

VULNERABILITY TO FOOD INSECURITY AND HOUSEHOLDS' COPING STRATEGIES

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ABSTRACT

Nearly, a billion people globally are food insecure. Over 90 per cent of them are from sub-Saharan African countries, of which Ethiopia is part. The country has been renounced by its food insecurity level and dependent on food aid for decades. Severity of food insecurity in the country is mainly deep in rural areas and smallholder farmers are vulnerable to the shocks of food shortage. The aim of this study is to assess household's vulnerability to food insecurity and coping strategies with evidence from southern Ethiopia. In this study, universal coping strategy questions were used to answer "What do farmers do when they don't have enough food, and don't have enough money to buy food?" The finding indicates that about 79.2 per cent of households are vulnerable to food insecurity and responded to food shortage shocks in different ways. Over half of the respondents reduced meal frequency and consumed enset (is a false banana grown in southern and south western part of Ethiopia which is used to cope food shortages during drought seasons) while others consumed less preferred food (44.2 per cent). The rest adapted asset depleting strategies like borrowing grain (35.4 per cent), using saved money (27.5 per cent), and selling livestock (25 per cent) to cope with food insecurity. This shows that unless asset building and income enhancing strategies are promoted; vulnerable people will deplete assets and fall in chronic food insecurity. The average coping strategy is 13.4 while it is 16.4 for the very poor households implying that they face more severe food insecurity than non-poor households. Therefore, in order to build the resilience of rural households towards food shortage shocks, asset transfer strategies, access to credit services, and diverse income generating enterprises should be promoted.

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The corresponding author is highly grateful to International Medical Corps (IMC) for giving the opportunity and funding this survey. His special thanks would be to Sisay Siyoum, Fikru Beyene, Gashaw Ganebo and Meheretab Wolde for their support in the process of the study. He is also thankful to Gedion Mengesha and Yohannis Minda for their all round facilitation. He is also grateful to anonymous reviewers of IMC.

Introduction

The World Bank (1986); defined food security as access by all people at all times to enough food for an active, and healthy life. The essential elements in this definition are the availability (adequate supply of food); access through home production, purchase in the market or food transfer; stability, when availability and access are guaranteed at all times; and utilisation which refers to the appropriate biophysical conditions required to adequately utilise food to meet specific dietary needs and security. As Webb, et al. (2006) and WFP (2005) note, these concepts are inherently hierarchical, with availability necessary but not sufficient to ensure access, which is in turn necessary but not sufficient for effective utilisation (Andersen, 2009; ACF, 2010; Webb, et al., 2006).

Addressing food insecurity has been an important component (first target) of the Millennium Development Goals (MDGs) as declared by the heads of states at the Millennium Summit in September 2000 (UN, 2013). Throughout the African continent, most governments, sub-regional and regional institutions, as well as international organisations, attempted to implement food security and sustainable development strategies and programmes (ECA, 2000).

In spite of these efforts, severe hunger and poverty affects nearly 1 billion people around the world and 2 billion people in the developing world are malnourished (FAO, 2010a). The majority of the more than 1 billion individuals who are food insecure are small-scale farmers living in rural areas, women and children. Three-quarters of the world's poorest

people get their livelihood from agriculture. There is no problem of underdevelopment that can be more serious than food insecurity (World Bank, 1986) that undermines people's health, productivity, and often their very survival (UNHCR, 2010).

Africa is the region of the world with the highest levels of hunger even though it is also the region with the highest proportion of working people engaged in growing food (ACORD, 2009). Sub-Saharan Africa's share of the world's food insecure population is projected to almost quadruple from 11 per cent in 1969/71 to 39 per cent in 2010. Food insecurity is expected to accelerate in sub-Saharan Africa; in which, one person in every four, lack adequate food for a healthy and active life, and record food prices and drought are pushing more people into poverty and hunger (FAO, 2010b). Moreover, rapid population growth exacerbates the problem of ensuring food security in Africa (ECA, 2000) and greatly increase the amount of food needed to adequately feed the population (Bremner, 2012).

Food insecurity emerged as a key problem in Ethiopia in the early 1970s and became pervasive in the subsequent decades. An estimated 5–6 million people are considered chronically food insecure every year and about 2-7 million additional people have been deemed to be transiently food insecure. Between 1998 and 2010, the average number of Ethiopians in need of food assistance fluctuated between 3 and 14 million (UNHCR, 2010). Recently, it was estimated that about 38.7 per cent of households live below the food poverty line. Most of these food

insecure households are subsistence farmers, and vulnerable to weather fluctuations. A large number of poor households face a prolonged hunger season during the pre-harvest period. Herders, like farmers, are vulnerable to increasingly frequent drought, which can wipe out their livestock and assets and bring on severe poverty (IFAD, 2013).

Similar to other rural areas of Ethiopia, Wolayta in southern Ethiopia continues to face high levels of food insecurity, with Boloso Sore and Damot Pullasa representing extreme cases. The major causes of food insecurity in these areas include frequently delayed rain, severe land fragmentation and poor access to farm inputs. During the survey period, a total of 17,000 and 10,393 chronically food insecure people in Boloso Sore & Damot Pullasa received food aid (BSoA, 2012; DPoA, 2013). Although the aim of food aid, especially Productive Safety Nets (PSNP), is to build assets of chronically food insecure households and gradually graduate them; very little success was reported.

Much of the studies dealt with food insecurity focus on answering "who is food insecure?" and "why they became food insecure?" This study, however, paid attention to "what do farmers do when they don't have enough food, and don't have enough money to buy food?" Understanding of how farmers respond to problems of food insecurity and

their ability to respond calls for analysis of coping strategies index (CSI).

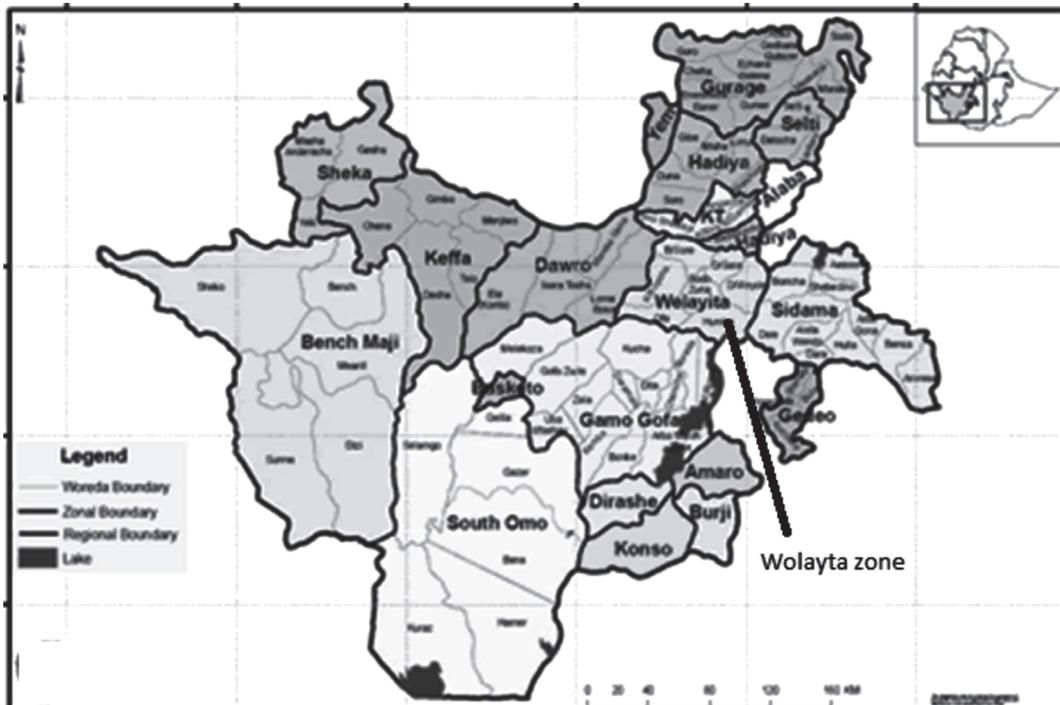
Methodology

The major objective of this paper is to assess rural households' vulnerability to food insecurity and their coping strategies.

Wolayta zone is one of the fourteen zones of the Southern Nations and Nationalities region of Ethiopia covering an area of 4471.3 km². It is divided into twelve districts, of which Boloso Sore and Damot Pullasa are included in this study. The total population of the zone is estimated about 1.9 million and has three agro-ecological zones, 9 per cent highland, 56 per cent midland and 35 per cent lowland. Geographically it's located at 6°51" and 7°35" North Longitude; and 37°46" and 38°01" East Latitude, which is found at 330 kms south west of Addis Ababa, and 160 km from Hawassa (Figure 1) (WDA, 2013).

Boloso Sore district is situated 30 km from Sodo town and consists of 29 rural Kebeles*, whereas, Damot Pullasa is located at 25 km from Sodo town. Like other districts of Wolayita, they have one of the highest population densities of more than 370 persons per square kilometre, and reaching up to 600 persons per square kilometre in some Kebeles. The population is engaged in mixed agriculture, crop production and livestock keeping (WDA, 2013, UNDP, 2009).

* Kebele is the lower administrative unit that consists of three villages.

Figure 1 : Map of the Study Areas

Sampling : The study districts are chosen by International Medical Corps (IMC) (an international humanitarian organisation) for a multi-sector nutrition, health, and Water Sanitation and Hygiene (WASH), Livelihood and Disaster Risk Reduction (DRR) programme. Three stages stratified random sampling technique was used to select respondents from the target districts. In the first stage, the study districts were divided into three agro-ecological locations as highland, midland, and lowlands. One Kebele and two Kebeles, respectively were selected from low/midland and highlands proportionally. Each of the Kebeles consists of three sub-communities/villages. Accordingly, three Kebeles from Boloso

Sorie and two Kebeles from Damot pullasa were selected. In the second stage, participatory wealth ranking was conducted at each Kebele.

Finally, using lottery method, households were selected randomly. The sample size for this study was determined according to the guidelines for livelihood and food security assessments (ACF, 2010). Theoretically, a minimum of 30 households is sufficient for statistical inferences (CARE, 2002; DFID, 2000). This, study however, sampled 48 households from each Kebele to ensure more accuracy and a total of 240 household heads/spouses were selected.

Data Collection : Fieldwork for the study was carried out over a period of two weeks in February, 2013. During the first week, secondary data review and checklists for key informant interview, questionnaire for household survey were designed. In the second week, a total of 10 data enumerators and two livelihood field supervisors were trained on how to administer the study instruments. Firstly, stakeholders were consulted and face to face group interviews were held at each district. Secondly, key informant interviews and focus group discussions (FGD) were held at each Kebele. A single FGD consisted of 6 -12 men and women groups varying by Kebeles and a total of 46 participants were involved. The Universal Coping Strategies were validated and contextualised through Focus Group Discussions. Mainly, quantitative data on household socio-economics, food security and livelihoods were collected from the sampled households through interview.

Data analysis : The data entry process started following data collection and two data fillers were recruited for the purpose. This was followed by data entry into computers using data sheet that was developed using micro-soft excel software package. After checking for errors and outliers, SPSS version 20 was used to analyse the data collected. Mainly descriptive statistics were conducted.

To analyse Coping Strategies, Universal Coping Strategies Questions were adopted (ACF, 2010) and the validation of Coping Strategies was conducted through FGDs. Similarly, severity of coping strategies was assessed using FGDs. The level of severity for each coping strategy was collected by asking

the community to classify the coping strategies they used based on their opinion (1=less severe, 2=moderate, 3=severe, and 4=very severe). The means of scoring reflect the weight of the severity for each coping strategy that the household adopted. Household's status of food security was determined using coping strategy index. Those households who did not adopt any of the coping strategies within the seven reference days were considered food secure while the rest food insecure with varying level of severity. Furthermore, adoption of coping strategies was analysed for both the seven reference days as well as survey year.

Results and Discussion

Wealth Status of Respondents : Participatory wealth ranking was conducted in each Kebele using FGDs. According to local indicators, the very poor were identified by one or more of the following features: landless or nearly landless, own no livestock, unable to feed themselves (usually all months throughout a year), possess unfurnished grass roofed house, unable to educate their children, engaged in wage employment, and seasonally migrate to urban areas for wage earning, most of the time run debt. The poor are characterised as very small, usually less than 0.25 ha landholding, have no or few livestock (keep livestock of others), owned poorly furnished grass roofed house, unable to feed their family (usually for nine months), unable to farm their land (usually lease out), engaged in wage earning, and participate in seasonal migration, sometimes run debts. The less poor hold small land, on average about 0.4-0.5 ha, having few livestock, for majority of the year being able to feed themselves (food shortage for three months

only), own better furnished houses made of either grass or iron sheet roof, able to send their children to school, earn income from cash crops and sale of livestock. Non-poor households have relatively large land (on average more than 0.8 ha), more livestock, well furnished and iron sheet roofed house (by rural standard), able to feed their family either from own consumption or through purchase, able to educate their children, earn income from cash crops like ginger and coffee, staple crops like teff and maize, sale of livestock, and rural trades like shopping, cart, etc.

Accordingly, 28.2, 26.5, 34.9 and 10.5 per cent households were very poor, poor, less poor and non-poor, respectively. This implies

that only, 10.5 per cent (a tenth) of households are not poor, while nearly 90 per cent of the rural households experience different levels of poverty. The ability of small scale farmers to respond to crisis depends on its ability to command its accumulated resources. There is also a visible difference in household asset ownership among the Kebeles. For instance, larger proportions of farmers in Bibiso are wealthier than Hilena; while Korke Doge (highland) hosts largest proportion of very poor households (Table 1). This is evidence of the fact that spatial variations in socio-economic development, and wealth, exist between Kebeles, districts, and agro-ecological zones.

Table 1 : Wealth Stratification by Sample Kebeles

Kebeles	Wealth Status			
	Very poor	Poor	Less poor	Non-poor
Bibiso	22.9%	22.9%	41.7%	12.5%
Hilena	27.1%	43.8%	20.8%	8.3%
Shuye	27.1%	12.5%	50.0%	10.4%
Korke Doge	32.6%	26.1%	30.4%	10.9%
Achura	31.3%	27.1%	31.3%	10.4%
Total	28.2%	26.5%	34.9%	10.5%

Source: Survey data, 2013.

Households' Vulnerability to Food Insecurity:

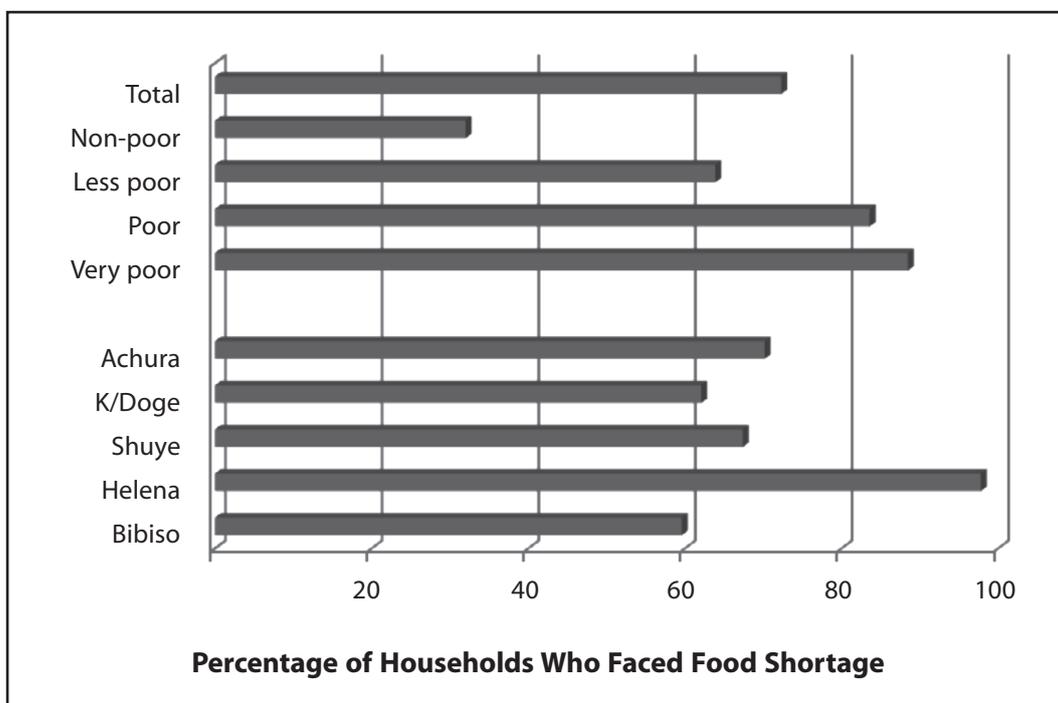
A household may derive its food entitlements from its own production, from market and transfer. This survey revealed that majority of the households in the study area were far from fully meeting their food requirements from own production. About 79.2 per cent of the 240 households reported that they failed to eat to

satisfaction either from own production, or through purchase from market and transfer. On average, they faced severe food shortage for 4.9 months with minimum and maximum of 1 and 12 months, respectively. Food insecurity as a form of deprivation has been shown to affect many dimensions of well-being. Children from food insecure households are more likely to

have poor growth attainment, recurrent infections, inadequate energy and nutrient intakes, compromised learning ability and psycho-social problems (ACF, 2010; Alaimo et al., 2001). Vulnerability to food insecurity increases from non-poor households towards the very poor groups (Figure 2). This implies

that very poor households who do not own livestock, with less than 0.5 farm land and large dependents are vulnerable to severe months of food shortage. Comparison by sample Kebeles showed that Helena; from Damot Pullasa district has the largest number of food insecure households.

Figure 2 : Proportion of Households Who Faced Food Shortage



Households' coping strategies : Coping mechanisms are temporary responses to reduce or minimise effects of a stressful event or an unfavourable situation where food access is abnormally disrupted, for instance by drought, flood, earthquake or military activity (ACF, 2010). Webb and Von Braun (1994) grouped these strategies into three as risk

minimisation, risk absorption and risk taking. The first stage involves saving, accumulation, investment and diversification. The second stage involves seeking for credit, restrict consumption, the last stage involves abnormal strategies like eating less preferred foods (wild), sell their last assets including their lands, homes and cloths; still begging support from relatives.

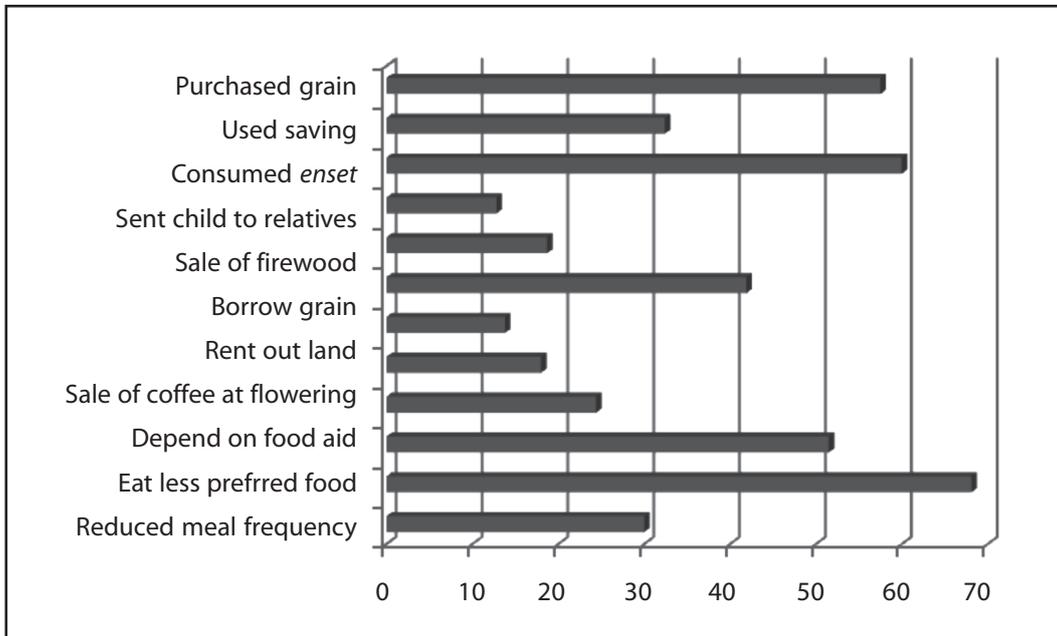
As once cow is sold, no more milk, as once land is sold, no more production. Ellis (2000) defines coping strategies as the methods used by households to survive when confronted with unanticipated livelihood failure. The strategies pursued by households differ in several aspects, that is, within the household and between households (Maxwell, et al, 2003).

In times of crisis, there are two options regarding food availability: protecting consumption or modifying consumption. Protecting consumption means that the household employs all means to ensure that food is available. Modifying consumption implies a reduction in the household's consumption, a diversification of its consumption, or a reduction in the number of consumers in the family. Reducing a household's consumption can range from limiting the size of an individual's portion to skipping whole meals. Diversifying consumption usually means eating foods that are less preferred and less expensive. Reducing the number of consumers is most often achieved by sending certain members of the family to live and/or work elsewhere. Often a food insecure household will reduce and modify consumption simultaneously. Normally,

when a household's access to food is disrupted by a shock, there are particular types of coping strategies that can expand food access and income. According to FGDs from women groups, during severe food shortages, the family, especially adults will jump meal. The family will be served coffee in the late morning and wait for the dinner to come by jumping lunch.

Figure 3 shows that households which faced food shortages during the survey period adopted different coping mechanisms namely, reduced meal frequency (58.8 per cent), consumed *enset* (51.3 per cent), ate less preferred food (44.2 per cent), purchased grain from market (49.5 per cent), borrowed grain (35.4 per cent), utilised saving (27.5 per cent), selling livestock (25 per cent), depend on food aid (20.8 per cent), selling of firewood & charcoal (15.4 per cent). The survey also attempted to assess whether households tried to adjust to food shortages by reducing the number of meals taken per day. About 16.1 per cent of surveyed households claimed to have eaten three meals a day throughout the year. On average, households took 1.94 meals per day.

Figure 3 : Food Insecurity Coping Strategies



Many households consumed fewer meals, or less food at each meal. Food was of much poorer quality and of a more limited variety than normal. During the worst-shortages, particularly women visit non-poor families and ask for help and exchange labour for food to feed their children, while men operate seasonal migration. If the shortage of food was still severe, households would borrow food on credit from the non-poor households to be repaid by doubling the amount of grain they borrowed. Borrowing money from local money lenders was considered the most severe strategy and the household must repay the amount used at 100 per cent interest rate. That is why FGD participants pointed out this was the worst strategy that keeps poor households in vicious circle of poverty every year to come.

Table 2 indicates the coping strategies used to calculate the index and percentage of households under each strategy during the seven day recall period. The majority of households (70.8 per cent) reported one or more coping strategies during this period, indicating that they experienced some degree of food insecurity. Thus, based on coping strategies used, only 29.2 per cent are food secure and the rest are exposed to various levels of food insecurity. The figures for each of the coping strategies used were 68.3, 50.4, 72.5, 47.5, 26.7, 44.6 per cent for relying on less preferred food, borrowing food, reducing quantity of food consumed, restricting consumption by adults, reducing meal frequency, and borrowing money to purchase food, respectively (Table 2). This implies that

most households (eg, 66.1 per cent, 70.4 per cent) relied on less severe coping strategies, while less than half of the food insecure households adapted the more severe strategies.

Table 2 : Frequency of Coping Strategies

Frequency of coping strategies	Rely on less preferred food	Borrow food or seek help	Reduced quantity of food served	Restrict adult consumption	Reduce meal frequency	Borrow money on 100% interest
0=Never	2.1	7.1	2.1	8.3	1.3	8.3
1=Rarely	6.3	2.9	7.5	6.7	9.2	19.6
2-4 =From time to time	37.1	29.6	35.4	23.3	45.0	15.0
>5=Often	22.9	10.8	27.5	9.2	17.9	1.7
Total	68.3	50.4	72.5	47.5	26.7	44.6

Source : Survey data, 2013.

The result of the CSI score denotes that a household with a higher value is more food insecure compared with a household with a lower value (Maxwell, 1995). Comparing mean CSI scores gives a good picture of overall household food security and establishes baseline for monitoring trends and the impact of interventions (Devereux, 2001). The units in these indices are the sum of the frequency of coping weighted by the severity of individual coping behaviours—the higher the composite score, the more coping reported, and therefore,

the more food-insecure the household is. Accordingly, the result of mean CSI score varies across villages and wealth status (Table 3). This means that the very poor households are facing more severe problem of food deficit and they are becoming more food insecure than the non-poor ones. The better-off and some middle households have more assets and diverse sources of cash and food incomes, and therefore, have safety nets that enable them to recover much faster from persistent droughts than poorer households.

Table 3 : Average CSI Across Kebeles and Wealth

Kebele	CSI	Wealth	CSI
Bibiso	14.5	Very poor	16.4
Helena	15.0	Poor	14.7
Shuye	9.8	Less poor	8.45
Korke Doge	10.2	Non-poor	1.0
Achura	17.3		
Total	13.4		13.4

Source: Survey data, 2013.

The severity of food security rises with the level of CSI. Table 3 showed the level of food security with the level of CSI. Households with zero level of CSI were considered food secure,

while those households with 0.1-20; 20.1- 40; 40.1-70 CSI less food insecure, moderate food insecure, severe food insecure, respectively (Table 4).

Table 4 : Food Security Status by Coping Strategies Index Level

	N	%	Range CSI
Food secure	55	22.9	0.0
Less food insecure	98	40.8	0.1-20.0
Moderate food insecure	61	25.4	20.1-40
Severe food insecure	26	10.8	40.1-70.0
Total	240	100.0	

Source: Survey data 2013.

Conclusion and Recommendation

Food insecurity is widespread in Wolayta. The major factors responsible for the persistence of food insecurity in the study areas are shortage of land, unreliable and delayed rain fall and poor access to yield augmenting technologies. On average, 79.2 per cent of the

investigated farmers reported that they have encountered with food insecurity challenges. As a result, have adapted their own short-term responses or coping mechanisms to reduce or minimise effects of a stressful event. The coping strategies vary with the level of household well-being; i.e., poor households

have the highest score while rich households the lowest. The better-off and some middle households have more assets and diverse sources of cash and food incomes, and therefore, have safety nets that enable them to recover much faster from persistent droughts than poorer households. Among different strategies, over half of the farmers reduced meal frequency and depended on *enset* to cope food insecurity, while the rest either ate less preferred food, purchased or borrowed grain. One-fifth of the households depend on relief food aid to sustain their livelihoods.

While agriculture may play a major role in the reduction of food insecurity, the food insecurity problem cannot be solved by promoting agriculture alone. Attention should also be given to the promotion of non-farming

activities, particularly those that are associated with the smallholder farming systems. In order to make new opportunities and divert the young generation from land to non-land options, appropriate income generation schemes should be devised. Identifying the types of feasible activities and providing the required skills and leadership trainings in an organised way so that they will secure loan services to run their business. This needs vocational skill training and financial arrangements to engage the poor in income generating activities like rural shopping, fattening, honey production, cart, livestock marketing, vegetable gardens, etc. Livestock based enterprises have double advantage. First, it contributes directly to food security, second solves, land shortage problems.

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