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Determinants of Household Food Insecurity in Kemisse Special Zone: Case Study at Dawachefa Wereda, Ethiopia

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Abstract

This study was conducted to explore the determinants of household food insecurity in Dawachefa wereda. To achieve the intended objectives of the study descriptive case study was used by the researchers. The necessary data for this study was collected from primary and secondary sources. In this case, primary data were collected from respondents through interview, focus group discussion and personal observation. On the other hand, secondary sources were collected from books, articles and other literatures. In addition, to select the study areas and resourceful persons the researchers used purposive (judgmental) sampling technique. Accordingly, two kebeles, namely Woledi and Tucha were selected. Consequently, the data gained from respondents through primary and secondary sources was analyzed qualitatively in words (through descriptive manner via triangulations). Furthermore, the finding of this study shows that the natural factors like, environmental crisis, unpredictability of rainfall, soil erosion and socio-economic factors such as traditional practices and farming system, population pressure**,** poor infrastructure were identified as the determinants of household food insecurity in the study area. The study also found some limitations with regard to lack of good governance issues, incapacity to implementing poverty-focused growth policies in the area. Finally, the study explored some survival strategies used by households to mitigate the impacts of food insecurity.

Keywords: Environmental Crisis; Household Food Security; Lack of Good Governance; Poor Infrastructure; Population Pressure

Introduction

Since the World Food Conference in 1974 due to food crises and major famines in the world, the term Food Security was introduced, evolved, developed and diversified by different researchers. In the work by Maxwell and Frankenberg, a distinction is made between process indicators (those that describe food supply and food access) and outcome indicators (those describe food consumption). Food security was understood as adequacy of food supply at global and national levels until themed 1970's. This view favored merely food production oriented variables and overlooked the multiple forces which in many ways affect food access.

Evidences show that during the last two decades, food production has been increasing in the world. However, large amount of food at global level does not guarantee food security at national level. Moreover, availability of enough food at national level does not necessarily ensure household food security. For instance, in 1990, the calorie supply at global level was more than 110 percent compared to the total requirement. However, during the same period, more than 100 million people were affected by famine and more than a quarter of the world's population was short of enough food.

Although food production has been increasing from time to time, food insecurity, malnutrition and hunger and much more serious problems would remain the main agenda in the globe today. As the occurrence of hunger, famine, and malnutrition are increasing from time to time in developing countries, the conceptual framework of food security has also progressively developed and expanded. The idea of food security attained wider attention since the 1980s after the debate on 'access*'* to food and the focus of the unit shifted from global and national levels to household and individual levels.

This paradigm came with new concept and definition of food security and it led to two additional major shifts in thinking; from a first food approach to a livelihood perspective and from objective indicators to subjective perceptions (Maxwell *et al.,* 1994). The most commonly accepted definition of Food security is "*acces*s *by all people at all time's to enough food for an active and healthy life"* (World Bank., 1986). Food insecurity is a *situation in which individuals have neither physical nor economical access to the nourishment they need.*

During the debates that preceded the World Food Summit (WFS) held in Rome in 1996, it was established that "*There is food security when all people at all times have sufficient physical and economic access to safe and nutritious food to meet their dietary needs including food preferences, in order to live a healthy and active life*". When an individual or population lacks, or is potentially vulnerable due to the absence of, one or more factors outlined above, then it suffers from, or is at risk of, food insecurity.

As part of Africa, Ethiopia faces daunting poverty and food insecurity challenges that are worsening over time. About half of Africa's food insecure population lives in Ethiopia, Chad, Zaire, Uganda, Zambia and Somalia (Ramakrishna *et al.,* 2002). In the 1990s, an estimated 30million Ethiopians were food insecure, and food crises were persistent. Among this food insecure people the majority reside in the rural areas of the country.

Food insecurity emerged as a key problem and development challenge in Ethiopia in the early 1970s and became pervasive in the subsequent decades although the issue is a century-old concern for and other donating institution in the country. More significantly, since the 1980s the happening of severe drought and large-scale starvation ignited the need for food security and food aid initiatives in the country. Conversely, the concept has become more complex due to a move in the level of analysis from global and national to household and individual levels (Sabates-Wheeler., R. et al,. 2012).

In Ethiopia, the special programs for food security (SPFS) have begun in 1995 in two regions: Amhara and Tigray. In the year 1996, the food security strategy was launched and it was revised in 2002, to include elements of water harvesting, environmental rehabilitation, and the introduction of high-value crops, livestock, and agro forestry development. The project was continued by Italian support in 1998 supporting 4062 participating households and 24,500 beneficiaries. The project was further expanded to other regions of the country in 2001 with a view to improving the nutritional status and food security of the population.

New coalition for food security was established in 2003 with the aim of supporting chronically food-insecure households to reach a level of food security necessary to survive and thrive. In 2004, the government of Ethiopia designed and implemented new collusion program of Food Security Program

(FSP) and expanded its endeavor to fight against food insecurity, malnutrition, and hunger by allocating more resources (Sabates-Wheeler,. et al., 2012).

In mid-2005, the National Program for Food Security (NPFS) was launched focusing on three broad components: productive safety nets (PSN), household asset building (HAB), and voluntary resettlements. Like other developing countries, Ethiopia applied a wide array of strategies to lessen incidences of food insecurity risks to ensure food security at household, local, and regional levels. In addition, in 2006, improving food security was recognized within the framework of Sustainable Development Poverty Reduction Paper (SDPRP) as a central concern of government (Haan N., Nisar M., and Darcy J., 2006).

This program, on food security, in the country was guided by two fundamental principles: firstly, by the principle of reliance, where rural food-insecure farmers are made reliant on food aid to help them use their own resources to overcome food insecurity. Secondly, by breaking away the perpetual food aid dependence, so that they become food self-sufficient.

In many parts of Ethiopia, as a cause of food security combinations of natural and man-made factors have resulted in serious and growing food insecurity problem. The immediate causes of food insecurity include frequently recurring droughts and erratic rainfall patterns (Galhena DH., Freed Retal., 2013).

The world development report indicators for the year 2000/01 reveal the prevalence of child malnutrition (children under age 5) is 48%during the period 1992-1998. Even if, Ethiopia has reasonably good resource potential for development–agriculture, biodiversity, water resource, minerals, etc. Yet, Ethiopia is faced with complex poverty, which is broad, deep and structural. The presence of hunger in Ethiopian households due to insufficient resources to obtain food has-been a long-standing challenge to Ethiopian government, donors, and other local and international organizations.

Despite significant amounts of food aid assistance over recent years, there has been little measurable impact in reducing food insecurity. The reason behind is that food insecurity is complex; multidimensional phenomenon which varies through continuum of successive stages as the condition becomes more severe. Each stage consists of characteristic conditions and experiences of food insufficiency to fully meet the basic needs of household members, and of the behavioral responses of household members to these conditions.

Most famines and food crises have been geographically concentrated along two broad belts of the country. The first belt consists of the mixed farming production system area of the central and northern highlands, stretching from northern Shewa through Wollo and Tigray. The land resources, mainly the soils and vegetation of this part of the country have been highly degraded because of the natural and human factors.

The second belt is made up of the low-lying agro-pastoral lands ranging from Wollo in the North, through Hararghe and Bale to Sidama and Gamo Gofa in the South (Degafa., 2002). The study area is one of the food deficient regions of the country, which falls in the first drought prone belt. However, smallholder farmers in Dawachefa wered are not performing well to achieve food security and agricultural outputs. Due to this, smallholder farmers suffer from low incomes and living standards, poor nutrition, poor housing and health Therefore, the purpose of this study is to describe the determinants of household food insecurity in Dawachefa wereda, kemisse special zone.

Objectives of the Study

- To identify the natural factors that hinder household food insecurity in Dawa Chefa Woreda?
- To describe the socio-economic determinants of house hold food insecurity in Dawachefa wereda?
- To assess the survival strategies used by food insecure households to mitigate the impact of food insecurity?

Methodology

The study area, Dawachefa wereda is located in south of kemisse special zone administration. Its distance is 340k.m from Addis Ababa, the capital of Ethiopia. The Wereda comprises 26 kebelles and the total population is 143793. Out of these males constitute 71852 and females constitute 71941 (CSA., 2007). The Subsistence of local community depends on rain feed agriculture and livestock rising. The major crops produced are, sorghum, teff, and maize. In addition, papaya, mango, banana and oranges are also harvested.

Research Approach

The approach of this study was qualitative one because, qualitative study is interesting in meaning, and notably how people make sense out of their life experience. The authors believed that in qualitative approach, the researchers are central where he/she is the primary instrument of data collection and analysis. Furthermore, in qualitative study, the researcher present in person among the people and observe institutions or record behavior, not in the laboratory but in its natural settings. Thus, the authors were intended to employ this approach to dig out the data pertinent to the problem.

Research Design

To investigate the determinants of household food insecurity in, the researchers were employed case study research design. Because, case study was assumed as the detailed investigations of individuals, groups, institutions or other social units problems in its natural settings. In addition, the focus of attention is the individual case and not the whole population of cases. Moreover, in case study, the focus may not be on generalization but on understanding the particulars of that case in its complexity. Therefore, the authors of this study utilized case study, to bring an understanding of a complex issue or object and extend experience or add strength to what is already known through previous research. In doing so, the case study areas were limited to Woledi and Tucha kebelles in Dawa Chefa Woreda.

Data collection Instruments

To adequately address to the research objectives the researchers employed both primary and secondary sources. Primary sources obtained through interview, focus group discussion and observation. The researchers had interview with food security office, environmental protection authority and agricultural office of the wereda.

On top of this, to collect data from several people simultaneously and to explicitly use group interaction as part of the method, seven (7) focus group discussants (farmers, authorities, merchants and

others) were participated in each kebelle. On the other hand, secondary sources were collected from books, articles, published and unpublished documents.

Sampling Techniques

To provide researchers with strong **t**heoretical reasons for their choice of units (or cases) to be included in their sample, purposive sampling was used among the non –probability sampling techniques**.** Because**,** purposive (judgmental) sampling used to find the resourceful persons and to select the study sites based on the level of vulnerability to food insecurity.

Data Analysis Techniques

Finally, by using the result of primary and secondary sources, the data was analyzed qualitatively through triangulating the opinions of interviewees, focus group discussants, personal observation and secondary sources. As a result, the data analyzed qualitatively, has described in narration or words pertinent to the objectives and stated problems.

Results and Discussions

Ethiopia's food security strategy highlighted government plans to address causality and effect of food insecurity. The regional food security programs and projects were subsequently designed on the basis of that strategy. Given that Ethiopia is a predominantly agrarian society and agricultural development led industrialization focuses on the development of rural sector.

The adoption of agricultural development led industrialization pre-supposes enhancement of small holders to increase incomes for family members. However, the following sections described the factors or determinants of food insecurity situations in Ethiopia, with particular reference to Dawachefa wereda.

Natural Factors Affecting Food Insecurity in Dawachefa Wereda
a. Environment Crisis and Vulnerability to Food Insecurity

According to the information obtained from the office of environmental protection, the combined effect of land based resources degradation like deforestation, soil erosion, flooding, and loss of agricultural and pasture land leads to production decline. Population growth and recurrent drought are causing serious resource degradation in the area. The situation described the seriousness of shortage of productive land, coupled with population pressure, have forced the cultivation of the steep and moderate slopes which are highly degraded because of soil erosion. Besides this, Climate is one of the important elements of the natural environment that positively or negatively affects the food security status of rural households. Many studies indicated that inadequate and erratic rainfall is one of the environmental phenomena, causing food crises in many rain fed farming and drought prone areas across the world.

According to respondents, environmental degradation is a process in which the value of the biophysical environment is affected by a combination of human-induced processes acting upon the land. Also, environmental degradation is the gradual destruction or reduction of the quality and quantity of human activities. It is viewed as a change or disturbance to the land perceived to be undesirable.

According to informants, drought and environmental degradation are important natural factors that make households vulnerable to food shortage. The pattern of rainfall in the drought prone districts is inadequate for rain fed agriculture. Rain starts late after the normal planting season has already gone and stops early when the cultivated crops are at their vegetative stages of growth. Therefore, there is a clear moisture stress in the drought prone districts with its adverse impact on farming practice. Besides, natural resource degradation is serious problem in the study area. Natural resources like soil and forests are vital resource bases upon which rural farmers depends for their survival.

However, these resources are getting depleted over time at an alarming rate and affects farmers' agricultural production and productivity. In general, the ecology in the area has become more fragile than ever resulting in a decline in agricultural productivity.

Fig. 1 Degraded environment
Photo taken by researchers in the study area

b. Unpredictability of Rainfall

The study showed that drought aggravates vulnerability to food shortages and erosion of assets making households more susceptible to future crises. The existence of drought in the area stunt crops and leave little to harvest have left farming households impoverished. The data obtained from the office of food security reveals that the studied kebelles have high food insecure people and they also have the lowest food insecurity density.

According to interviewees, the increased variability in rain fall resulted in escalating the vulnerability of drought. Consequently, such seasonal variability of rain fall pushed the farmers to be vulnerable for potential and future natural calamity due to low range production in the area of permanent settlement. At the same time, more extreme weather events have impacted livelihood assets in both rural and urban areas and threaten the stability of food supply.

Moreover importantly, competition over increasingly scarce resources increased the risk of conflict among societies, displacement and migration which in turn increased the risk of food insecurity in the Wereda residents.

c. Soil Erosion

As respondents stated, soil erosion is the gradual wearing a way of soil by physical breakdown which is then transported away by means of water, wind to another location. Soil erosion is the leading cause of damage to soils, leaving the land barren and ultimately makes it less productive. Today the rate of erosion has been speeded up by human activities and consequently making soil erosion an ever increasing problem in the livelihoods of societies.

Soil erosion results from the ways that people use the land and practices such as tree felling cause deforestation and can lead to soil erosion. The removed trees would usually guard the soil from rain and wind as their roots hold the soil in place.

Additionally, many land owners cut down trees to create space in which to plant crops and raise animals which eventually can lead to soil erosion. The characteristic lightness and thinness of these soils make them prone to erosion. Therefore, these characteristics keep yields low and diminish soil conservation.

Socio-Economic Factors Affecting Food Insecurity in Dawachefa Wereda

a. Rapid Population Growth

The population of Ethiopia is rising from time to time. The average household size is also large when compared with other Sub-Saharan countries. At the micro level, household size is one of the factors expected to have influence on food security status of households. The greater part of farm households in Ethiopia are small scale semi-subsistence producers with limited participation in non-agricultural activities since land holding size and financial capital to purchase agricultural inputs is very limited. Because the family size tends to exert more pressure on consumption than the labor it contributes to production.

According to respondents, one of the main socio-economic problems in the region is population pressure. Many scholars attributed the cause for the food self-insufficiency to the high rate of population growth. In the region the rapid population growth coupled with a stagnation of agricultural production makes it difficult to keep pace with the rising demand for food.

b. Traditional Practices and Farming System

According to the data obtained from food security office of the wereda, customary practices are played a major role in negatively affecting the efforts made in addressing the problems of food insecurity. Even though, good and beneficial traditional practices are there, there are also customary or traditional values that do not encourage innovations on households' productivity. For instance, celebrating some days, non-working religious days, cultural ceremonies and unnecessary expenditure for weeding ceremonies and funeral systems are some of them.

Besides this, for rural farmers food availability is highly determined by their own agricultural production and available assets mainly livestock. Therefore, landholding size is crucial for farmers' food security situation. The Data collected from the, woredea agricultural office shows that landholding size in the region is diminishing time to time, mainly due to increasing population number and inability of the non-farm sector to provide employment.

c. Poor Infrastructure

According to respondents, access to infrastructure such as market center and roads, promote livelihood diversification and agriculture intensification. The existence of adequate infrastructure, especially main and feeder roads that improve access to necessary input-fertilizer, seed, pesticide and other agricultural implements are very indispensable. Even if, the current government has made a significant progress particularly in road development, the sector is still weak even compared with the other areas.

Similarly, the data obtained from the office of food security, reported that the lack of proper and on time transportation facilities constrained post harvest production to address market areas. By and large, the availability of inadequate infrastructures and social services development like road, transportation, communication, electrification, and agricultural services are the obstacles to the sustainability of agricultural production and food security in the study area.

d. Lack of Access to Saving and Credit Services

As the information obtained from the micro and small enterprises, rural savings and credits are played a significant role in improving economic access to the rural people. But in the study area, the non-saving habits and little access to credit limits their ability to purchase seeds, fertilizers and other productive assets.

However, the main problems of income generating and credit services are concerned with the lack of entrepreneurship, unemployment and shortage of money.

Governance Related Determinants of Food Insecurity in Dawa Chefa Wereda

a. Lack of Good Governance Institutions

As the data obtained from Focus group discussants, the challenge for reducing food insecurity and poverty in Ethiopia is that of improving institutions of governance aimed at developing capable and effective system of government at regional and local levels. This challenge depends on the development of leadership that is accountable and transparent at all levels. This implies a system of governance that allocates scarce resources both efficiently and fairly across all kebelles of the study area.

A capable and effective system of governance and leadership is possible only under a democratic institution that is subject and guided by the rule of law. Decisions should be decentralized taking into consideration the cultural and economic settlement patterns of the population. As respondents replied the system of governance is imposed from the top and it is not involving people from the grass root level where it is a challenge for the long run if governance institutions are not transparent and accountable for their actions and decisions.

b. Lack of Capacity in Implementing Poverty-Focused Growth Policies at the Local Level

According to the office of food security, the inability to implement government policies and strategies at the local level properly lead to off-putting in reducing food insecurity and generating greater unemployment both in farm and non-farm sectors. The office added, the deal on agriculture focused economic growth is especially crucial for Ethiopia, where 85% of the population currently makes its livelihood in rural and agricultural related activities.

But activities in agriculture is pursued only to reduce food insecurity, and little attention is given to alleviate poverty through employment creation and income generation in farm and non-farm sectors. In addition to this, government policies with regard to conserving natural resources or reversing land degradation and deforestation are not strongly implemented in the study area.

Coping Mechanisms and Survival Strategies Used by Food Insecure Households to Mitigate the Impact of Food Shortage

a. *Natural Resource Conservation*

Natural resources such as soils, water, plants, and animals are key factors affecting farm productivity. Massive land degradation is undermining the productive capability of the agricultural sector. Conservation efforts that have focused on physical structures (terraces, soil bunds, drainage ditches, etc.) have been only partly successful and need to be rethought and reinforced. The involvement of people on planting trees, shrubs and grasses on a denuded landscape can be taken as a good start in conserving the environment.

Respondents discussed that, vegetative cover not only helps control erosion and conserve water, but also serves to recycle nutrients, reduce evaporative demand on crops and soils, and increase soil organic matter. Furthermore, biological components are serving the dual purpose of natural resource conservation and provide income generating products such as fodder, fuel wood, and fruit.

b. Risk Management

As researchers discussed with environmental office, rural households operate in a highly risky environment due to production risks (climate diseases, etc.) and the variability of prices. The diversification of agriculture is one strategy to minimize risk. Practices that conserve moisture for crops are another example of a useful strategy.

This is particularly important to rural households who wish to invest in productivity-enhancing inputs such as improved seeds and fertilizer that need adequate moisture to be effective. Irrigation and wells, where appropriate, can also contribute to more reliable production of field crops and horticultural crops.

Conclusion

Based on the findings of this study, the combined effect of land based resources degradation like deforestation, soil erosion, flooding, and loss of agricultural and pasture land leads to production decline. Traditional farming practices, lack of good governance, rapid population growth and recurrent drought are causing serious food insecurity in the study area. On the other hand, lack of access to infrastructural services such as marketing, rural transportation and communications are the existed barriers to achieve household food security in Dawachefa wereda.

To sum up, house hold livelihoods in the study area is highly affected by the factors related to environmental, population growth, rainfall variability, transparency and accountability and lack of empowerment of people on the grass root level.

Recommendations

Based on the findings of this study we recommend the following possible solutions to overcome the challenges of food insecurity among societal livelihoods.

- The governments should develop a new and expanded policy agenda for agricultural extension and communication for rural development focusing national attention on food security and income generation of the rural poor.
- Governments (Federal and regional) have to create a national policy agenda on food security and income generation of the rural poor households.
- The national policy agenda should include actions to re-prioritize agricultural extension and information services as part of a national multi-sectoral integrated food security network.
- In order to maintain food security and access to food, the people of the study area should work hard in environmental conservation activities and should develop skill of water storage to use it in the absence of rainfall.
- The people should engage in irrigation schemes to better manage available water resources for agricultural development and food security.
- The government should provide modern fertilizers for farmers and it has to create awareness about the impacts of traditional farming system on crop productions.

Finally, we recommend for further studies to be conducted in the rest of the areas with regards to the determinants of household food insecurity.

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Conflict of Interest

The authors declared that there are no financial, professional and personal interests that might be influenced the quality of this article.

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