



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL  
OF ADVANCED RESEARCH

## RESEARCH ARTICLE

## Contribution of Agriculture Related Activities of Women Groups to Household Income Levels and Food Security in Barwessa Division, Baringo County, Kenya

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### Manuscript Info

#### Manuscript History:

Received: 12 September 2013

Final Accepted: 21 September 2013

Published Online: October 2013

#### Key words:

Agriculture, Women Groups,  
Household Income, Food Security,  
Kenya

### Abstract

This paper examines the agriculture related activities of women groups, their income levels from these activities and the contribution of these activities to food security, based on study findings from a survey done in Barwessa Division in Baringo County, Kenya. A descriptive survey design was used and the data was collected using questionnaire and interview schedule. The data generated was analyzed qualitatively by way of frequencies and percentages. Data was analyzed with the help of statistical package for social science of computer package. The study involved 21 registered women groups in Lawan and Kabutiei locations of the Division. Purposive sampling was used to select all the registered women groups and simple random sampling was used to select 137 respondents from a population of 468 persons. The study findings showed that income generating activity ranks highest among women groups' activities and that livestock and crop production followed respectively. It was also established that agriculture related activities of women groups contributed immensely to households' food security in Barwessa Division and therefore are vital for addressing food insecurity that is prevalent in the division. On the basis of these findings recommendations for the training women groups to provide them with necessary skills on project management, leadership and sustainable project and financial management were crucial if sustainable women groups' activities are to be achieved.

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## Introduction

### Food Production and Security in Kenya

Although the UN Millennium Development goal number 1 spells out its commitment to eradicate extreme poverty and hunger (Republic of Kenya, 2005); recent facts in Kenya indicated that the number of people in need of relief food has risen to 3.5 million in 37 districts by the year 2006 up from 2.5 million in 26 districts the previous year which represented 1 million increase (Magendi, 2006). At the current rates the food gap is expected to increase to more than nine times the present gap by 2020 (Saito et al., 1994), implying that food insecurity will persist in Kenya for some time unless urgent measures are taken to reverse the situation. According to Cheboi (2009), Kenya has the capacity to produce her own food if emphasis is put on key aspects of production such as women access to credit food agricultural production.

The current government estimates of 2009 indicate that 10 million people stare at starvation in the face, representing a third of the country's population (Gaitho, 2009). The condition has lead to a sharp rise in food prices that even worsens the food situation. It is therefore worth noting that the food situation in Kenya is a big challenge at the moment. The women groups' activities need to be assessed to establish their effects on food security which forms the basis of the study.

### Food Security Status in Barwessa Division

Barwessa Division, like any other ASAL divisions of the District, is facing frequent food insecurity characterized by frequency in food relief. According to the District Statistics office, the Division is occupied by a population of

20,925 people with a density of 41.4 persons per Km<sup>2</sup>. Republic Document (2002) points out the major problems in the Division as perennial food deficit caused by low agricultural production. According to the Divisional Welfare Monitoring Survey of 2006, more than half of the population required urgent food relief due to a total crop failure. The survey also indicated that the prices of food commodities had escalated due to decline in the supply of commodities.

This study will therefore examine the effect of women groups' activities on food security. Currently NALEP-SIDA project phase II is beginning in the division with an aim of improving food security status in the division (Republic of Kenya, 2005). A number of women groups undertake various activities which need to be examined to find out the effects of their activities on food security. The division is in the Agricultural zone III which is lowland with inadequate rains, constant drought and famine and generally unfavourable weather conditions for farming. However, small seasonal irrigation projects are carried out with the growing of short seasoned crops such as beans, sorghum, millet, green grams and lowland maize hybrids. Common livestock kept are mainly the indigenous breeds adaptable to the harsh climatic conditions of the area.

Trading in agricultural products is particularly carried by women whose aim is to acquire income to supplement food shortages. Women groups in Barwessa provide the major source of farm labour through their group work in the farm. Livestock reared by women are goats, sheep and poultry since these are regarded as inferior livestock for women according to the community's culture (Republic of Kenya, 2002).

Crops cultivated by women are: vegetables, fruits and the supplement food crops like cassavas and sweet potatoes. Major crops like maize and cotton are particularly men's crops because they are grown for commercial purposes while women crops are grown for home consumption. However, women groups have exploited even the traditionally men's crops and livestock; at the moment women groups are engaged in both the major and the minor crops and livestock and are the dominant producers of food and income in the division (Action Aid, 2006).

#### **Women Group's Activities and Food Security**

The role of women in developing of third world nations is increasingly recognized especially in the context of collective groups in rural areas (Wamalwa, 1991). According to Sorensen (1990) and El-Bushra (1993), researchers in women and development in third world nations have shown increasing interests in women organizations and their role in the development process. The growing recognition for women participation in development is currently gaining momentum. Asiko (1990) explains that women enjoyed support from government, NGOs and donor agencies in all spheres of development. This growing interest is a possible indication that women play crucial role in development.

The Government of Kenya (1990) emphasized that much is still needed to be done to mobilize more women, with the aim of initiating income generating projects to enhance their socio-economic welfare in the villages. Most of women's time is concentrated on household activities that address food security and household welfare. Women are seen as prime movers in self-help work such as building nursery schools, constructing water supplies, raising community centres, besides prevailing in the more traditional responsibilities of family care and handicraft production. Evidence from Africa, Asia and Latin America indicates that women's income has a greater effect on household food security and pre-schooler nutrition than men's income (Quisumbing, 1995).

According to Kreager (2005), women engage in such activities as livestock production (dairy, poultry, sheep and goats, bee and pig rearing), marketing crop produce (such as grains, vegetables, fruits and milk), as well as other activities like kitchen gardening, tree nursery, wool spinning, weaving and even promotion of Environmental awareness. These activities generate immense income that could address food security. Because of these activities of women groups the groups model is spreading rapidly largely due to the force of reputation and word of mouth because of its success in affecting real change for women and their families (Backman, 2005). However, the activities of women groups are limited by the limitation of finance, land and social assets and fewer opportunities for expanding their knowledge and skills that would further improve their production for food to meet their household food security (Cheboi, 2009).

Despite the limitation of women in terms of land ownership right and financial support for productive activities, they work as income earners, processors and preparers of food stuffs thus provides food for their household required (FAO, 1998). It is therefore paramount to analyze women's productivity within the household context.

Quisumbing (1995) suggests that women's decisions to engage in income earning activities involve complex tradeoffs, and the ultimate effects of women's activities on house hold nutrition and food security depend on the specific setting. Their contribution to food security and general development needs to be examined in terms of their role in agricultural production as well as activities related to food security. Quisumbing (1995) and Saito et al. (1994) further predict that at current growth rates, the food gap is projected to increase to more than nine times the present gap by 2020. Despite the tremendous efforts by the government and other stake holders in development to

improve the situation on food, the process of attaining food security has been slow and uneven up to the present time.

FAO (1995) warned that much of Sub-Saharan Africa is likely to continue suffering from food insecurity. It is therefore worth noting that sustainable food production is the first pillar of food security (Quisumbing, 1995). It is also important to recognize women's efforts in food security related activities. In spite of the tremendous contribution of group activities especially women groups to food security the efforts of many such organized groups in Baringo District have been affected by poverty because many group members are unable to contribute financially towards sustenance of group projects (Kenya Government, 2002). The state of affairs has resulted in increase in the number of dormant women groups as well as abandoned projects as indicated in the report.

A large number of women groups in Barwessa Division are undertaking various activities that need to be examined to find out their contribution to food security. The activities carried out by women groups in Barwessa Division have been cited to include crop farming, marketing of agricultural produce, livestock rearing, and tree nurseries, merry go rounds among other businesses that affect negatively or positively food security.

The various agriculture related activities generates both food and income that could be influencing food security. However, in spite of all these activities food security remains the biggest challenge in the Division. This research seeks to investigate these activities of women groups and their effects on food security in Barwessa Division

### **Crop Production**

The activities undertaken by women groups in Barwessa Division include horticultural crops like vegetables such as kales, onions and fruits especially mangoes and paw paws. Cereals and other food crops include maize, beans, green grams and root crops like cassavas. Cotton and green grams are grown purely as cash crops (Action Aid, 2006).

Some groups do engage in production of seedlings for various trees, flowers and fruits and are sold to generate income to groups. These include seedlings for flowers, vegetables particularly kales and onions, tree seedlings like, *Croton megalocarpus* and *Leucaena spp.* The species raised in the nursery are mainly those adapted to the environmental conditions of the area and those which have multipurpose uses such as source of livestock feeds as fodder, firewood, posts and droppers for fencing purposes. The women also engage in marketing of the various crop produce.

### **Livestock Production**

Livestock activities to be covered under the study will include poultry, goats, sheep, dairy cattle and bees. Their products such as eggs, milk, skin and honey are sold to generate income which may be used to purchase food and other household needs. Trading in livestock products, such as milk, eggs and honey as well as in selling and buying goats, sheep, cattle, pigs and poultry will also generate household income.

### **Material and Methods**

This study employed a descriptive survey design. The design was chosen particularly since it mainly looks at phenomena, events and issues the way things are (Mugenda and Mugenda, 2003). The study covered Lawan and Kabutiei Locations of Barwessa Division selected purposively because of their frequent food insecurity and their relative stability in terms of security. Other locations are frequently affected by cattle rustling. The study examined active, registered women groups in Lawan and Kabutiei Locations of the Division.

Geographically, Barwessa Division is located in the western part of Baringo District, classified as lowland agro-ecological zone with an altitude of 700m above sea level and an average rainfall of 600 mm per annum. Temperatures are 32°C and land is suitably a range land. The main economic activity is livestock rearing, however short seasoned and drought resistant crops such as ground nuts, beans green grams sorghum, millet and lowland maize hybrids are grown. Barwessa Division is one of the most affected in terms of food security with about half of the population being poor. The Division is also one of those that make up 70% of the ASAL areas of the district hence food production is low due to unreliable weather patterns resulting in constant food insecurity.

Population under study comprised all the women members that belong to the 21 active and registered women groups by social service undertaking crops and livestock activities as well as marketing of agricultural products. The total population of the study was 468 from which the sample was obtained. The population comprised women group members, agriculture extension staff and opinion leaders.

According to Kathuri and Pals (1993), a sample of 30% of the population can form a sufficient representative of the study population. This allowed the author to pick 29.3% of members from the population of the study. Simple random sampling was used to select the women group members' opinion and group leaders to participate in the study. Simple random sampling was necessary because the method ensured that all members of the population had

an equal chance of being selected for the study (Mugenda and Mugenda, 1999). Purposive sampling was used to pick the agriculture extension staff and opinion leaders. Therefore, a total sample of 137 respondents were used in the study out of which 67 were members of women groups, 4 were agricultural extension staff, and 66 were group and opinion leaders. The opinion leaders were drawn from provincial administration, Community Based Organization, Maendeleo ya Wanawake Organization and department of Social Services who work with the groups. Instruments used were questionnaire, interview schedules and existing documentary records on women groups, their activities and data on food security situation obtained from the Department of Social Service and Ministry of Agriculture. Questionnaires were distributed to the selected individual women from the women groups as well as the four agricultural extension staff. Interview schedule was particularly necessary to obtain data required to meet specific objectives of the study not captured by questionnaires besides standardizing the interview situation. In particular, interview schedule targeted the opinion leaders and women group's leaders and it consisted of unstructured and semi-structured questions in order to obtain greater depth of information. Respondents on their own recorded the questionnaire while the interview schedules were recorded by the researcher and the research assistants to allow room for further probing and recording information the way it was for accuracy purposes. The responses from both the questionnaire and interview schedule were analyzed to show the effects of women groups' activities on food security. The data collected were both quantitative and qualitative; however descriptive statistics were used to analyze the data with the help of Statistical Package for Social Science (SPSS) programme. The specific descriptive statistics used to present data were frequencies and percentages, where the data were compiled first in frequencies, and then converted into percentages. This information was presented into tabular form where appropriate in order to facilitate interpretation. Inferences were made from the tabulated data and were used as a basis for establishing the effects of woman group's activities on food security. The frequencies and percentages were used to indicate either positive or negative effects of women groups' activities towards food security.

## Result and Discussion

### Agricultural Activities carried out by Women Groups

The study sought to identify the main agricultural activities that are carried out by women groups particularly those related to agriculture. In order to achieve this, the respondents were asked to name their group activities and give their group plans. This was thought to be necessary in identifying the key agricultural activities of women groups. Table 1 summarizes the agricultural activities that respondents said their groups undertake.

**Table 1: Agricultural Activities Carried out by Women Groups**

Agriculture activity	Frequency	Percentage
Livestock production	7	7.78
Crop production	16	17.78
Environmental conservation	13	14.44
Marketing of agricultural produce	54	60.00
<b>Total</b>	<b>90</b>	<b>100</b>

Out of 90 respondents to this item, 7(7.8%) of the women groups engaged in livestock production activities, 16(17.8%) engaged in crop production activities, 13(14.4%) engaged in environmental conservation activities while the majority 54(60.0%) engaged in marketing activities. The findings of the study thus revealed that majority of the groups practiced marketing activities that generate income.

### Group Objectives

When asked to state their objectives, 58(73.4%) of the respondents gave income generation as their main objective for the group existence, followed by food production, 9(11.4%), while 6(7.6%) each gave both for social (getting together) and environmental conservation. It appears the objectives are still in agreement with the group activities and that majority of the groups target income generation in their activities.

### Future Plans of Women Groups

To further probe them on group activities, the study asked the respondents to state the future plans of their groups. A number of suggestions were made including sourcing for more funds through grants and credit to facilitate the expansion of their marketing activities which were generating a lot of income for sustainable food security. Other suggestions include the conservation of degraded land of individual group members, practicing irrigation in farms close to water sources using water pumps, and upgrading livestock breeds to enable the practice of zero grazing.

It was therefore clear from the responses that the main women group activities are marketing of agricultural products and practicing both livestock and crop production activities as well as environmental conservation. All the activities mentioned targeted food security.

### **Income Levels of Women Groups**

This study objective sought to establish the income levels of women group members from the group activities. In order to effectively address the objective, the following questions were asked

What is the main source of income in group?

What is the average individual income from group activities?

How can women enhance food security through their group activities?

### **Main Source of Income in Group**

Women group members were asked to state their main source of their income. The results are presented in Table 2.

**Table 2: Main Source of Income in Group**

<b>Main source of income to groups</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Marketing activities	57	85.07
Grants/donations	8	11.94
Loans	2	2.99
<b>Totals</b>	<b>67</b>	<b>100.0</b>

The results revealed that women groups derive income from their own efforts of carrying out marketing activities, 57(85.07%). The little support through donations and grants, 8(11.94%), does not significantly contribute to groups' income. However, the grants supplement group incomes since majority of groups said to have received support from NGOs with exception of a few who said they had not received. The support was said to be in form of capital or finance, capacity building and training as well as through food donation. However, marketing activities came out clearly as the main and sustainable source of income to most of the women groups. Only 2(2.99%) of income is from loans.

### **Average Individual Income per Year from Women Groups' Activities**

Table 3 summarizes the average income that an individual in a group is said to obtain per year from the proceeds of women groups' activities. Respondents were given choices to select the category that one belonged.

**Table 3: Average Individual Income per Year from Women Groups' Activities**

<b>Income level per year</b>	<b>Frequency</b>	<b>Percentage</b>
Less than Ksh 65,000	20	29.85
Equal to Ksh 65,000	6	8.96
Greater than Ksh 65,000	41	61.19
<b>Totals</b>	<b>67</b>	<b>100</b>

The results indicate that women groups' activities generate immense income that translates to over Ksh 65,000 per annum to an individual in a group as agreed by 41(61.19%) of the respondents, 20(29.85%) of the respondents said they gain less than Ksh 65,000 while 6(8.96%) said the gain an amount equal to Ksh 65,000. It is worth noting that the monetary threshold for a food secure household in Barwessa was indicated to be Ksh 65,000 in the conceptual framework.

This allowed the author to interpret the results to mean that women in groups benefit a lot and can meet the monetary food security threshold. However, owing to lack of sufficient capital, lack of capacity building for effective management and poor market infrastructure, some groups tend to go below the monetary food security threshold while others just reaches the mark. It is therefore paramount for the government and other community development partners to support women groups to realize their objectives so that food security threshold is enhanced in order to reduce the gap of food security in many households.

### **Enhancing Food Security through Women Groups' Activities**

Respondents were probed further to give suggestions on ways of enhancing women groups' income through their activities in order to address food security in their households. First, there was need for women groups to increase the scale of their activities through expansion. This, they suggest, would be achieved through provision of credit facilities, grants and donations to expand their activities. Secondly, the respondents suggested the education and



training of women groups to equip them with managerial skills as well as new technologies that would boost their activities.

Thirdly, the establishment of irrigation projects through water harvesting techniques like construction of dams to facilitate irrigation projects for women groups. Other recommendations include provision of quality and certified farm inputs, drought resistant crops, proper storage facilities and the improvement of market infrastructure to enable women groups to carry out their activities in conducive and favourable conditions.

#### **Contribution of Agriculture Related Activities to Household Food Security**

The study sought to obtain information on how the proceeds from the agriculture related activities of women groups contributed to household food security. A variety of questions were asked the respondents and the results analyzed.

#### **Impact of Women Group Activities on Food Security**

The group and opinion leaders were asked to state whether women groups' activities had any impact on household food security. All 66(100%) said the activities had positive impact by providing income to women group members who in-turn use the income to purchase food for their households. The respondents also cited direct production of food from women groups' activities for household food security. Similarly, the extension workers were asked to indicate whether women groups' activities had positive, negative or no effect on food security; out of the 4 extension workers, 4(100%) stated that women groups' activities had a positive effect on food security.

When the women group member were asked to state whether or not there was a relationship between women groups' activities and food security, the results were as shown in Table 4.

**Table 4: Relationship between Women Groups' Activities and Food Security**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	64	95.5
No	3	4.5
<b>Total</b>	<b>67</b>	<b>100</b>

The results from the three categories of the respondents seem to agree as each category agreed to the fact that women groups' activities affect food security positively. The contribution of women groups' activities to food security is either directly through production of food products or utilizing the income from the activities to purchase food.

#### **Individual Achievements in the Group**

The author sought to establish whether or not the respondents gained any individual achievement from being in the group. Table 5 summarizes the results.

**Table 5: Individual Achievement in Groups**

<b>Individual achievement</b>	<b>Frequency</b>	<b>Percentage</b>
Income generation	40	33.9
Acquire skills	19	21.3
Food acquisition	20	22.5
Environmental conservation	3	3.4
Aid	4	4.5
Moral support	2	2.2
None	1	1.1
<b>Total</b>	<b>89</b>	<b>100</b>

The findings revealed that income generation, 40(33.9%), tops on the list of achievements followed by food acquisition, 20(22.5%), while 19(21.3%) indicated the acquisition of skills as individual achievement in the group. This can be interpreted to mean that through the generation of income and acquisition of food, the households of women group members achieve food security. Therefore, the activities target food security in the households. Also

the acquisition of skills as achievements by individuals in group are skills necessary to improve marketing activities as well food production activities which are crucial for enhancing household food security.

When opinion and group leaders were asked to state how women groups activities can be improved to enhance food security, many, 33(50%), said there was need for women groups to increase their scale of production through expansion of their current activities, 15(22.73%) said there was need to source for funds for women groups to expand their activities through promotion of finance and inputs such as certified seeds, 7(10.61%), suggested education and training women groups on effective management skills of both groups and projects and finally 8(12.12%) said there was need to establish irrigation projects to be undertaken by women groups while 3(4.55%) suggested improvement of market infrastructure to create a suitable and conducive environment for women groups' activities so as to generate income and food for sustainable food security.

In order to justify the contribution of women groups activities to households food security, majority 27(40.91%) of the respondents said the group income is utilized to purchase household food security hence it affects positively food security in most households while 13(19.70%) said group incomes are used to expand the group activities that with ensure sustainability of their activities and to generate more income for their groups. Fourteen (21.21%) said the group income is used to loan to group members at a lower interest rates so as members can access credit at affordable interest rates. Finally, 12(18.18%) said group incomes are used for savings for future use. It appears therefore that respondents agree that activities of women groups affect households' food security positively.

### Conclusion and Recommendations

From the study findings, it was concluded that the level of income from agriculture related activities of women groups is generally higher and should be motivating force for many other women to join groups so that their income levels can improve and food security is enhanced. Moreover, agriculture related activities of women groups contribute significantly to food security. It therefore calls for donors, government and non-governmental organizations to assist women group projects financially and technically in order to contribute even more to food security. It is also evident that agriculture related activities of women commonly prevalent in women groups include crop and livestock production as well as trading in agricultural products that contribute to income that is utilized to purchase food. Livestock production activities include poultry and bee keeping which are easily managed by women groups and requires less capital as well as low technical skills.

It was recommended that training is necessary for women groups since leadership problem and lack of skills on their activities lowers their productivity hence there is need to provide adequate skills and knowledge geared towards improving their activities. In addition, income generation is the main activity of most groups and it generates immense income that is vital for the survival of most groups. As such activities provide sufficient funds that if well developed will reduce food insecurity significantly especially in areas where crop and livestock production activities are minimal.

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