modern women's groups are entrepreneurial in nature, in that women produce for the market, they are innovative, they take risks, develop and accumulate capital, reinvest and they also market their products. Underscoring the importance of women groups in their empowerment, (World Bank, 2008), reported that groups allow women farmers to combine knowledge, skills and resources, gain access to services through collective action, enhance their bargaining power and advance claims to their rights through advocacy. Women groups also provide a unique opportunity for women to build human and social capital and increase their capacity to participate fully in village and municipal government where decisions on production and marketing strategies are made (World Bank, 2008).

Due to their versatility, development agencies and extension services are increasingly utilising women's groups as fora through which to disseminate expertise about improved agricultural and livestock production methods, information about health services, and to demonstrate new technology (Udvardy, 1998). The groups are seen as useful entry points for testing technologies in rural areas, and are widely recognized as the grass roots units through which change can be initiated and implemented, particularly with regard to family food production and nutrition (Mwaniki, 2009). Supporting the use of women groups in agriculture and rural development; World Bank (2008), cited participation in groups as having clear benefits for the poor rural woman seen in increased assets, income and gains in control over the decision-making process. Mwaniki (1996), further added that, most successful projects of women were those that combined goals of nutritional benefits with income generation, and as such women groups are open to interventions that would improve health and nutrition status of members' households. The groups women form and belong to include self- help groups which include micro credit and rotating savings and credit groups popularly referred to as 'Merry Go Rounds', producer associations, women groups in water shed management and women farmer research groups (World Bank, 2008).

On its part, and in line with the Millennium Development Goal 3, which advocates for gender equality and empowerment of women, the Kenya Government, has committed to develop the activities of women's groups through specific policy measures in the Vision 2030 blue print with the aim of correcting gender gaps in access to and control of resources, economic opportunities, power and political voice (GOK, 2007). One way through which the government is empowering women is through women enterprise funds. The Ministry of Gender and Social Services encourage women entrepreneurs to form groups to apply for funds with no collateral and at subsidized interest rates. A study by the Ministry of Gender and Social Services on the women enterprise fund revealed that women commit 80 percent of the money advanced to them for livestock farming and crop production among other agricultural activities (Omwenga, 2012).

MATERIALS AND METHODS

Study area - The study was carried out in Mwala

Division of Machakos County Kenya selected due to the prevailing and persistent food insecurity. The Division has 5 locations with a population of 108,361 people and 23,868 households. The average land holding is 1.9 acres per household (Kenya Food Security Steering Group (KFSSG) 2010). The Division is semi arid and 61.4 percent of the population lives below poverty line, which affects their food access ability (Kenya Food Security Steering Group, 2009). The Division receives an average rainfall of 600-800mm per year, which is bimodal with the short rains being most reliable and occurring in the months of October to December and long rains in March to May. The rains have become increasingly erratic due to global climatic change. Soil is generally sandy clay and is easily eroded and leached. The altitude varies from 1000m - 1600m above sea level. The major crops grown are maize, beans, cowpeas, pigeon peas, sorghum, millet, cassava, grafted mangoes and oranges. The division is inhabited by the Kamba community.

Design and data collection - The research used a cross-sectional survey design that employed structured interview schedules to collect data. Population under study consisted of women farmers in 23,868 households in Mwala Division. Two sub–groups were studied namely; women group members from 22 groups actively involved in agricultural activities registered by Social Service Department and non-group members in the Division. Simple random sampling was used to select 94 women farmers from the 22 women groups that have a total membership of 540. Women farmers who did not belong to any women groups and referred to as non members were proportionately random sampled according to the number of households in the locations of Mwala Division to give a sample of 62 farmers. In addition, ten group leaders from the most active women groups involved in agricultural activities were selected for a focus group discussion to verify and strengthen data collected through interviews. The type of data collected related to areas of demographic information, crop production and types and numbers of livestock, farm income, perceived ease of access to agricultural productive resources, benefits of participating in women groups, level of group participation in women groups and group partnerships with other agencies.

RESULTS AND DISCUSION

Sample's demographic characteristics

A total of 156 women farmers were interviewed. The respondent's age ranged between 23 and 68 with majority (71.1 %) falling between 31-50 years. Most of the respondents (75%) were married, 14% were widowed and 11% were single. Sixty-eight percent of the respondents had medium sized households of 5-8 members, twenty-seven percent had small households of 2-4 members and only 5 percent reported a large family of over 9 members. Most of the respondents (62%) had primary education while 25.6% had secondary education, 5.1% had tertiary education and 7.1% had no formal education. The minimum land size reported was 0.5 acres while the largest was 9 acres. Average household farm size for the sample respondents was 2.4 acres. Maize was the major crop grown by all the households. Other crops included; Dolichos lablab, beans (Phaseolus spp), cowpeas (Vigna unguiculata), pigeon peas (Cajanus cajan), green grams (Vigna radiate), sorghum (Sorghum bicolour), millet (Eleusirejageri), cassava, sweet potato (Ipomoea batatas), and fruit crops like mangoes and oranges. The most popular livestock in the area was poultry, followed by goats, cattle, donkeys and sheep. Table 1 presents a summary of the respondent's demographic characteristics.

Women group participation patterns

The study investigated 62 women farmers who were not members to any registered women group. Among these, 38 (61.2%) had never been members to any registered women group. They cited time constraints and high membership fee as some of the reasons for not participating in groups. About 39 percent of the non group affiliated participants in the sample had at one time been members to registered women groups but later resigned. Reasons for leaving the groups were reported as: time constraints (25%), high expenses including high fines for absence and lateness (20.8%), limited benefits (20.8%), leadership wrangles (12.5%), groups collapsed (12.5%), moved to new area (4.1%) and ill health (4.1%). Some groups were formed with the sole purpose to "access handouts" in form of inputs and relief food from NGOs and MoA and disintegrated once the handouts were over.

Table 1: Descriptive data for individuals interviewed (n=156)

Variable	Sub-level	Frequency	Percentage
Age	<30 years	14	9.0
	31-40 years	49	31.4
	41-50	62	39.7
	>50 years	31	19.9
Marriage	Married	117	75
	Widowed	22	14
	Single	17	11
Education	No formal education	11	7.1
	Primary	100	62
	Secondary	40	25.6
	Tertiary	8	5.1
Household size	2-4 members	42	27
	5-8 members	106	68
	>9 members	8	5
Land size (acres)	0.1-2.5	101	64.7
	2.6-5.0	48	30.8
	5.1-7.5	5	3.2
	>7.6	2	1.3

The findings agree with those by Kariuki and Place (2006) who reported poor leadership, mismanagement of funds, failure to share benefits, inability to raise contributions and political interference as reasons for disbanding the groups in central Kenya. More than half of the women not in groups, (73.1%) considered members of groups to be better off in terms of farm production and food security and indicated that they would consider joining the groups if the constraints they were facing were addressed.

Group participation and activities

Ninety four women farmers were sampled from twenty two women groups involved in agricultural activities. The study sought to identify the activities carried out by women groups particularly those related to agriculture. The women groups undertook various activities including livestock rearing, crop production, seed bulking, soil and water conservation, merry go round and table banking as reported by the group leaders during focus group discussion and the members during interview. The women were found to have joined groups for various reasons with social capital and merry go- round being cited by more than half (54.2%). Table 2 summarizes reasons for group formation as reported by the respondents.

Individuals mainly made voluntary decisions to join the groups. The majority (72%) of the respondents reported that their groups had been formed through their own efforts, while 22 percent of respondents reported their groups as initiated by NGOs. None of the groups had been formed through government projects. Government projects preferred working with already formed groups due to the maturation process of the groups. It was assumed that voluntary choice to join groups would elicit high level of participation. The reasons cited for the formation and joining of groups included; social capital and merry go round (54.2%), to qualify for funding (17.0%), promote environmental conservation (13.8%), enhance access to extension services (8.5%), enhance market access (4.3%) and to enhance negotiations and advocacy (3.2%).

Although participating in women groups' required voluntary choice, membership was not automatic since members had to fulfill certain conditions. Conditions for membership as indicated by the respondents and authenticated through focus discussion included; paying membership fee, willingness to abide by the groups' by-laws, making regular contributions agreed

Table 2: Reasons for Group formation (n=94)

Reasons for group formation	Frequency	Percent
Social capital and merry go- round	51	54.2
To qualify for funding	16	17.0
Promote environmental conservation	12	12.8
Enhance access to extension services	8	8.5
Enhance market access	4	4.3
Enhance negotiations and advocacy	3	3.2

on by members, ensuring attendance to group meetings and practicing the activities taught in their farms. The lowest membership fee was Kshs 50 while the highest was Kshs 2000. Groups that had assets or income generating activities had higher membership fees. Groups also levied fines for absence and lateness to group meetings. Rules that were enforceable by penalties included lateness or failure to attend meetings without apologies, delaying group contributions and not attending labour sharing days.

Farm enterprises

The study showed that the main agricultural activity in the area was mixed farming. The crops grown in the area included maize, cow peas, mangoes, beans pigeon peas cassava and green grams. Livestock species reared in the area included cattle both improved and local breeds, goats, poultry and donkeys. The study revealed that group-affiliated farmers grew more types of crops and were more likely to diversify into drought-resistant crops like sorghum and cassava. This could be attributed to the fact that Kenya Agricultural Research Institute (KARI) in partnership with MOA had been promoting the growing of those crops through the Njaa Marufuku Kenya programme in the area and mainly worked with farmers groups.

Ease of accessing agricultural resources among participants and non participants

Access of agricultural resources was investigated to find out whether group participation gave the farmers who are group participants an edge over the non-participants in accessing agricultural resources. Table 3 shows the ease of accessing agricultural resources for group participants and non participants.

Most of the respondents in both categories found it difficult to access credit, but non-group participants found it even more difficult (71.0%) compared to group participants (67.4%). While 54.3 percent group members accessed extension information very easily non- group members (93.5%) found it difficult to access extension services. The same scenario is duplicated in access of agricultural technology. The study established that accessing inputs was a bigger problem for non group participants (53.2%) compared to group participants (29.8%) who reported access of inputs as not easy. None of the respondents cited access to market as being very easy, even though group members had a slight edge in access of market than non members. Similarly, there was not much difference in access to labour between the two categories with 62.8 percent of group members indicating the access as easy while 64.5 percent of non members also indicated its access as easy.

Level of participation by group members in group activities

The study sought to investigate the intensity of participation by individual members in group activities. Level of participation by members was assessed on a 3 point likert scale of; low participation, moderate participation and high participation. Results reflecting the level of participation are presented in figure 1.

Over half (57.4%), of the members perceived their level of participation as being moderate while 14.9 percent rated their participation as low. The groups visited during meetings showed that some members selectively attended to some activities and chose to absent themselves from others and pay fines. One women group visited during this study illustrated that some individuals hire labour to represent them rather than be present to share their labour with others. When visited during an extension field day, all the members were present. There was not enough evidence from the study to indicate significant change in household food security associated with the level of participation in group activities ($x^2 = .112$). This could mean that some members were able to pick the activities that benefited them directly and attend to them while avoiding those that benefited the group as a whole. While

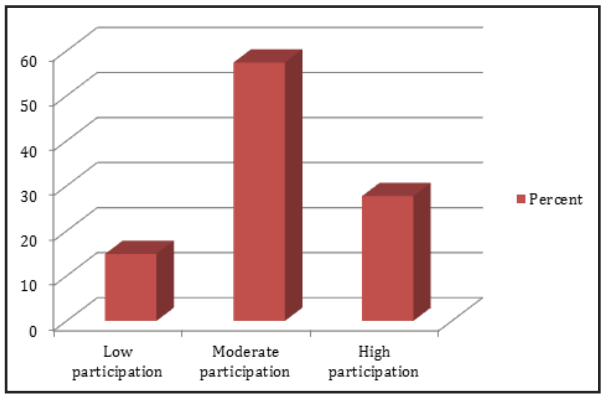

Figure 1: Level of Participation in Group Activities

this could have a negative effect on group cohesion and performance in the long run, those members are able to attend to their farms while others attended to the group activities. A study done in Chad revealed that women participating in groups try to balance the cost-benefit ratio of participating in groups and that opportunity cost of participation in groups is higher for women with higher income (farm income or otherwise) (Katinka and Johannes, 2001).

Benefits of participation in women groups

The research sought to establish the benefits realised through participating in women groups. Focus group discussion reported the following benefits as available though group participation; labour sharing, access to extension information and training, grants and credit, access to market for their products, social support and access to quality seeds and inputs. Table 4 presents the benefits availed through participation in groups as cited by individual respondents.

Marketing was rated by a majority of group members as not being accessible through the groups. The failure of the women groups to offer access to markets to their members is could be linked to limited capacity among the group leadership and membership in entrepreneurship and marketing. Start-up assets, shared labour and financial support were rated as being moderately available while extension and agricultural technology were rated as available.

Group partnerships with outside agencies

The study explored the agencies partnering with the different groups and the benefits the groups and farmers got from these linkages. This was measured by the number of agencies that the groups partnered and collaborated with. The agencies were then categorized as Government extension providers, Non- governmental organizations, community organizations and research organizations. The level of support was taken to be the mean of the diverse areas of support given by a particular agency. Out of the twenty two women groups studied, seven groups did not have any partners, two groups had one partner each, two groups had two, six groups had three partners, and three groups had four while two groups had five partners. Benefits obtained by partnering were in form of resources and included extension information; startup asset, markets, grants, agricultural technology, training and capacity building, agricultural inputs and food aid. To determine whether there was significant relationship between number of partnerships and the level of group performance, Spearman correlation was used. The results are presendt in table 5.

The results suggest that a significant positive correlation exists between group performance and both NGO and agricultural extension services support. The correlation is stronger for agricultural extension services support (r= 0.726) as compared to NGO support (r= 0.451). Research and CBO support was not found to significantly influence group performance.

The study revealed that groups with more partners had a higher performance than those without. This could imply that the benefits of the partnerships increased group performance or that well performing groups with visionary and innovative leaders were more likely to have partners. The findings concur with those of Amudavi (2007), who reported that service accessible through farmers groups particularly through partnerships increase capabilities to generate outcomes hence group performance of such groups by promoting mutual learning and increasing utilization of new technologies. Poole *et al.,* (2006) stated that the capacity of a group to carry out its function may depend on the group's relationships with state and other external agencies. Amudavi (2007) also described group-partner relationships as providing a platform for resources and learning with regard to technology adoption. A study carried out in Ghana found external support to be important in training and motivating groups' activities (Katinka and Johannes, 2001).

Household food security status

The study sought to determine if participation in women groups was correlated with food security status of the respondents' household. Household hunger scale (HHS) developed by FANTA was adopted to measure food security. The scale consists of three items and three frequencies, with a continuous scale score of a minimum of 0 and a maximum possible score of 6. A categorical measure with 3 categories of household hunger was used. Scores 0-1 classified as little to no household hunger, scores 2–3

Table 3: Ease with which farmers accessed agricultural resources

Resources	Not easy		Easy		Very easy	
	Group	Non-group	Group	Non-group	Group	Non-group
Credit	62	44	29	15	3	3
% within categories	67.4%	71.0%	31.5%	24.2%	3.2%	4.8%
Extension training	22	58	21	4	51	00
%within categories	23.4%	93.5%	22.3%	8.2%	54.3%	00%
Farm inputs	28	33	47	25	19	4
%within categories	29.8	53.2%	50%	40.3%	20.2	6.5%
Market	46	21	48	41	00	00
%within categories	48.9%	33.9%	51.1%	66.1%	00%	00%
Agricultural tech	23	59	26	3	45	0.0
% within categories	24.5%	95.2%	27.7%	4.8%	47.9%	00%
Labour	19	21	59	40	16	1
% within categories	20.2%	33.9%	62.8%	64.5%	17.0%	1.6%

Table 4: Benefits of women group participation (n=94)

Benefit	No Benefits	%	Moderate Benefits	%	High Benefits	%
Marketing	71	75.5	23	24.5	-	-
Start up asset	20	21.3	41	43.6	33	35.1
Shared labour	12	12.8	60	63.8	22	23.4
Extension services	23	24.5	17	18.1	54	57.4
Agricultural technology	17	18.1	24	25.5	53	56.4
Financial support	37	39.4	50	53.2	7	7.4

Table 5: Influence of group partnerships on the level of group performance

Test	Organization		Group performance
Spearman's rho	NGO support	Correlation Coefficient	.451*
		Sig. (2-tailed)	.035
		N	22
	Extension services	Correlation Coefficient	.726**
		Sig. (2-tailed)	.000
		N	22
	Research services	Correlation Coefficient	.302
		Sig. (2-tailed)	.172
		N	22
	CBO support	Correlation Coefficient	.182
		Sig. (2-tailed)	.419
		N	22

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

moderate household hunger while scores 4-6 classified as severe household hunger. Table 6 show the level of food security of the sample.

The results indicate that food insecurity is still a problem in Mwala Division. However, group members reported a higher household food security status than non-group members. About a third (30.9%) of the group-affiliated participants were found to be more food secure as compared to 16.1 percent or the non-group participants who were found to be food secure. Almost half (47.4%) of the respondents reported moderate food security while 27.6 percent were found to be severely food insecure.

A multiple regression analysis was carried out, to determine the influence of participation in women groups on food security. The analysis used age, education level, marital status, household size and farm size as control variables. The results of the regression are reported in table 7.

The study revealed that household food security is significantly and positively influenced by participation of women farmers in women groups (F=9.980, p= 0.000 at a significance level 0.05) even when age, education level, marital status, household size and farm sizes are held constant.

Table 6: Household Food Security

Category	Food secure	Moderate food secure	Severe food Insecure	Total
Group Member	29	47	18	94
	30.9%	50.0%	19.1%	100.%
Non-member	10	27	25	62
	16.1%	43.5%	40.3%	100.%
Total sample	39	74	43	156
	25.0%	47.4%	27.6%	100.%

Table 7: Multiple Regression Coefficients of Explanatory Variables on Household Food Security (N=156)

	Unstandardized Coefficients		Standardized Coefficients		
Independent Variables	B	Std. Error	Beta	T	Sig.
(Constant)	2.459	.367		6.699	.000
Age in years	-.019	.006	-.251	-3.033	.003
Married; 1=Y, 0 = N	-.180	.116	-.108	-1.547	.124
Lower primary; 1=Y, 0 = N	.274	.151	.136	1.816	.071
Secondary;1=Y, 0 = N	-.229	.119	-.138	-1.922	.057
Tertiary; 1=Y,0 = N	-.132	.225	-.040	-.584	.560
Household size	.110	.029	.264	3.873	.000
Land size in acres	-.168	.035	-.359	-4.871	.000
Group membership 1=Y 0 = N	.208	.102	.140	2.039	.043

Dependent Variable: Household food security, Adjusted R-square = .344, Regression ANOVA F-statistic =9.980, df =9, p-value = .000. Non-formal education was used as the base value for level of education.

This positive influence could imply that groups are relevant for dissemination of agricultural extension services and provide information about new technologies, and also facilitate cooperation among farmers to allow members to tap the benefits of economies of scale. The implication could also be that women group activities have a direct positive influence on household food security. This agrees with household-based studies by Narayan and Pritchett (1997) who found that both formal and non formal groups had positive association with household welfare including food security in rural Tanzania. Similar findings were reported by Kariuki and Place (2005) who found participation in groups substantially influenced household welfare in central Kenya.

CONCLUSION

The study explored women famer's group participation patterns in Mwala and the influence of the participation on household food security. The findings show that participation in groups influences household food security positively and significantly even when controlling for age, education level, marital status, farm size and household size. Group members recorded a higher food security status than non members. They also found it easier to access agricultural production resources including agricultural extension education, credit, inputs, agricultural technology and labour. Group participants also practiced more enterprise diversification than non participants and reported more farm income. However accessing market was a problem to both categories. This demonstrates that women groups are relevant in technology dissemination and uptake, pooling of resources through collective action including labour, marketing or any other activity that enables group members to tap into economies of scale. The groups promoted farmers' empowerment by facilitating their ability to pool resources for common good and to demand and access technologies and extension information for improved agricultural production and household food security. Empirically, the level or the intensity of individual participation in group-based activities did not have an influence on individual's household

food security. This is notwithstanding the positive stories and testimonies of such structural entities on how they help members improve their household food security. Linkages between women groups and outside agencies through partnerships empowered group members to access more benefits and improved group performance. Government extension providers and non-governmental organizations gave most support to groups and therefore influenced their performance even more. Such institutional resources leverage the benefits of local level organizations.

A few implications emerge from these findings. To begin with, the significance of women groups on household welfare suggests the need to develop their organizational and resource capacity to profit even more households. This could increase access to agricultural production resources hence increased farm production and growth in farm income. Second, groups which are not performing well should be supported to expand their productive opportunities in order to meaningfully improve rural livelihoods and food security. This assistance could be through partnerships with private and government agencies, which could promote groups access to a wider range of services and increase their effectiveness in provision of resources and services such as farm inputs, information, accessing markets and financial services. On the other hand, managing more complex, high value and costly resources can introduce new levels of complexity, financial obligations, and need for skills that surpass the capacity of women groups. Hence, expanding group organizational structure in terms of leadership, management and community capacity building could help groups become more effective in generating positive outcome. Third, given the financial implications inherent in active participation in groups, the policymakers will need to address the disparities across households in group participation rates and in services accessible through the groups to ensure that the poor benefit from group participation that often requires meeting upfront costs before realizing benefits. This measure is needed to fully realise the potential of groups in improving the welfare of the poor and the not so poor within the community.

REFERENCES

1- Amudavi, D. (2007). The Effects of Farmer Community Group Participating on Rural Livelihoods in Kenya. In C.B. Barrett and A.G. Mude (Eds.), Decentralization and the Social Economics of Development: Lessons from Kenya, pp. 159-188. Wallingford Oxfordshire: CAB1.

2- Anandajayasekeram, P., Puskur R., Workneh S. & Hoekstra D. (2008). Concepts and Practices in Agricultural Extension in Developing Countries: A sourcebook. IFPRI (International Food Policy Research Institute), Washington, DC, USA, and ILRI (International Livestock Research Institute), Nairobi, Kenya.

3- Cohen, M., Mccord, M.J. & Sebstas, J. (2005). Reducing Vulnerability: Demand for Supply of Microinsurance in East Africa. Journal of international Development, 17: 319-325.

4- FAO, (2003). Focus on Food Insecurity and Vulnerability. A review of the UN system common country assessments and World Bank poverty reduction strategy papers.FAO. Rome, Italy.

5- FAO, (2009). Bridging the gap. FAO's Programme for Gender Equality in Agriculture and Rural Development.FAO. Rome, Italy.

6- Food and Agriculture Organization (FAO), (1987). Women in Africa food production and food security. In J. P. Gittinger, J. Leslie and C. Hoisington (Eds.) Food policy: Integrating supply, distribution, and consumption, pp. 133-140. EDI Series in Economic Development. Baltimore: The John Hopkins University Press.

7- Geran, J.M. (1996). Effect of Group Formation on Rural Women's Access to Services in Western Province, Zambia. Sustainable development Department, FAO,Rome, Italy. Available at: http:// www. fao. org/ waicent/ faoinfo/ sustdev/ PPdirect/ PPre 0010.htm.

8- GoK, (2004). Strategy to Revitalize Agriculture. Ministry of Agriculture; Ministry of Livestock and Fisheries Development; Ministry of cooperative Development. Nairobi, Kenya.

9- GoK, (2007). Vision 2030. Government Printer. Nairobi Kenya.

10- Heinrich, G. (1993). Strengthening Farmer Participation through Groups. Experience from Botswana. ISNAR. Hague, Netherlands.

11- Johnson, D. W. & Johnson, F. P. (1987). Joining together: Group theory and group skills (3rd edition). Englewood Cliffs, NJ: Prentice-Hall.

12-Kamar, M. (2001). Role of Kenyan Women's Groups in Community Based Soil and Water Conservation. A Case Study of Mwethya women's groups in Machakos. In: D.E Stott, R. H. Mohtar & G.C., Steinhardt (Eds.) Sustaining the global farm. Purdue University, West Lafayette, Indiana, U.S.

13- Karega, R. (1996). Women's Groups: From Welfare to Small-scale Business in Kenya. Small Enterprise Development, 7: 31-41.
14- Kariuki, G. & Place, F. (2006). Initiatives for Rural Development through Collective Action: The Case Study of Household Participation in-group Activities in the Highlands of Central Kenya. IFPRI. Washington DC.
15- Katinka, W. & Johannes, P. (2001). Women's Participation in Local Organizations: Conditions and Constraints. World Development, 29 (8): 1391-1404.
16- Kenya Food Security Steering Group (2009). Machakos District long rains assessment report. KFSSG Nairobi Kenya.
17- Kenya National Bureau of Statistics (2010). The 2009 Kenya Population and Housing Census Counting our People for the Implementation of Vision 2030, vol 1A. Nairobi, Kenya. Government printer.
18- Korsching, P.F. & Allen J.C. (2004). Locality Based Entrepreneurship: A Strategy for Community Economic Vitality. Community Development Journal, 39: 385-400.
19- Lyon, F. (2008). Community Groups and Livelihoods in Remote Rural Areas of Ghana. How Small Scale Famers Sustain Collective Action. Community Development Journal, 38: 323-331.
20- Mazingira Institute (1992).), Women and Development: A Kenyan Guide. Nairobi, Mazingira Institute.
21- Mwaniki, A. (2009). Biotification as a Vitamin A Deficiency Intervention in Kenya. In Andersen, P. and Cheng, F. (Eds.), Case Studies in Food Policy for Developing Countries Vol 1: Policies for Health, Nutrition, food consumption and poverty, pp 83-103. Cornell University Press: Ithaca, New York.
22- Mwaniki, N. (1986). Against many odds: The dilemma of self-help groups in Mbeere, Kenya. Africa, 56 (2): 210-228.
23- Narayan, D. & L. Pritchett. (1997). Cents and Sociability Household Income and Social Capital in Rural Tanzania. Policy Research Working Paper No. 1796. Washington, DC: World Bank.
24- Nasimiyu, R. (1993). The History of Maendeleo Ya Wanawake Movement in Kenya, in Khasiani & Njiro, E. eds; The women's movement in Kenya, Nairobi: association of African women Research and development.
25- Njoku E., Angba, A. & Nwakwasi, R. (2009). Factors Influencing Role Performance of Community-based Organization. Agricultural Development. International NGO Journal, 4 (6): 313-317.
26- Nyariki, D. & Wiggins, S. (1997). Household Food Insecurity in Sub-Saharan Africa: lessons from Kenya. British food Journal, 99(7): 249-262. Available at http://www.emeraldinsight.com.Accessed on 8/12/2009.
27- Poole, M.S., Seibold, D.R. & McPhee, R.D. (1996). The Structuration of Group Decisions. In: R.Y. Hirokawa, R.Y. and M.S. Poole (Eds.), Communication and Group Decision Making, Second edition. London and New Delhi: Sage Publications.
28- Pretty, J. & Ward, H. (2001). Social capital and the environment. World Development, 29(2): 209-227.
29- Quisumbing, A., Meizen-Dick, R., Crowley, E., Koppen, E., Miller, B. & Paris, T. (2001). Empowering Women to Achieve Food Security. A 2020 vision for food, agriculture, and the environment. IFPRI: Washington, DC.
30- Rees, D., Momanyi, M., Wekundah, J., Ndungu, F., Ondindi, J. & Oyule, O. (2000). Agricultural Knowledge Information Systems in Kenya- Implications for Technology Dissemination and Development. Agricultural Research and Extension Network, Chapter No. 107, ODI.
31- Saito, K.A. & Spurling, D. (1992). Developing Agricultural Extensions for Women Farmers. In: World Bank Discussion Chapter No.156. Washington, DC, World Bank.
32- Sanchez, P.A. (2005). Soil Fertility and Hunger in Africa. Science, 29: 2019-2020.
33- Schmidhuber, J. & Tubiello, F. (2007). Global Food Security under Climate Change. FAO Rome Italy.
34- Sen, A. (1981). Poverty and Famines. An Essay on Entitlement and Deprivation. Oxford, Claredon Press.
35- Sulaiman V.R., Hall A. & Raina, R. (2006). From Disseminating Technologies to Promoting Innovation: Implications for Agricultural Extension, Paper Prepared for the SAIC Regional Workshop on Research-Extension Linkages for Effective Delivery of Agricultural Technologies in SAARC Countries (20-22 November, 2006).
36- Tweeten, L.G. & McClelland, D.G. (1997). Promoting Third-world Development and Food Security. New York: Praeger.
37- Udvardy, M.L. (1998). Theorizing Past and Present Women's Organization in Kenya. World Development, 26 (9): 1749-1761.
38- Western Province, Zambia. FAO. World Bank, (2008). Gender in Agriculture Source book. The international bank for reconstruction and development, World Bank: Washington D.C.
39- World Food Summit, (1996). Rome Declaration of world food security. FAO. Rome, Italy.