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SOCIO-ECONOMIC FACTORS INFLUENCING SMALL SCALE FARMERS LIVELIHOODS AND FOOD SECURITY IN CENTRAL DARFUR STATE – SUDAN

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ABSTRACT

The study was conducted in central Darfur State, to examine the socio economic factors influencing small-scale farmer's livelihoods and food security. Forty farmers were selected and interviewed using the simple random sampling technique, and data were collected by means of structured questionnaire. Sex, age group, income group, household size, seeds source, land ownership, farm size, reason for not cultivating the whole area, source of financing and yield of sorghum and millet were the socio-economic factors studied. Results revealed that most of the above factors have negative impact on small-scale farmer's livelihoods and food security of interviewed, thus most results were consistent with a prior expectation of the researcher. The study, therefore recommended that increasing insurance coverage, improving access to credit, diversification of household economic activities, impose land reform policies, and introduce agricultural cooperatives and appropriate interventions for livelihoods support and attaining food security at the household level.

Key words: Central Darfur, Food security, small-scale farming, livelihoods, socio-economic.

INTRODUCTION

Globally, food provision is dominated by small-scale providers. An estimated seventy per cent of the global population, or nearly 4.7 billion people, are fed with food provided locally, mostly by small-scale farming, fishing or herding, (Practical Action 2011), There are 1.4 billion poor people living on less than US$1.25 a day. One billion of them live in rural areas where agriculture is their main source of livelihood (IFAD and UNEP 2013).However, according to IFAD and UNEP 2013estimates, Smallholders manage over 80 per cent of the world's estimated 500 million small farms and provide over 80 per cent of the food consumed in a large part of the developing world, contributing significantly to poverty reduction and food security. Increasing fragmentation of landholdings, coupled with reduced investment support and marginalization of small farms in economic and development policy, threaten this contribution, leaving many smallholders vulnerable. Agriculture dominates both the economy and livelihoods of Darfur region (WFP 2013).Traditionally, people in Darfur engaged in subsistence agriculture (OXFAM, 2014), most households depend on crop production and livestock rearing for their livelihoods. Traditional rain-fed agriculture is the dominant seasonal farming activity across the region, (WFP 2013).Central Darfur State, however, is one of the five states comprising Darfur region, and is not exceptional in terms of livelihoods and food security options.

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Most people rely on crop production or livestock rearing for their livelihoods (FAO, 2010); furthermore, small-scale traditional agriculture provides the foundation of economic, political, and social life, it is of a subsistence nature and is based on an extensive system of land use, (Osman, Abdal Monium *et al.,* 2013).Usually, Small-scale farming is characterized by small farm size, subsistence and low level of production (Arene (2008) and Bishop O. Ovwigho, 2014). Within this context, there is a growing view that most smallholders do not have a viable future in farming, therefore, small farms are seriously challenged today in ways that make their future precarious (IFPRI, 2005). Small-scale farmers livelihoods and food security in central Darfur state is being affected by multiple of factors, mainly of socio-economic origin, among them farm size, source of seeds, land ownership, land area the farmer is able to cultivate and harvest, cereal (sorghum and millet) productivity, source of financing agricultural practices and annual farm income. These factors are investigated to study their influence on people's livelihoods and food security in the study area.

Factors influencing small-scale farmer's livelihoods and food security

Small farmers are one of the more disadvantaged and vulnerable groups in the developing world, half of the world's undernourished people, three-quarters of Africa's malnourished children, and the majority of people living in absolute poverty can be found on small farms, (IFPRI, 2005). In sub-Saharan Africa, small-scale farmers make up the majority of food producers.

Yet, the yields per hectare for main food crops are generally low in small-scale food production systems in this region, there are considerable differences in yield output among individual farmers, (Genesis T Yengoh2012). However, small farms are not economically efficient because of relatively high input costs compared to profits. Small farmers in developing countries are unable to take advantage of economies of scale and often lack the financial resources, such as credits and loans to make their farms profitable, (Mission 2014). Small farms are characterized by low-income generation, small size land utilization, lack of proper inputs and lack of resources, all of which limit productivity and further increase level of poverty. People living in poverty often cannot produce or buy enough food to satisfy their needs and so are more susceptible to disease. Sick people are less able to work or produce food, (Oni *et al* 2013).

Moreover, smallholder farmers have not been given the support they need to flourish. Donors and governments have neglected this group, both through their approach to agriculture, and the dramatic decline in public finance allocated to support agricultural livelihoods (ASFG, 2011). Central Darfur State is an agrarian State with agriculture playing a vital role in food security; one of the characteristics of this State is that, more than 90% of households are involved in small-scale farming activities, their land holdings are of small sized farms, farming is mainly for self-sufficiency. Therefore, diversification of income source is very clear and important, in order to achieve food security. However there are a variety of factors affecting farmers livelihoods and food security either positively or negatively, but for the purpose of this study, only socio-economic factors influencing livelihoods and food security of the respondents in the study area were examined.

Table 1. Socio-economic factors affecting livelihoods and food security in the study area

Socio-economic factor	Frequency	%	Cumulative %
Sex			
female	25	62.5	62.5
male	15	37.5	100
age group			
20-29	2	5	5
30-39	17	42.5	47.5
40-49	15	37.5	85
50 and above	6	15	100
Household size			
≤ 5	13	32.5	32.5
6-9	19	47.5	80
≥10	8	20	100
Seeds source			
Formal	3	7.5	7.5
Farmer's selection	24	60	67.5
Market	8	20	87.5
Formal & Farmer's selection	2	5	92.5
Formal & market	2	5	97.5
Formal, Farmer's selection & market	1	2.5	100
Land ownership			
Inherited	26	65	65
bought it	10	25	90
Gift	2	5	95
Rent	2	5	100
Farm size(fed)			
≤ - 3	10	25	25
3.5 - 6	17	42.5	67.5
6.5 - 9	6	15	82.5
9.5 - 12	3	7.5	90
≥ 12.5	4	10	100
Cultivate the whole area reason			
shortage of income	8	20	20
Security	2	5	25
cultivate the whole area	29	72.5	97.5
shortage of income & labor	1	2.5	100
Source of financing			
self-financing	30	75	75
Formal	7	17.5	92.5
from other farmers	3	7.5	100
Yield of millet (kg/fed.)			
≤ 200	4	10	10
201- 399	32	80	90
≥ 400	4	10	100
Yield of sorghum(kg/fed.)			
≤ 200	5	12.5	12.5
201- 399	18	45	57.5
≥ 400	17	42.5	100
Income group(SDG)			
≤ 1500	7	17.5	17.5
1510 - 2500	7	17.5	35
2510 - 3500	9	22.5	57.5
3510– 4500	11	27.5	85
4510 - 5500	4	10	95
5510– 6500	1	2. 5	97.5
≥ 6510	1	2.5	100

MATERIALS AND METHODS

Area of the study

The study was conducted in Zalingei, Central Darfur State. It is located in the far western part of Sudan, in the centre of Great Darfur, it share international border with Republic of Central Africa and Republic of Tchad, and national border with West, South and North Darfur States, The population estimated at about 1,123,748 people. About eighty percent of them live in the rural areas, where they depend upon rain fed subsistence farming and grazing for their livelihoods,(Adam Salih Abaker, 2006; and EHA, 2014). The average rainfall varies between 300 to 1000 mm, with a single short rainy season and a long drought of seven or more months, normally spans from May to October with 75% of the rain concentrated in the months of June to August. The monthly average temperature varies between 30° in April and May prior to the onset of the rainy season and 20°c in the winter months of December and January, (Bahreldin Salih *et al*., 2002).

Data collection

For primary data collection, a cross sectional data was collected using simple random sampling technique through structured questionnaire, while secondary data was collected from government reports, NGO reports, research papers and relevant sources

Statistical analysis

Descriptive statistics were used for socio-economic factors and population characteristics, frequency tables to summarize the data and examine the socioeconomic characteristics of the respondents, depending on percentages, and means, using SPSS software.

DISCUSSION

Sex

About 37.5% of the interviewed respondents were found to be males, while 62.5% of them were females. However, women's participation to production process is very significant in the study area; as the woman bears additional responsibilities in the absence of her husband, who migrates to big towns and schemes in central Sudan, or abroad searching for a better life for his family, and hence women act as household heads.
In this context, women will not be able to cultivate the farm properly and thus she will be vulnerable to food insecurity.

Age group

About 5% of the respondents were in the age range of 20-29 years, 42.5% of them in the age range of 30-39 years of age, 37.5% in the age range of 40-49,while the last age group 50 years and above constitute only about 15% of the respondents, the average age was 41years. Most of the respondents (85%) were in the range of 20-49 years and are engaged in agriculture for the whole sample, this is because agriculture is the most available option for them. The age group of 20-29 constitutes only 5 % of the total respondents, this absenteeism of youth in production cycle can be justified by that, they are either engaged in schools or left the area searching for alternative jobs to improve their standard of living, as there is no incentive for them to continue in agriculture.

Sources of seeds

About 7.5% of the respondents get their seeds from formal authorities, like Agricultural Bank and Jebel Marra Rural Development Project (JMRDP), 60% of them depend on theirown selection from previous crop, 20% depend on the market as source of their seeds, and the rest, which constitute 12.5%, obtain seeds nearly from all sources. This indicates that almost 80% of the respondents do not use improved certified seeds; which may have an implication on low productivity and hence food insecurity.

Land ownership

About 65% of the respondents get their land through inheritance from their ancestors, 25% reported that they bought it from other farmers, while 5% get their land by rent, and 5% as gift usually from relatives. It can be postulated that inheritance is the major way of land ownership in the study area, as there is no further fertile land is available. Moreover, marginal lands do not encourage farmers because of their low yield. However, as population increases, farm size is gradually getting smaller and smaller, and will no longer support the farmer, which will lead to insufficient output and hence to food insecurity.

Farm size

Farm size owned by farmer is relatively small, although there is variability among farmers concerning farm size, about 42.5% of respondents reported that the total area they own is in the range of 3.5-6 feddans, 25% with land area of 1-3 feddans, 15% in the range of 6.5-9 feddans, where and 7.5% and10% of the respondents owned a range of 9.5-12 and greater than 12.5 feddans respectively. The average farm size is 3.55 feddans per household. The first three groups collectively constitute 82.5% of the respondents with land area less than 10 feddans per farmer. However, with inheritance as the main means of land ownership, and family size which is usually large, underemployment is experienced among farmers mainly males. The marginal land use practice is in some places possible by cutting down trees and over-cultivating of fragile soils, leading to deforestation, desertification and declining yields. These practices collectively can contribute to food shortage that takes place in the area from time to time.

Area Cultivated

About 72.5% of the respondents were able to cultivate the whole land; they are usually with small farm sizes. About 20% of the respondents are unable to cultivate the whole area owned by them due to shortage of income, this is mainly for those which have comparatively large farm size, 5% of them are because of insecurity, while 2.5% replied that they are unable to cultivate the whole area because of the shortage of income as well as shortage of labor during critical agricultural practices. Therefore, contribution of the first category (72.5%) to food security will be very minute. This is because they will only produce for subsistence purpose; there will not be

considerable surplus to be sold to others. The other category of the respondents (27.5%), will also add little to the total production due to their inability to cultivate the whole area. These reasons mentioned above, will retard the farmer later to harvest his product, which will ultimately cause food insecurity.

Cereal productivity

For sorghum about12.5% of the respondents replied that their productivity is less than 200 kgs per feddan, 45.0% produce between 201-400 kgs per feddan, while 42.5% produce more than 400 kgs per feddan. Sorghum average productivity is 336.5 kgs per feddan. For millet, about 10% of the respondents could have a yield of less than 200 kgs per feddan, 80% produce between 201-400 kgs per feddan, While 10% produce more than 400 kgs per feddan. The average productivity for millet is 272.6 kgs per feddan. Generally, the average productivity of both sorghum and millet are relatively not bad although, it less than the standard yield. Therefore, food shortage is common, this phenomenon can be justified by that, small farm size (average 3.55 feddans), which is usually not wholly cultivated, due to the lack of income, insecurity...etc. and if the farm is fully cultivated, the whole area is hardly harvested, due to invasion by mobile pastoralists, infests or shortage of rainfall, and even if cultivated the piece of land is divided among different crops, which reduces the area cultivated by one crop .Other reason for food shortage to some respondents is that, in most cases, cereal crops act as cash crop, which will lead latter to food deficit. While other respondents put their financial resources for purchasing food commodities, and will have no enough room latter for financing agricultural practices.

Source of financing agricultural practices

About 75% of the respondents depend on self-financing, 17.5 depend on formal sources, while 7.5% finance through borrowing from other farmers. This imply that farmers with low income will not be able to cultivate large areas, he has other important aspects that need to be aware of, for instance health, education of his children, as well as his daily household expenditure. On the other hand, those who depend on other farmers to finance their agricultural practices, are going to pay back what they borrowed, and eventually leading to insufficient productivity. Formal sources contribution is found to be very low, in adverse circumstances, low yield, and hence, food insecurity will be the result.

Household Annual Income

Data in above table showed that, the household whose income is less or equal to 1500 Sudanese Pound (SDG) are about 17.5%, those with income group ranging between 1510-2500(SDG) are 17.5%, 2510-3500 (SDG) are 22.5%, 3510-4500(SDG) are 27.5%, 4510-5500 (SDG) are 10%, those with Income group of 5510–6500(SDG) are 2.5% and the last group with income group greater or equal to 6510(SDG) constitute 2.5%. The average income per household per year is about 3.204.25 (SDG) equivalents to US$ 1281.7 (26702.1SDG). Which is equivalent to US$106.81) per month, this income is relatively low to support the farmer if distributed to all expenditure items.

Poor people often prefer a large family, (Alamgir and Arora, 1991). However, with large household size, which is eight members in average, and with low income and high consumption needs, food security will be hardly achieved. This income cannot enable the farmer to finance agricultural practices properly, it is not enough even for his household consumption. Therefore, low productivity will be expected.

Conclusion

Agriculture dominates both the economy and livelihoods of Darfur region; Traditional rain-fed agriculture is the dominant seasonal farming activity across the region. Central Darfur State, however, is one of the five states comprising Darfur region, is not exceptional in terms of livelihoods and food security options. Small farmers in the State are characterized by low-income generation, small size land utilization, lack of proper inputs and lack of resources, all of which limit productivity and further increase level of poverty. There are a variety of factors affecting farmers livelihoods and food security either positively or negatively, but for the purpose of this study, only socio-economic factors influencing livelihoods and food security of the respondents in the study area were examined.

The study, therefore recommended that, improving access to credit, impose land reform policies appropriate interventions for livelihoods support, and diversification of household economic activities

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