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Food Insecurity and Its Socioeconomic Consequences: The Case of Shashemene Woreda, Oromiya National Regional State, Ethiopia

[1]Guta Bukero, [2]Tewoderos

[1,2]Wondo Genet Agricultural Research Center, P.O.Box, 198 Shashemene, Ethiopia

Abstract: **The major causes for food insecurity as responded by the respondents include, erratic rainfall, shortage of land, poor quality of land (non fertile), agricultural input problem, low volume of production, poor post and pre harvest handling including crop pests. Household food insecurity access –related domains indicate the summary information on the prevalence of the households experiencing one or more behaviors of the three domains i.e., 97.5% of the households in domain-1 and domain-2 while 76.25% of them is found in the domain-3. It is also indicated that the food insecurity status of the community is found to be 19.39. Household food insecurity access prevalence indicator categorizes into four levels of households food insecurity. In the two selected peasant associations of Shashemene woreda, 2.5% were food secure, 6.25% were mildly food insecure, and 15% and 76.25% of households have become moderately and severely food insecure respectively which implies that about the half of the community is seriously food insecure. As a result of the serious food insecurity level of the households, the major social and economic impacts that are facing the community in this area include hunger and human disease, sales of productive assets, cattle loss and human death, shortage of farm inputs, migration, begging, sale of fire wood and dependency.**

Keywords: **Food insecurity, household, mild, moderate and severe.**

1. INTRODUCTION

1.1 BACKGROUND:

Percapita food production in sub-Saharan Africa including Ethiopia has been declining over the last periods. Production growth rates during these periods stagnated around -0.6 percent in 1980-83 and gradually declined to -6.2 percent in 1990 [1].Ethiopia is among the poorest food insecure countries of the world. On human development index of the United Nations Development Program (UNDP), it ranks 171st out of 174 countries in the world and about 60% of the population live below the poverty line [2]. Given that agriculture is the mainstream of the Ethiopian economy, food insecurity and poverty in Ethiopia are attributed to the poor performance of the agricultural sector, which in turn creates food access problem. In other words, the poor performance of agricultural sector directly creates supply problems and indirectly creates demand problems by denying the producers access to sufficient income [3].

1.2 INDICATORS OF FOOD INSECURITY:

Assessment of food insecurity is a difficult issue as there are no universally established indicators which serve as measuring tools. Food insecurity requires a multi-dimensional consideration since it is influenced by different interrelated socio economic, environmental and political factors. Because of this problem, assessing, analyzing and monitoring food

insecurity follow diversified approaches ranging from a more quantitative to a combination of both quantitative and qualitative means of measurements**.**

1.3 CAUSES FOR FOOD INSECURITY IN ETHIOIPIA:

In the Ethiopian situation, poor agricultural growth, unequal distribution of production resources and income, rapid population growth and urbanization are the important causes for the growing chronic food insecurity and poverty problems. Drought, war and growing refugee problems are also the main causes of transitory food insecurity in Ethiopia like in many other African countries. Inappropriate policies of governments and /or donor agencies have also been important factors contributing to both chronic and transitory food insecurity in most African countries including Ethiopia. A number of interrelated factors determine food security situation varying from immediate factors which affect food supply at a household level to the basic factors which condition the overall economic system of a given country [4].

Based on the 1983 Nutrition Survey and population estimate of 1990, Maxwell estimated the food insecure people to be about 38million in 1991 and also this report identified the resource poor households, people living in marginal areas, poor nomads, war affected, refugees and the urban poor to be the most food insecure social groups. All these estimates have also been further scrutinized [5] and their study estimated the food insecure to be about 27million including other social groups such as the displaced households.

The percapita nutritional level that prevailed within the peasant households has been indicated to be below the minimum nutritional requirement i.e., 183kgs/year/person, this means that the overall average food supply percapita per year was 37 percent below the standard food requirement which is 0.26 tones per person per days of a year in the Ethiopian situation [6]. Food security is directly related to poverty since chronic food insecurity is caused by the inability of the household to produce , purchase or to have access to food [7] and so the problems of rural poverty and food insecurity cannot be overcome unless agricultural productivity improves by enabling economic policy environment.

Ethiopia, the second most populous country in sub-Saharan Africa, is home to about 90 million people. With rainfall highly erratic, Ethiopia is usually at high risk for droughts as well as intra seasonal dry spells. The majority of the population depends on agriculture as the primary source of livelihood and the sector is dominated by small holder agriculture. Famine vulnerability is high in Ethiopia. With the rapid population growth of the past two decades, percapita food grain production has declined. Today, with recurrent famine threats, food aid is an important source of cereal supply.

Food insecurity is defined as the lack of access by people to enough food for active, productive and healthy life [8]. Understanding of food security also includes the time dimension which explicitly describes the intensity and characteristics of household food insecurity. Food insecurity can be chronic or transitory. A constant failure to food access is distinguished as chronic while a temporary decline is considered as transitory food insecurity.

Chronic food insecurity is a sign of poverty and illustrates a long-term structural deficit in production and lack of purchasing power. Transitory food insecurity on the other hand, implies a short-term variability in food prices, production or income.

In Ethiopia, agriculture accounts for about 85 percent of the working force, 90 percent of exports and about 50 percent of the total Gross Domestic Product(GDP)[9]. In the 1980s, the sector grew at only 0.1 percent per annum which is 2.9 percent below the rate of population growth [10], while rural under employment increased, nutrition levels declined and food aid imports increased significantly.

One of the manifestation of the poor performance of Ethiopian agriculture is wide spread food insecurity. Evidently, Shashemene woreda is highly deforested susceptible to erosion, erratic climatic condition that triggered drought and food insecurity. In almost all parts of the woreda, except some publically protected areas, the land has lost its vegetative cover, grass lands have been overgrazed and growth of vegetation suppressed. The lower productivity of the land has brought about food insecurity in the area. The rural communities whose livelihood mainly depends on agriculture are therefore continuously getting poorer and are vulnerable to all kinds of disaster and hunger. Therefore, the main reason that initiated me to undertake this study is my personal experience of observing the socio-economic condition of the woreda.

The study may add to the existing knowledge and help understand the existence of food security problem by providing information based on objectives mentioned earlier. Thus, it may serve as a reference material and inspires other

researchers for further studies in food insecurity and also provide helpful insight for policy makers. One of the constraints to this study is area coverage. The study would be more comprehensive if it covered more than two peasant association i.e.Bura Borama and Kore Rogicha but due to the shortage of time and financial constraint, the study did not cover more than two peasant associations. The study covered two peasant associations out of the total 36 peasant associations existing in Shashemene woreda and this may give information on the consequences of food insecurity in this study area.

2. OBJECTIVE OF THE STUDY

The main aim of this study is to determine the prevalence of food insecurity and its associated socio-economic consequences.

✓ **SPECIFIC OBJECTIVES**:

-To identify the major causes of food insecurity

-To examine the level of food insecurity and identify the socio-economic implications of food insecurity.

✓ **RESEARCH QUESTIONS:**

The major research questions to be appeared in the research paper with respect to this study area are as follows:

-what are the causes of food insecurity in the study area?

-what is the food insecurity level in this study area?

-what are the socio-economic consequences of food insecurity?

-what measures should be taken to alleviate the problem of food insecurity?

3. METHODOLOGY

3.1 DESCRIPTION OF THE STUDY AREA:

The study has been undertaken in Shashemene woreda which is 250km to the south of the Addis Ababa, the capital of Ethiopia. It shares boundary with Arsi Negele woreda in north, Hawassa in south, Kofele woreda in east and Shalla woreda in west. It has a total of 36 peasant associations with the altitudes ranging from 1685-2772m a.s.l. The major part, around 95% of the woreda comprise of medium elevation (woinadega) areas, while highland (dega) make up the remaining 5%. However, the"woinadega"zone could be sub-divided in to dry woinadega and moist woinadega based on the perception level (Shashemene annual climatic report, 2009)**.** Several soil types are found in the woreda, the major soil types being andisoils, livesoils and flovisoils. Rainfall in the area follows bimodal pattern with short rain occurring from February to May and long rain from June to September. The annual rainfall received varies from 700-1000mm. The rainfall regimes fall as one move from east to west with decreasing altitude. The topography consists mainly of undulating plains with scattered hills [11].

3.2 DATA COLLECTION METHOD:

The method of data collection involved the acquisition of secondary data from agriculture and rural development office of the woreda and primary data from the sample households through interview method using structured questionnaires. The data was collected at a point in time.

3.3 SAMPLING METHOD:

The two peasant associations were selected from among the 36 existing peasant associations purposefully. Then, 80 households, 40 from each of the selected peasant association were selected using simple random sampling technique to get representative sample.

3.4 DATA ANALYSIS METHOD:

In this study, both the qualitative and quantitative data analysis was used. The data collected was analyzed quantitatively by using simple descriptive statistics.

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4. RESULT AND DISCUSSION

4.1 SOCIO ECONOMIC ASPECTS OF RESPONDENTS:

In the table-1 below, it can be shown that, female respondents comprises about 20 percent of the total households and the remaining 80% i.e., 64 respondents were found to be male head of households. On the other hand, however, the majority of the community in this area had less access to education because the existing schools were limited to only main roads a decade ago and was accessible only to those near to the main road. Due to this and other biological factors, only 5% of female respondents were able to read and write while about 46% of the respondents were male head of households that do the same. Still another 15% of the female respondents answered that they cannot read and write while male respondents that cannot read and write were about 33.75%.

Table-1 Respondents' Background

Respondents		Respondents		Percentage (%)	
		Female	Male	Female	Male
Sex		16	64	20	80
Educational Status	Can read and write	4	37	5	46.25
	Cannot read and write	12	27	15	33.75
Marital Status	Married	3	64	3.75	80
	Divorced	1	-	1.25	-
	Widowed	12	-	15	-

Source: own survey data, 2011

The marital status of respondents' show that about 83.75% of the respondents were married i.e. 80% of married male head of households and the remaining 3.75% married female respondents. Similarly, 1.25% of the female respondents were divorced while 15% of them were widowed.

The area is more favorable for cereal crop production like Maize, Teff, Sorghum, etc. Although, the community in this area practice some 'Belg'(Autumn) production like Harricotbean and Potato, most of the time they fail because of erratic rainfall that may come late or before the cultivating season.

Table-2 Major Economic Activities of the Respondents

Economic Activities	Respondents	Percentage (%)
Crop Production	12	22.5
Animal Husbandry	3	3.75
Both Animal Husbandry and Crop Production	55	68.75
Off-Farm Activity	4	5
Total	80	100

Source: own survey data, 2011

According to the responses of the households, the majority of the farmers in this area practice mixed farming i.e. both Crop production and Animal Husbandry (68.75%). On the other hand, about 22.5% of the households practice only Crop Production while some other 3.75% of them are concerned with Animal Husbandry because they do not have land.

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4.2 MAJOR CAUSES OF FOOD INSECURITY:

According to the households' response to the question, "What is (are) the major causes of food of food insecurity ?", the major causes are erratic rainfall, shortage of land, poor quality of land, Agricultural input problem, small volume of production, poor pre and post harvest handling, etc. therefore, based on their response, the major cause of food insecurity is erratic rainfall followed by shortage of land, resulting in insufficient food crop supply while 14.2% of households' response shows that the poor quality of land i.e. low level of soil fertility has resulted in low production and productivity of the land.

Table-3 Major Causes of Food Insecurity

Major Causes	No. of Households Responding	Percentage (%)
Shortage of land	65	15.15
Poor Quality of land	61	14.2
Low Volume of Production	60	13.98
Low improved livestock	30	6.9
Erratic Rainfall	68	15.85
Pests	45	10.48
Harvesting time Crop Sale	32	7.45
Agricultural Input Problem	58	13.5
Poor pre and post Harvesting handling	10	2.3
Total	429	100

Source: own survey data, 2011

NB: The total sum of 429 responses indicate that the respondents have answered for more than one cause.

In the table-3 above, it is indicated that 15.85% of the households, a relatively larger number of households raised the issue of erratic rainfall as a more influential cause for food insecurity to occur. This implies that the area is mostly vulnerable to food insecurity as a result of low production and productivity of land, erratic rainfall because of the climatic change due deforestation and shortage of land as the result of large family size beyond the carrying capacity of the land.

On the other hand, households were also asked on when do they sell their product more and according to their response 6.57% of the households said that they sell their product more often in the 'bega'(winter) season to buy the basic necessities for their families while about 38.15% of the households sell their products in 'belg'(autumn) to buy agricultural inputs like fertilizer, selected seeds, etc, although they do not have enough production even for their food. Look at the table below.

Table-4

Responses	No. of Households	Percentage(%)
'bega'(winter)	5	6.57
'belg'(autumn)	29	38.15
'Kiremt'(summer)	4	5.26
'tseday'(spring)	38	50
Total	76	100

Source: own survey data, 2011

The majority of households (50%) most of the time sell their product in 'tseday' as soon as they harvested. This has resulted in two major effects; the first is, as they sell out their products soon after harvest at lower price, their income decline exposing them for poverty. Second, they face food shortage as they sell their product just after harvest, because there is longer off-production period for which there is longer consumption period.

4.3 LEVEL OF HOUSEHOLDS' FOOD INSECURITY:

The Households Food Insecurity Access Scale (HFIAS) module yields information on food insecurity at the households' level. Four types of indicators were calculated to help understand the characteristics of households' food insecurity in this study**.**

4.3.1 Household Food Insecurity Access –Related Conditions:

It is calculated as a percent of households that respond 'yes' (1) to a specific occurrence question i.e. , No. of hhs with (1) to Qi x100%

Total no. of hhs

Where Qi- is a specific occurrence question from one to nine.

It can be understood from the table below (table-5) that out of 80 households, 78 responded 'yes'(1) to question 1-4 while 73 households answered yes to question 5-6 i.e., (97.5% and 91.25%) respectively. The other 76.25% of the households were found to be seriously food insecure.

Table-5 Households' Food Insecurity Access Related conditions

Occurrence Questions	Households with response yes	Percentage share(%)
Question-1	78	97.5
Question-2	78	97.5
Question-3	78	97.5
Question-4	78	97.5
Question-5	73	91.25
Question-6	73	91.25
Question-7	61	76.25
Question-8	61	76.25
Question-9	61	76.25

Source: own survey data, 2011

In contrary to the above discussed households, only two households responded 'No' to all food insecurity related nine questions so that they have become food secure.

In the same way, households experiencing condition at a given frequency can be calculated as:-

No. of hhlds with response1/2/3 to Qi X100

Total no. of hhlds responding to Qi

Where, Qi- is food insecurity related questions (1-9)

Response 1-rarely, 2-sometimes, 3-often

It is indicated in the table below that the majority of households (78.2%) responded often (3) to 1a-6a frequency of occurrence questions. This shows that the community in this area has serious food shortage problem. But on the other hand, the number of households responding 'often' decreases as one goes down from one to nine.

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Table-6 Number of households that responded "Often" to a specific frequency of occurrence questions.

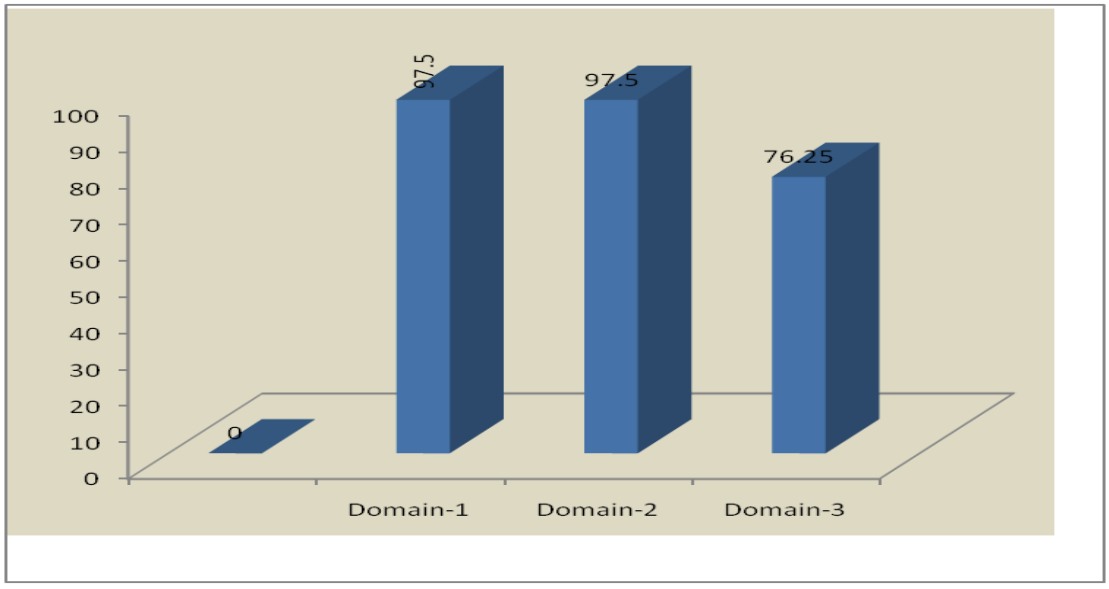
Questions	No. of households responding			Percentage (%)		
	Rarely(1)	Sometimes(2)	Often(3)	Rarely(1)	Sometimes(2)	Often(3)
1a	1	6	71	1.3	7.7	91.0
2a	1	4	73	1.3	5.1	93.6
3a	-	3	75	-	3.8	96.2
4a	-	13	65	-	16.7	83.3
5a	-	17	61	-	21.8	78.2
6a	-	17	61	-	21.8	78.2
7a	2	58	1	3.28	95.10	1.64
8a	3	58	-	4.90	95.10	-
9a	10	50	1	16.39	81.96	1.65

Source: own survey data, 2011

One can understand from the table above that the percentage of households responding 'sometimes' increased from 7.7% to 81.96% as one moves from one frequency of occurrence question to nine frequency of occurrence question. This implies that the communities in this area are not experiencing the last serious frequency of occurrence question 'often' but rather they are facing it sometimes.

4.4 HOUSEHOLD FOOD INSECURITY ACCESS – RELATED DOMAINS:

The indicators in the graph below provide information on the prevalence of households experiencing one or more behaviors in each of the three domains reflected in the households' food insecurity access scale i.e., Anxiety and Uncertainty (Domain-1), Insufficient Quality (Domain-2) and Insufficient Food Intake (Domain-3)



Source: own survey data, 2011

Figure-1 HFIA-Related Domains

In the graph above, it is shown that 97.5% of the households were experiencing one or more behaviors reflected in the household food insecurity access scale of the Domain-1 and Domain-2(Anxiety and Uncertainty, and Insufficient Quality of Food) while 76.25% of the households were in Domain-3(Insufficient Food Intake). This shows that about ¾ of the total households were under the serious food insecurity in this study area.

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4.5 HOUSEHOLD FOOD INSECURITY ACCESS SCALE SCORE:

Under this an individual household's frequency of occurrence is summed up for the nine food insecurity –related conditions that were asked. It can be summed up as:

HFIAS Score (0-27)=Sum of frequency of occurrence questions,

Response code (Q1a+Q2a+Q3a+---+Q9a)

Then, Average HFIAS Score= $\frac{\text{Sum HFIAS Scores in the sample}}{\text{No. of HFIAS Scores (i.e., households)}}$

Table-7 HFIAS Score and Average HFIAS for households

HFIAS Score	No. of Households	Sum of HFIAS	Percentage (%)
25	1	25	1.25
24	2	48	2.25
23	4	92	4
22	30	660	37.5
21	14	294	17.5
20	8	160	10
19	2	38	2.25
17	1	17	1.25
16	5	80	6.25
15	3	45	3.75
14	2	28	2.5
11	4	44	5
10	2	20	2.5
0	2	0	2.5
Total	80	1551	100%
Average		19.3875	

Source: own survey data, 2011

From the table above it is clear that the food insecurity status of the community is found to be 19.39. This is computed as a average household food insecurity access scale score from the total sum of the HFIAS Scores of 1551 by dividing it for the total number of households in the study.

4.6 HOUSEHOLD FOOD INSECURITY ACCESS PREVALENCE:

According to [12], the Household Food Insecurity Access prevalence indicator categorized households into four levels of households' food insecurity i.e., Food Secure, Mildly Food Insecure, Moderately Food Insecure and Severely Food Insecure. A food secure household experiences none of the food insecurity conditions or just worries but rarely. A mildly food insecure household worry about not having enough food sometimes or often and are unable to eat a preferred food or eats a more monotonous diet than desired. A moderately food insecure household sacrifices quality more frequently or has started to cut back on quantity by reducing the size of meals or number of meals rarely or sometimes but the household did not experiences any of the three most severe conditions. A severely food insecure household on the other

hand, cuts back on meal size or number of meals often. So, the HFIA category variable is calculated for each household by assigning a code for the food insecurity category in which it falls as:-

HFIA Category=1, if (Food Secure)

HFIA Category=2, if (Mildly Food Insecure)

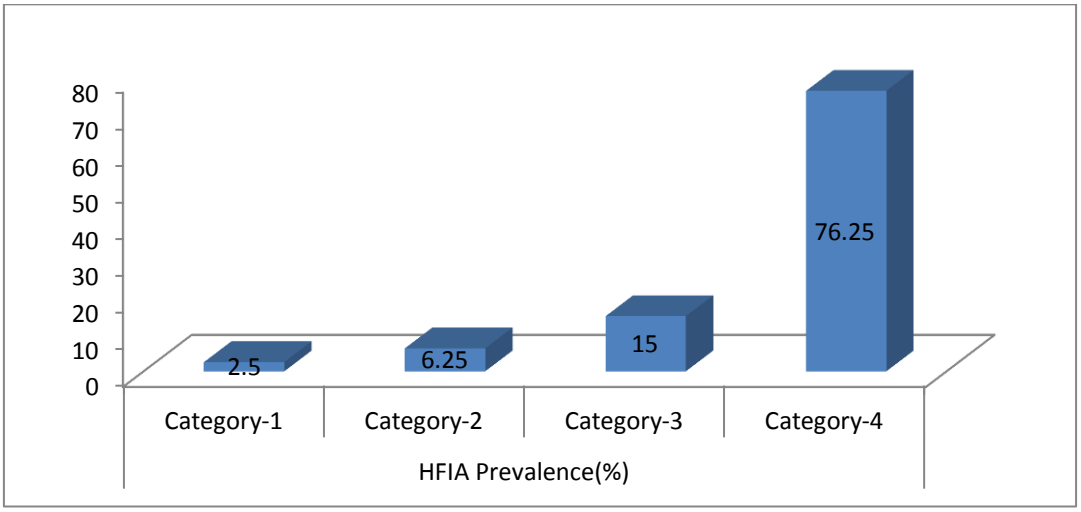
HFIA Category=3, if (Moderately Food Insecure)

HFIA Category=4, if (Severely Food Insecure)

The prevalence of different levels of households' food insecurity is calculated as follows for the sampled households of the two peasant associations in Shashemene woreda.

HFIA prevalence=No. of hhlds with specific HFIA category X100

Total no. of hhlds a HFIA category



Source: own survey data, 2011

Figure-2 HFIA prevalence of the 80 sampled households

The figure above shows that in both 'Bura Borama' and ' Kore Rogicha' Peasant associations of Shashemene woreda, 2.5% of the households were food secure, 6.25% of them were mildly food insecure and 15% of the households were moderately food insecure while 76.25% of the households were severely food insecure(HFIA Category-4). This may imply that more than half of the communities are found in severe food insecurity condition.

4.7 SOCIO-ECONOMIC CONSEQUENCES OF FOOD INSECURITY:

The table below shows that, 42.4% of the households have developed 'dependency syndrome' as they depend on food aid supply to survive serious food shortage problem while 27.2% of the households do survive by selling their productive assets like ox, goat, etc. On the other hand, 17.2% of them survive by collecting and selling fire wood.

Table-8 Socio-economic Consequences of Food Insecurity

Consequences of Food Insecurity	Number of Households Responding	Percentage (%)
Hunger and human disease	5	3.3
Sales of productive assets	41	27.2
Cattle loss and human death	2	1.3
Shortage of farm inputs	6	4

Migration and family separation	5	3.3
Begging	2	1.3
Sale of Fire Wood	26	17.2
Developing 'dependency syndrome'	64	42.4
Total	151	100

Source: own survey data, 2011

NB: Total sum of responses show that households responded more than two responses.

According to the households' response recorded, the major social and economic impacts of the food insecurity are as follows:

Hunger and Human Disease: - Particularly diseases that are related to malnutrition on children like 'kwashkoire' affect the society.

Sales of Productive Assets:- to cope with the problem of food security , households dispose their productive assets such as cattle, donkeys, sheep and goat, etc to purchase food crop from market and this inturn partly contributes to the shortage of plough(draught) animals which then leads to low production and productivity.

Cattle Loss and Human Death: - households might lose their cattle due to animal feed and water shortage as there is erratic rainfall characterized by recurrent drought in this study area and as a result, elderly, disabled, children and pregnant women may die.

Shortage of Farm Inputs: - as the communities sell their productive assets to cope with food shortage problem, they face difficulties to buy farm inputs like fertilizer, selected seeds, etc. This again makes them vulnerable more seriously than ever.

Migration and Family Separation: - in the last phase i.e., when they face severe food insecurity and lack any alternative means for survival, households' members or heads leave their area in a season of migration to search for work to urban and this again results in urban overpopulation. Family breaks up and each member takes a course of action which best fits for survival.

Begging: - Mainly vulnerable groups, elderly, disabled, children and women who suffer from food insecurity move to urban areas to survive by begging.

Sale of Fire Wood:- in the food insecure communities, women spend most the time collecting fir wood and bring it to market and sell in order to buy food for their families. This might result in different negative impacts on the environment as there will be deforestation causing soil erosion, climate change, etc.

Developing 'dependency syndrome':- as a result of food aid provision during more serious food shortage periods, they develop dependency syndrome and do not look for other alternatives.

5. CONCLUSION AND RECOMMENDATION

The major causes for food insecurity as responded by the respondents include, erratic rainfall, shortage of land, poor quality of land(non fertile), agricultural input problem, low volume of production, poor post and pre harvest handling including crop pests.

Household food insecurity access –related domains indicate the summary information on the prevalence of the households experiencing one or more behaviors of the three domains i.e., 97.5% of the households in domain-1 and domain-2 while 76.25% of them is found in the domain-3. It is also indicated that the food insecurity status of the community is found to be 19.39.

Household food insecurity access prevalence indicator categorizes into four levels of households food insecurity. In the two selected peasant associations of Shashemene woreda, 2.5% were food secure, 6.25% were mildly food insecure, and 15% and 76.25% of households have become moderately and severely food insecure respectively which implies that about the half of the community is seriously food insecure. As a result of the serious food insecurity level of the

households, the major social and economic impacts that are facing the community in this area include hunger and human disease, sales of productive assets, cattle loss and human death, shortage of farm inputs, migration, begging, sale of fire wood and dependency.

The result in this study calls for government intervention and policy makers in all sectors of human, economic and environmental development such as: Capacity building, Introducing safe net program, Intensification and mechanization of the farming system, Creating alternative employment, Creating awareness on why and how to use family planning, and Environmental conservation, etc to improve the quality of the land fertility.

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