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Land size and landlessness as connotations for food security in rural low-income farmers: A case of Gedeo Zone, Southern Ethiopia

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ABSTRACT: Food insecurity and rural vulnerability is a major problem for landless and low-income farmers. However, identifying the main causes and consequence of food insecurity in rural low-income farmers is not very well understood by policy makers to design and implement more effective policies and programs to seek solution. The study examines the cause and consequences of food insecurity for rural low-income farmers. Analytical tools used include descriptive statistics and causal-chain analysis connecting problems on the local level with regional dimensions. The study revealed that households in the area were vulnerable to food insecurity primarily due to landless and land fragmentation. The result of survey indicates that from the sampled 468 households, 32.1, 14.98 and 52.89% are landless, have land <0.1 ha and 0.1 to 0.5 ha respectively which is a critical factor for food insecurity and rural vulnerability of the area. Besides, population density, low income, lack of education, access to health is also responsible factor for rural vulnerability. Based on the result of this study 47, 26, 14 and 13% of children and lactating mothers, disabled, landless and elders respectively were the most vulnerable group to food insecurity in the area. It is also confirmed that poverty (69.4%: $p<0.001$) is one of the major social aspect for food insecurity. Household food security should be improved in the region by focusing on education, creation of income generating opportunities, livestock and accesses to different productive assets affecting low income and food insecurity. The findings also imply that even though Ethiopian agricultural strategy has ambitious policy commitment, the agricultural extension problem has not been solved. To address this, Ethiopia has to invest in national level collective agricultural research and development, timely access to high quality agricultural inputs with optimum price, intensive irrigated agriculture, and expanded knowledge dissemination network to smallholder farmers.

Keyword: Food insecurity, landless, land fragmentation, low income, policy, rural farmers.

INTRODUCTION

Food security is defined as the ability for all people in society to be able to acquire food at all times to live normal, active, healthy lives (FAO, 2010; Stamoulis, 2003; IFRCRCS, 2004). To understand overall conditions of food security: food availability; food access; and food utilization is critically recognized (IFRCRCS, 2004). Above all, food availability in a country, region or local area means that food is physically present. This is because it has been grown, manufactured, imported and/or transported from one area to the other. The physical availability of food is linked with land productivity. For the rural poor, the most important physical capital is land, in which its absence characterized by most marginal farmers and the rural landless. The lack of balances regrading land and capital in most of the rural farm determine an extremely low productivity (Gidey et al., 2018; Endalew et al., 2015). The technical and economic changes in these farms are insignificant, mainly due to the high fragmented land, which makes food security achievement unresolved.

One billion people around the world especially in the

food deficit and low-income developing countries, such as southern Somalia, southeastern Ethiopia, northeastern Uganda, Kenya and lowlands of Rwanda and Burundi are still living with chronic poverty and undernourishment (IEG, 2011; Cotter, 2002). Identification of poverty as the major causes of food insecurity is widely concerned (FAO, 2009). Poverty reduction need sustainable development mechanism and more equitable distribution of wealth in agriculture and agriculture related issues (FAO, 2009). It is estimated that 75% of those under poverty level live in rural communities are primarily small-scale farmers (GFSI., 2015; Timmer, 2002). This explain why a point of growth in Gross Domestic Product generated by the agricultural sector has twice the effect in reducing poverty and hunger, compared with economic growth generated by other sectors (Dethier and Effenberger, 2011; Dixon et al, 2001). This shows farmers are significant protectors of natural resources as they are very influential when it comes to implementing sustainable development (Källström and Ljung, 2005).

Several research and policy issues dominate the academic and policy debate on food security and rural vulnerability of farming community (Alemayehu, 2001, Birara, 2015; Pulhin et al., 2006). Perhaps, the issues have drawn the attention of policy makers, donors, international development agencies and scholars more than any other agenda. Thus, the possible factors for household food security have been identified (Fekadu and Mequanent, 2010; Mesay, 2008). Similarly, UN World Food Program (2017) stated that the common factors that cause household food insecurity are: household size, age of household, sex of household head, marital status of household, education level of household, dependency ratio, access to credit, ownership of saving account, total income per adult equivalent, expenditure level, asset possession, access to social services, owner of home garden, access to subsidized food, sources of food, availability of food commodities, and supply of food commodities. However, those identified factors are not sufficient enough to characterize site specific food security conditions and to provide sufficient food for their growing rural population.

Because this requires dramatic increase in agricultural production, which must be achieved against a backdrop of issues such as climate change, water and soil depletion and degradation, land fragmentation and existence of landless farmers (GFSI., 2015; Welasadiq et al, 2019). Practically, the increase on landless farmers linked with different existing factors, but improper land insecurity (tenure) for the last two decades in the area becoming evidenced trends for rural poor farmers. This connotation will be continuing till now, which need serious government legal action.

Ethiopia is the second largest population (estimated more than 100 million people) in Africa, next to Nigeria (Mohamed, 2017, Birara, 2015). Given the current population growth rate of 2.4 percent per annum, the country population will be 118 million by 2025. These will put the country in the 12th ranking in the world. Feeding such a large population with current agricultural production system and existing land holding capacity will lead to central food security challenges. To resolve this problem, the country focuses on technology based agriculture to bust yield and enhance the livelihood of rural farmers (Self and Grabowski, 2007; Welderufael, 2014). However, the solution for this problem is not as such simple with the current condition of agricultural extension, land fragmentation, rainfall dependent agriculture and massive concern on crop cultivation alone without integrated agricultural practices (WFP, 2017).

This study, therefore, intends to identify how landlessness and land size became connotation for food security in rural area of Gedeo Zone, Southern Ethiopia. Such evidence makes this study enthusiastic because it provides with information that will enable effective measures to be undertaken so as to support landless and households with fragmented land size to improve food security status and bring the success of food insecurity program not only in the study area, but also across the region. This investigation points out that landlessness and land size important factors, particularly in densely populated and highland area. Those factors put impact on food security in rural populations, particularly among the rural poor which should be considered when designing policies and programs to improve food security status.

MATERIAL AND METHODS

Study area

The study was conducted in four rural woreda found in Gedeo Zone (Figure 1), Southern Nation Nationalities People Regional State, Ethiopia. Gedeo Zone is located about 365 km North of Addis Ababa. It lies at latitude of 5°84° to 6°43° N and longitude of 34°88° to 39°14°E. Topographically, the area is marked by hilly, flat, steep slopes and gorges and a number of streams and mountains, having altitude of the ranged from 1500 to 3000 m above sea level. The total area coverage of the zone is 1354 square kilometer. The agro ecological characteristic of the area shows, 26, 71.5 and 2.5% Degra, Woyinadega and Kola, respectively. The area experiences mean annual temperature of ranging from 12.6 to 22.5°C, with the 1000 and 1800 mm minimum and maximum rainfall distribution, respectively.

It is believed that 80% of the economy of the people is based on agriculture, from the total agricultural production, 60% was produced during long rainy season (Mehir) and the other 40% from short rainy season (Belg). The unique characteristic of the study area was 97% of land covered by perennial and annual crops, particularly coffee and *Enset.* Agroforestry the native land use practices which include the basic crop component, called Coffee-*Enset*-

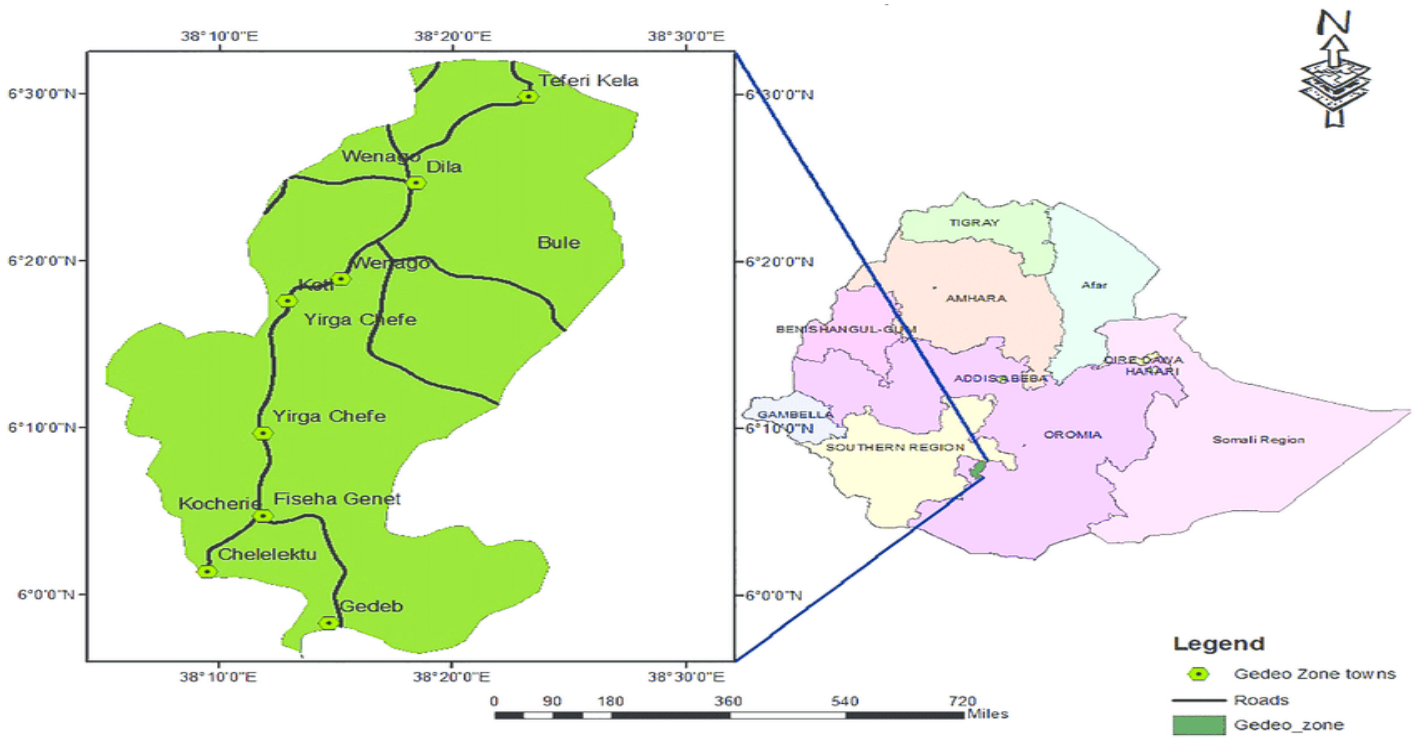

Figure 1. Administrative map of Gedeo Zone.

tree and act as the livelihoods sources for the people of the area. The population of the area dramatically increase from time to time, in which according to before one decades ago, it was around 0.8 million. However, now the population is expected to be more than 1.3 million (Gedeo Zone Finance and Economic Development, 2019 Abstract, Unpublished). For the current study, four area of the zone considered to understand the actual condition of food insecurity in relation to land size and landlessness.

Sampling techniques

In this study, multi-stage sampling procedures were employed to select sample households. In the first stage, out of the 6 woreda in the zone, four woreda were selected purposively to capture over all characters of food security in the area (Bule, Wonago, Yirgacheffe and Gedeb). Those woreda were selected based on Regional Food Sufficiency Category. According to Bureau of Agriculture and Natural Resources, food sufficiency assessment (2016, unpublished), the two woreda (Bule and Gedeb) are food sufficient, while Wonago and Yirgacheffe are not. Due to food insufficiency, Wonago and Yirgacheffe woreda supported by Productive Safety-Net Program. This was followed by stratified proportionate sampling of the respondents from the sampling frame.

Structured questionnaires were prepared for 468 households, 8 focused group discussions with 60 participants and 20 interviews" with 18 respondents, the sampling was done according to Kothari (2004) and Kothari (1991). This sampling intensity covered approximately 0.47% of the total number of households in the four surveyed woreda. The surveys were conducted in January 2018.

Types and methods of data collection

Both primary and secondary data, which are qualitative and quantitative in nature, were applied so as to categorize data from various sources and describe the landlessness, land size, and food security condition and its factors among the sampled subjects in the study area. Primary data were collected from sample female-headed households using structured interview schedules. Prior to actual survey, overall initial test on the four selected woreda by each woreda expert was done at desk level. This gave direction for the selection of targeted district to be addressed and provide information necessary for researcher to modify and adjust the questioner. First, land holding characteristics of districts was evaluated, this was done by collecting, sorting and summarizing data from Rural Land Registry Book. This points out which district should be focused for interview.

From the secondary data sources and desk discussion, households without land and households with land within the recommended range were identified. For the study,

landless household were categorized as those household living as dependent on other farmers' land, and those having land as his/her house laid. Similarly, focus group discussion, field observation and key informant interviews were conducted to complement the research findings with qualitative information. The data collected from sample units was edited, and analyzed by tabular analysis using *Orgin Pro 9 analysis software*, which use parameter mainly describing food security issues, land fragmentation, rural vulnerability, low income and household living condition and adaptive strategies. The data analysis was based on the causal-chain analysis connecting problems on the local level with other dimensions.

RESULT AND DISCUSSION

Food insecurity issue of low-income farmers

Long-term factors, such as the interaction between environment, high population growth, diminishing land-holdings, and a lack of on-farm technological innovation have led to a significant decline in productivity per household (Byerlee and Spielman, 2007; Dorosh and Rashid, 2013). According to the data of first land certification, the majority of the farmers in the area have average land size of 0.5 to 1 ha, and many families have no land at all. It is estimated that from the total household more than 5.6% of household in the area were landless. Even though the land sizes vary from one district to the other, the Gini coefficient of the inequality does not vary across the district when compared with regional ranges of 0.41 to 0.44 This study was in agreement with Headey et al. (2014). Southern Nation Nationality People Region of Ethiopia land proclamation number 110/1999 chapter 11/1/A shows that there should not be land below 0.5 ha for rural rain fed agricultural practices (SNNPR, LP 110/1999 Ch. 11/1/A), with respect to these, the landless and land holding size is critical issue in the area which may be the responsible factor for the food insecurity in the area. Table 1 shows the total land holding size of the area. This data show that 51.7% of house hold of the area has land which is not significant for farming; it may affect the livelihoods of local community.

This study also shows that from the sampled household 32.1, 14.98 and 52.89% household become landless, having land less than 0.1 ha and 0.1 to 0.5 ha respectively (Table 2). During the survey, it was observed that those household categorized under landless are ultra-poor, severely undernourished and chronically food insecure. This shows the basic physical livelihoods, such as land have strong impact on the living condition of rural community. Additionally, overall land holding condition of the area disagree with the Southern Nation Nationality People Region of Ethiopia land proclamation number 110/1999 chapter 11/1/A, which shows there should not be land below 0.5 ha for rural rain fed agricultural practices (SNNPR, LP 110/1999 Ch. 11/1/A). This proclamation indicates that household within the above land holding category is not considered as farmers, which seek strong government intervention to introduce non-farm based agricultural technology.

In addition, land holding size of the sampled household show that, the sum of land size of all household become 70.6 ha, which shows each household in average have 0.12 ha fragmented pieces of land (Table 2). This indicates that such types of land are not capable for farming and forces the people of study area to expose to food insecurity, rural vulnerability and low income (Gedeo Zone Natural Resources and Rural Land Administration and Land Use Report, 2018, unpublished). In this regard, the cause of existing food insecurity is numerous and interlinked, this include inability of household to produce crop, rear livestock and land rent for cooperative work due to land size and fragmentations. To avert this problem, the government should have to focus on off-farm income opportunity, development of livestock sub-sector, supply of adequate credit, as also reported by IEG (2010).

According to Zonal Disaster Preparedness and Food Security Department Report (2018, unpublished), from the six rural woreda of the zone four woreda was included in the productive safety-net program to supply food in secured households. Even though the implementation of this program has significant impact on the livelihoods of low income farmer, one of the main problems is lack of beneficiary share given by Zone, woreda and districts. Similarly, it was observed that there is inadequate implementation of this program, which shows the graduation of beneficiary to leave the program was in significant and the need of rural households to be part was increased from time to time. This indicates that food insecurity was very critical and dynamic in the study area.

Causes of low income and food insecurity

The livelihood of a major proportion of population in the developing world is directly or indirectly connected with agriculture. Increased agricultural productivity is of great importance to feed current alarm growing people. However, in the study area, inadequate land and/or fragmented land size is the major cause for the loss of food production and low income in areas which is difficult to produce enough quantity of food (Table 2). Middle income farmers have shown some effort to develop the hills, use technology and properly handle their land, whereas the poorer farmers show less effort, because they have more pressing needs to support their families in times of food shortage depending on daily labour work. Farmers in the study area are well suited with the hilly environment, but nowadays frustration is evident, because tree planting has not solved the immediate problem of feeding the families. This may lead to degradation of land through massive cutting of trees, which can be additional factor for food

Table 1. Land holding size of the household (HH) in the area.

Land holding size	Male HH	Female HH	Sum	%
Land less	8092	4383	12475	5.6
<0.1ha	42229	6250	48549	21.9
0.1-0.5ha	40424	13104	53528	24.2
Total	90815	23737	114552	51.7

Source: First land certification registration book, 2010.

Table 2. Land size and land fragmentations of sampled household.

Land holding size	Male household	Female household	Total	Percentage (%)
Landless*	103	47	150	32.1
<0.1ha*	47	23	70	14.98
0.1-0.5ha	220	27	248	52.89
Total	370	97	468	
Land size and pieces of land	**Pieces of land**	**Land holding household**	**Land size (ha)**	**Pieces of land**
Household	400	317	70.6	0.12

insecurity (Alessandro et al., 2014; Welasadiq et al., 2019; Gidey et al., 2018).

Lack of employment and income generating opportunities was one of the prominent causes for food insecurity and low income in the study area. Most available jobs in agriculture are associated with low and unstable incomes, poor safety and health conditions, gender inequality in pay and opportunities, and limited social protection, linked with economic aspect of rural community (USDA Economic Research Service, 2004). According to the Gedeo Zone Rural Youth Job Opportunity Creation Department report (2018, unpublished), 27% of the active rural youth in the area is unemployed, most of them are between 15 and 32 ages. This is due to lack of farm land and access to different productive assets. According to Mitiku et al. (2012), total cultivated land, total annual farm income per adult equivalent, total off farm income, and livestock rearing have positive and significant relationship with food insecurity and low income in rural area.

During the survey, it was observed that between 5 to 7 months within a year, village people remain unemployed, due to high dependence only on coffee crop production. Their standard of living can improve only when they are employed during coffee harvesting period in a gainful manner. It was also evident that the annual yield declines have its own impact on reducing local employee who join the coffee processing industry.

Lack of special attention and support from the government for landless and low-income farmers, through involvement of off-farm activities and different income generation opportunities is also another cause for food insecurity in rural community which is in agreement with the findings of Alemayehu (2001). This necessitates rural policies and programs design to support landless and low-income farmers by encouraging them to participate in income generating opportunities.

Rural vulnerability and food insecurity

Vulnerability refers to the susceptibility to harm in a system relative to a stimulus or stimuli. The social perspective on the other hand focuses primarily on the human factors or drivers of vulnerability such as the social, political, and economic conditions that make exposure unsafe or challenging (Ford and Smit, 2004). Marginalization, inequality, the presence and strength of social networks, poverty, and food entitlements are the primary factors considered in this work (Adger, 2000; Pelling, 2002). Based on the result of this study, 47, 26, 14 and 13% of children and lactating women, disabled, landless and elders respectively were the most vulnerable group for food insecurity shocks in the area. The malnutrition case of food insecured family children and lactating mother was severe in the area. However, household with land and some asset will have better resilient capacity to the food insecurity shock by selling the available assets, taking credits and leasing part of their land. This study was in agreement with the findings of o'Brien et al. (2004).

The role of population density and family size in food insecurity

Population pressure has become a factor in accelerating food insecurity in situations where: all accessible land is fully under cultivation, failure to improve upon the old methods of cultivation and opportunity for alternatives

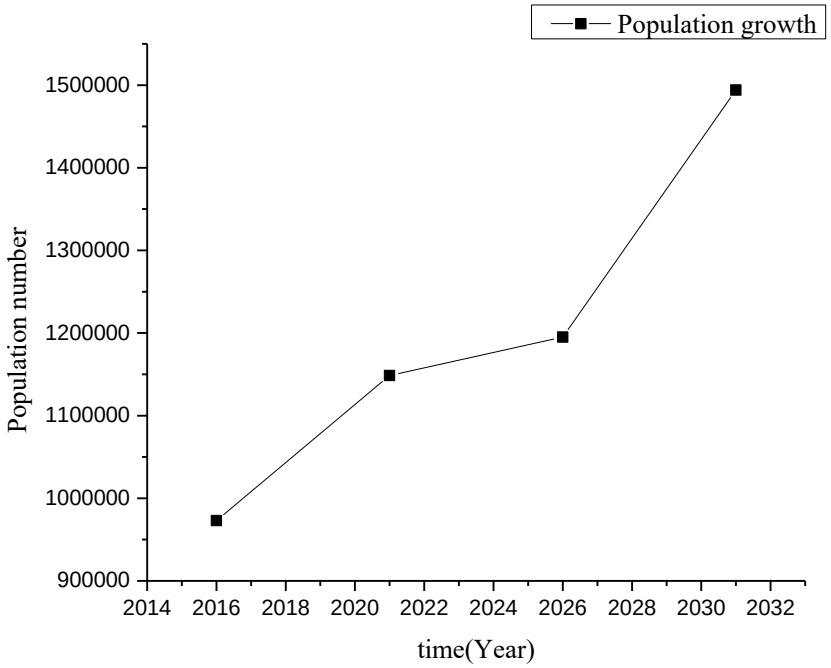

Figure 2. Population grow the of the area.

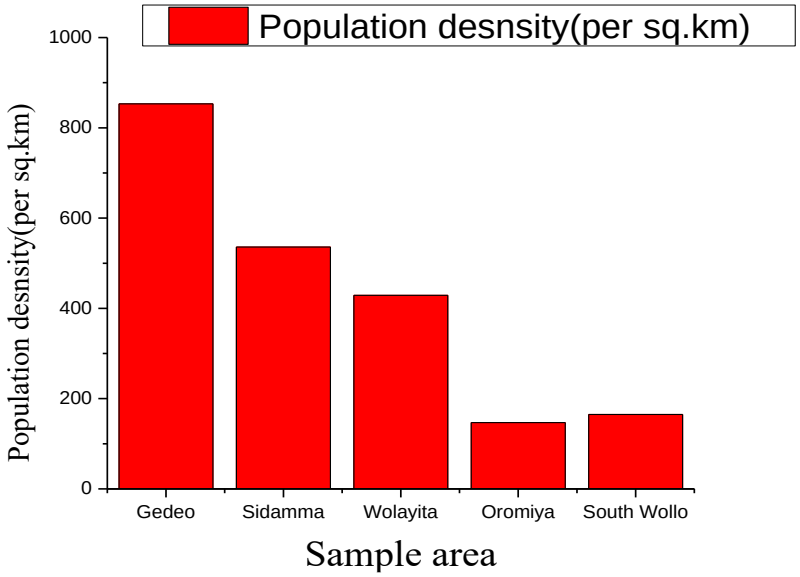

Figure 3. Population density comparison of the study area with other.

employment is absent. In such situations, therefore, population pressure can lead to ecological problems such as: deforestation, inappropriate land cultivation, over grazing and social problem such as subsequent food price rise, access to food and water. This reduces food production and incomes, triggering a downward spiral in a process of demographic. The study area was one of the densely populated areas in the region as compared with other zones. According to Zonal Finance and Economy Development report (2015, unpublished), the population of the area was 1,148,517 when compared with reference year of 2005, the growth rate increase by 3.6% (Figure 2). This shows that within ten years, the total population number increased by 3.6%, this analysis points in the coming ten years the population of the area will become 1.5 million (Figure 2), which implies further pressure in scarce land as discussed by Alessandro et al. (2014). Therefore, the government should have design special

Table 3. Family size and annual income household in the study area.

Land holding size by house hold	Household selected	Average annual income(brr/dollar)	Family size per household		
			M	F	Total
Landless	150	3794.73ETB (135$)	386	403	798
< 0.5ha	318	1338ETB (47.8$)	986	894	1880
Total family					2669(6*)

Average family size (2669/468=6*).

Table 4. Households response on the impact of food insecurity in social aspect.

Variables	Low (%)	Medium (%)	High (%)	Very high (%)	Chi-square (significance)
Degree of poverty	1.25	6.85	69.4	22.5	53.723(***)
Migration	43.75	10	30	16.25	45.768(*)
Disease incidence	3.13	13.13	60	23.74	45.725(***)
Increase divorce	45	35	13.13	6.87	46.524(**)

*, **, *** Significance at 5%, 1% and 0.1% level.

attention for those areas and also other area which have the same characters with study area. Raising their income does not directly reduce poverty. That is why poverty-oriented personnel in foreign aid agencies may push for emphasis on the low population density and poor resource areas, with generally poor results. According to the data of Sothern Ethiopia Finance and Economic Development bureau, the regional population density was 122/Sq.km, while the population density of Gedeo, Sidama, Wolayita was 835, 536 and 429 per squ.km respectively, while compared with other region it is 147/Sq.km at Oromiya and 165/Sq.km at Amhara mainly Debub Wollo (Figure 3).

The current study showed that the study area was densely populated compared with others peripheral zone, which may lead to land degradation. However, the population of the area have indigenous land use characteristics, particularly called tree-*Enset*-coffee based agroforestry. This makes the area to be green throughout the year and well conserved. The field investigation shows that, nowadays there is voiceless poverty, in which many families fails to feed their family (personal observation). Large family size has significant relationship with much greater risk of poverty (Obamiro et al. 2003). The survey of this study shows that the family size of the landless and those household having land less than 0.5 ha was 2669 which shows the average family size per household was six (Table 3), which is very difficult for those house hold to feed those family.

A family can be food insecure in two main ways: food production and food purchase. Both require adequate resources or income. The implication of this finding is that the quantity of food intake will be affected by dependency ratio. The larger the family sizes the lesser food availability to each person within the household. The annual average income of households of study area was very low (Table 3). The comparison of the average annual income of landless household was better than those having land below 0.5 ha. It might be due to the landless household spent their time in daily laborer work. Some sampled household in the study area witnessed that, even one-day miss for daily labour work affect the daily food consumption of the whole family, which is very shocking and need serious attention of the government to seek the solution.

Relationship between Societal issue and food insecurity

The social aspects of food security can be summarized as poverty, migration, human health, demographics, and sociopolitical issues of the area. The result show that 69.4% ($p<0.001$) of the households confirmed that poverty is one of the major contributors to food insecurity in the study area; despite 1.25% believe that it has lower impact (Table 4). About 43.75% ($p\leq0.05$) of households in the study area suggest that food security has lower impact on migration, while 16.25% consider food security as one of the causes of migration (Table 4). However, the woreda statistical data show that those landless and having land below 0.5 ha were migrated to the nearby and they live their life to work as permanent and daily labour.

Poverty is also characterized by a chronic shortage of economic, social and political participation, neglecting individuals to exclusion as social beings, preventing access to the benefits of economic and social development and thereby limiting their cultural development (Bigsten et al., 2005). According to the current trend, a condition for food insecurity in the area was very serious which need immediate intervention. About 60% ($p<0.001$) of the sampled households believe that increasing disease incidence, under nutrition of child and lactating mothers in the study area is highly associated

with the food insecurity, while 3.13% ($p<0.001$) do not accept food insecurity being the cause of disease incidence (Table. 4). The study shows that, 45% ($p<0.01$) family divorce was not related to food insecurity, while 13.3% ($p<0.01$) related with food insecurity through household migrations to other area (Table 4).

Employment opportunity for low income rural community

Rural Employment Opportunities (REO) provides outreach and services for low income community that struggle to support themselves and their families. This study was designed to examine employment opportunity of low-income rural community. The survey data from the household sampled showed that 68.4% (n = 320), 20%, (n = 94) and 11.6% (n = 54) have their income was based on daily labour work, livestock rearing for middle income farmers and mini-market local business practices, respectively. The findings were consistent with prior research reporting that the low-income rural community faces dis-satisfaction, health problem, food in security and unstable housing were associated with unstable employment (Bewket., 2009; Byerlee and Spielman, 2007). The future employment demand of low-income rural community show that, if adequate credit and working opportunity is created by the government, the rural low-income community wants to adopt current income generating options to move from the current conditions (Falk et al., 2003). The survey result show that from the sampled household 41.7% (n = 195), 17.13% (n = 81), 16.69% (n = 78), 13.7% (n = 64) and 4.49% (n = 21) needs to enhance their income respectively through cow fatting, sheep fatting, mini-market local business, poultry production and bee keeping as a source of income generating opportunity.

Policy implications

Food insecurity issues in Ethiopia are extremely complex because of large variations across space and over time related to agro-ecologies, weather shocks, land fragmentation, existence of landless farmers, low technology adoption and practices, lack of soil productivity, increase of farm input price, and other factors. In this context, Ethiopia's agricultural and food policies are crucially important, having profound effects on tens of millions of low-income people throughout the country.

Ethiopia's great progress is a result of the country's strategy of ambitious policy commitments and supportive programs around agricultural development. Ethiopia has invested in the establishment of agricultural centers to train nearly 60,000 extension workers (DA) across the country, significantly increased road density to connect all administration districts with farmers for extension purpose. However, the agricultural extension problem has not been solved due to the system weakness between the farmers and DA. With the current support of DA, it is difficult to record any meaningful progress in productivity among smallholder farmers. To address this, Ethiopia has to invest in country level of collective agricultural research and development, timely access to and use of high-quality agricultural inputs with affordable price, and expanded knowledge dissemination networks to smallholder farmers. Agriculture focused program like ATA (Agricultural Transformation Agency), which works in innovative ways across sectors to increase yield, enhance market inter linkage, input supply based for low income farmers are required. This program brought remarkable change in cluster approach to crop production and matched these investments in productivity enhancing technologies with interventions to ensure that smallholder farmers have financially remunerative market for their production.

The analysis of the current food insecurity situation and evaluations of the food aid management practices have several policy implications. First and foremost, it is important to understand that the regional government should play a significant role in mitigating famine and insuring food security. But maintaining emergency national grain reserves, providing famine early warnings, stabilizing prices, acquire enough food recovery and development activities are responsibilities of the federal government. The Ethiopian Government and donors' agencies are needed through disaster prevention and famine mitigation policy measures to increase domestic food production and local grain purchases to support the current cluster approach to crop productions. It is absolutely essential to build the regional based domestic capacity for emergency response; this may support farmers through market opportunity. The drought and famine mitigation measures taken so far depend on tentative solution through food aid, this should be shifted to sustainable solution like irrigation focused agriculture. Conquering famine may take longer as far as agricultural production depends on rain, to combat drought, well-studied and carefully planned projects such as dams, irrigation schemes, reforestation, pasture development, and land conservation measures are needed (Maxwell and Alemayehu, 1994).

Ethiopia is home to one of the largest livestock populations in Africa. Therefore, developing pasture and water conservation schemes in the lowlands may have multiple benefits. It will ease the current conflicts over the use of water and pasture land.

It would be over-ambitious and unrealistic to think that chronic food insecurity at nation or regional level can be eliminated within a short period bumper harvest. Surplus food production helps narrowing or closing the food gap. But it cannot be a real measure of attaining food security without improved purchasing power of the food insecure and the resilience of local food markets in remote areas. The Ethiopian food security policy should seek solution for chronic food security and rural community vulnerability to

alleviate unemployment and poverty in rural areas as outlined. Without poverty alleviation famines may recur at any time. Creating off-farm employment opportunities and developing labour-intensive public rural projects may help reducing food insecurity for the landless, resources-poor, and jobless community. The government policies in food security should seek the solution for those landless and lands with small size through re-settlement program. This could be attaining by breaking ethnic based regionalization that restricts a free mobilization of labour. Finally, special attentions should be given to pastoral and perennial crop growing areas, require innovative approach to current food security policy and aid management.

Conclusion

Dramatically increasing the global food supply is a daunting enough challenge on its own, but several significant headwinds make the task even more complicated in both rural and urban area. Therefore, identifying the cause of food insecurity and vulnerability would help policy makers to design and implement more effective policies and programs to improve food insecurity. The purpose of this study was to identify the challenge of food insecurity and rural vulnerability of low-income farmers. The study showed that about 5.6% and 46.1% of the households were landless and having land below 0.5 ha respectively, which shows one of the critical factors for food insecurity. Based on the result of the findings, large family size has a negative influence on household food security. Those farmers under this category mainly focus on daily labour work which cannot fully support the daily food consumption of the family. This leads to severe malnutrition among children and lactating mothers in the area. Further, the study has shown that major factors affecting food insecurity of rural households were family size of household head, lack of employment opportunity, and lack of awareness creation which leads to social aspect through migrations, disease incidence and increasing family divorce. Based on the findings of the study, the following recommendations are forwarded through policy brief and rural based program revision. The government should focus on providing access to rural off-farm activity, region specific food security awareness, creation of any income generating opportunities, promote diversification of livelihoods and equal opportunities to access resources. Both government and civil society organizations have to develop area specific implementation plan. The policy initiatives that will do most to enhance the potential for self-employment are basic condition in reducing food insecurity in the rural area according to beneficiary demand. In general, the results of this study produce the implication that attaining food security in the SNNPR of Ethiopia requires adoption of mixed strategies and policies. This will be achieved by clustering fragmented land to implement the current "producing more with less" FAO direction.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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