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Assessing Physical Access of Food Crops in Rural MI'Erab Abbaya Wereda, Southern Ethiopia

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Abstract

Ethiopia is a country where about half of its population has no physical and/or economic access to food. This paper assesses the sources from where households accessed food in rural Mi'erab Abbaya, Southern Ethiopia during pre and post-harvest seasons of field crops. Household Survey Approach was employed to collect the primary data. The sample households were identified through systematic sampling procedure. Analysis was made through juxtaposition of the duo data. Four major sources from where the households procured food have been identified. More than a quarter of the surveyed households accessed food from productive safety net program during the pre-harvest season but its contribution to the total available food was insignificant and nearly half accessed from their own production during post-harvest season. Roots and tubers were the largest food crops that accessed either from own production or from giiyaa and qootchaa / gullit market sources during both pre and post-harvest seasons. Pulses were consumed only if from own production

Introduction

Food access is one of the three physical determinants of food security/insecurity; the other two determinants being food availability and food utilization. The fourth is food sustainability or stability. It is temporal and affects all the three physical determinants (Weingärtner, 2004; Maxwell, 1995; Riely *et al.*, 1995). It is the measure of the ability of the people to acquire adequate and safe food (Beri, 2007; Chaturvedi, 1997). Food is said to be accessible for all households and all individuals when the households have sufficient income (economic access) and other resources to obtain food in quality and quantity (Weingärtner, 2004; Riely *et al.*, 1995). The mere availability of food at national or regional levels does not ensure its accessibility at household or individual level for food may not be equally accessible to all households in a given consumption period. It, however, depends on the ability of households to obtain from various sources and the aggregate availability of food in the market and by market prices (USAID, 1992). Therefore, food access is beyond physical access and encompasses economic access too. Physical access refers to the range and quality of food available from own production as well as in markets. Economic access refers to enough money to buy appropriate food. It depends on the price of food at market and on the amount of money a household has to purchase food (Block and Kouba, 2005; Hendrickson, Smith and Eikenberry, 2006). Furthermore, cultural traditions and knowledge (of preparation and consumption) towards a given food are other factors of food accessibility.

More importantly, as noted by Weingärtner (2004), household food accessibility depends more on the level of household resources (capital, labor and knowledge) and on prices. In general, economic, physical, socio-cultural and political barriers and government policies may hinder people from acquiring the available food. Sen (1981) refers such situation as Food Entitlement Decline (FED). Weingärtner (2004) further noted that adequate access for food can be achieved without households being self sufficient in food production as long as the household is able to generate sufficient income together with own production.

Food insecurity is one of the major age-old and ever increasing problems of almost all countries of Sub-Saharan Africa mainly Ethiopia and its situation is contrasting with the other developing regions such as East Asia, South Asia and Latin America where food insecurity problems are diminishing (Lisa, Aldreman and Anduayom, 2006). Even though agriculture is the mainstay of the majority of Ethiopian population, about 45-52 per cent of the population is lacking food or has no physical and/or economic access to food. The pity accessibility of food is getting intensified in the country. Many *weredas* (the lowest local administrative units to which paid government employees are assigned) that once were better off in terms of food security are getting ever more food insecure. The situation is worse in rural areas where food production takes place owing to limited transport networks, marketing facilities and higher prices of food. In addition, ever increasing population pressure, socio-political instability, inconsistent government policies towards rural development and depletion of physical resources such as forests, soil fertility and surface water for irrigation are further aggravating factors of the problem. Mi'erab Abbaya *wereda*, which was known for surplus food crop production few decades back, has now become one of the regions looking for food supply from various external sources such as safety net and food aid. In the given situation, food access has not been studied in the study area with the requisite focus. Thus, the present paper deals with physical access of food crops i.e. the sources from where the households procure food crops in different agricultural seasons.

Objective

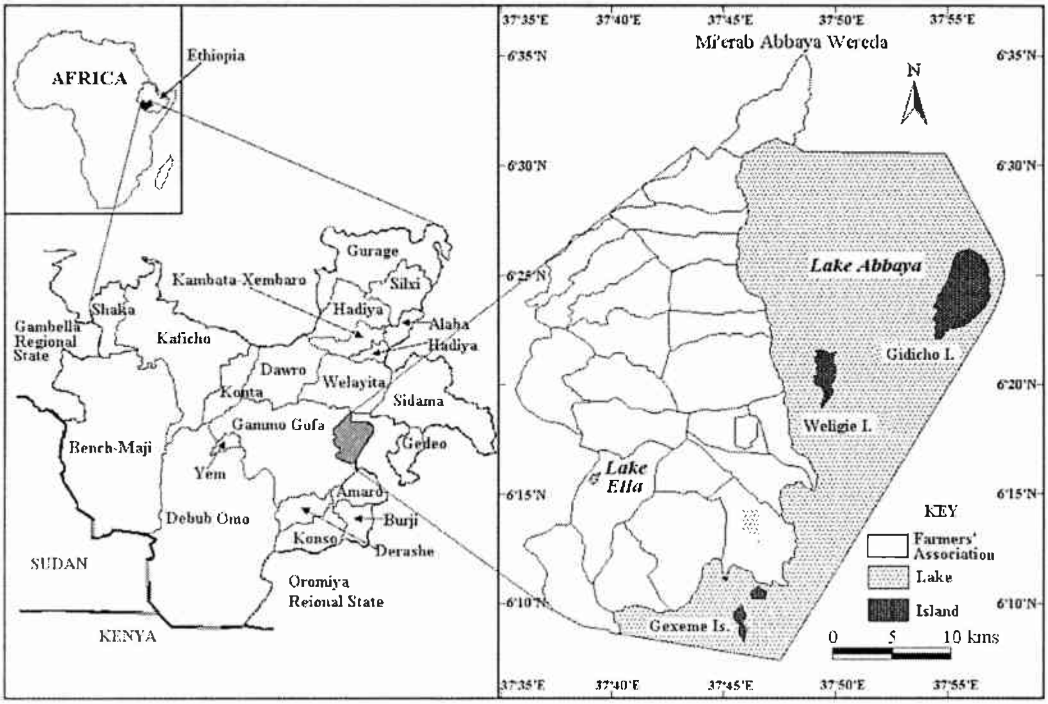
In the present study an attempt has been made to assess the sources from where households procure food in different seasons in rural Mi'erab Abbaya *wereda.*

Study Area

This study has been carried out in Mi'erab Abbaya *wereda,* in Southern Nations Nationalities Peoples' Regional State (SNNPRS), Ethiopia (Fig.1). The *wereda* is approximately located between 6° 08' and 6° 35' North latitudes and 37° 36' and 37° 57' East longitudes. It covers a total area of 1211.5 square kilometers. The *wereda* has two broad physiographic units: the flat rift valley in the east which is part of the Great East African Rift Valley System and the western escarpment of the Rift Valley in the west which is part of the Gammo Highlands.

In the census year 2007, the total population of the *wereda* was 73,690 contained in 14,287 households of which 12,882 household were rural with the population of 67,791. The agricultural density was 260.09 persons per square kilometers.

Fig.1: Location map of the study area



About 41.29 per cent of the total land is cultivated and 11.48 per cent is cultivable land. The farming system is of subsistence type with roots and tubers as most outstanding crops that can be picked from the homestead all round the year. Particularly, there is a traditional feeling that roots and tubers last longer in stomach after consumption and thus are planted compulsorily around homestead.

Database and Methodology

In order to attain the objective of the study, Household Survey (HHS) approach was adopted to generate data from the primary sources. Farmers' associations (FAs) and farm households were targeted. Out of the total 12,882 households, 700 households containing 5,382 persons were surveyed following systematic sampling procedure from household registry. Direct interviews were conducted in two rounds - one on field crop pre-harvest season and the other on post-harvest season. The selected household heads were requested to indicate the major sources of food which they accessed. Agricultural extension workers were involved as interviewers. Prior to the main survey, a pilot survey was conducted where in 25 households were interviewed. Simultaneously, a focus group discussion (FGD) was conducted with nine purposefully selected key informants to have better understanding of the problem and also reframe the questionnaire. A descriptive analysis has been made for the data acquired in the two seasons.

Table 1: Pre-harvest food stuff access by food sources

Source	Household		Total food		Roots & Tubers		Cereals		Pulses	
	Num-ber	%	Metric tons	%	Metric tons	%	Metric tons	%	Metric tons	%
PSNP	195	27.86	3.70	0.20	0.00	0.00	3.70	7.84	0.00	0.00
PSNP + P	178	25.43	805.99	42.55	785.32	42.62	17.55	37.20	3.12	71.23
OP + PSNP	91	13.00	532.11	28.09	528.03	28.66	3.61	7.66	0.47	10.73
OP	67	9.57	247.38	13.06	236.83	12.85	10.40	22.04	0.15	3.42
P	53	7.57	25.15	1.33	22.68	1.23	2.47	5.24	0.00	0.00
OP + GFA	36	5.14	106.78	5.64	103.72	5.63	2.80	5.95	0.26	5.94
GFA + P	34	4.86	43.20	2.28	40.47	2.20	2.71	5.76	0.02	0.46
OP + P	24	3.43	128.66	6.79	125.48	6.81	2.82	5.98	0.36	8.22
GFA	22	3.14	1.10	0.06	0.00	0.00	1.10	2.33	0.00	0.00
Total	700	100.00	1894.07		1842.53	100.00	47.16		4.38	100.00

Source: Field Survey, 2009

Results and Discussions

The finding of the study has revealed four major humane and moral sources from where respondents procured food crops. These sources include Productive Safety Net Program (PSNP), Government Food Aid (GFA), own production (OP), and purchase (P) from *giiyaa* (open periodic markets) and *gullit* / *qootchaa* (small and localized daily markets).

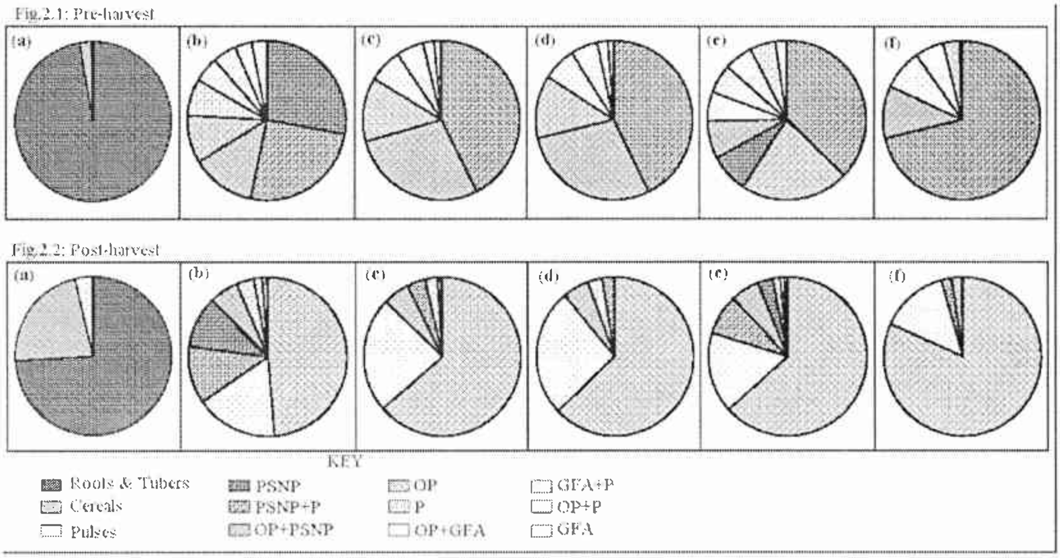
Pre-harvest Season

It is found that about 97.28 per cent of the total food crops found among the surveyed households during pre-harvest season was constituted from roots and tubers which have low nutritious content as compared to cereals and pulses. Cereals and pulses covered only about 2.49 and 0.23 per cent respectively (Fig.2.1a).

Households accessed food from either one or combination of two or more sources. About 27.86 per cent (Table 1) of the surveyed households were totally dependent on only PSNP for their household food consumption (Fig.2.1b). PSNP is the largest operating social protection program in Sub-Saharan Africa receiving support from international development agencies of the World Bank, United States, Canada and others. Its main objective is to provide food-insecure households with enough income in cash and/or in food kind through public works.

Only about 9.57 per cent of the households covered their overall food demand from OP implying that food production is quite less than the total food requirement in the study area. One report has also shown that the annual food requirement of the *wereda* is about 315-514 per cent of the production (DPPC-EWS, 2005). It is also found that about 7.57 per cent of the households accessed food solely from *giiyaa* and *gullit* markets. *Giiyaa* are main markets that are held in open space periodically on specified day(s) of a week.

Fig.2: Food stuffs and their sources



All items that are required by the society are exchanged in these markets. *Gullit* markets especially provide prepared food items that are consumed fresh and/or instantly. Furthermore, about 3.14 percent of the households totally relied on GFA. The flow of GFA is facilitated by Disaster Prevention and Preparedness Agency (DPPA) offices that structured at different administrative levels receiving food aid from various local and international donors. From this it may be inferred that about 31 per cent of the households lack own production as well as money to purchase food and thus more prone to food insecurity. The majority (over 51 per cent) of the households procured food from two sources. For instance, about 25 per cent from both PSNP and markets, about 13 per cent from OP and PSNP and about 8.57 per cent from OP but supplemented from GFA and purchase. Furthermore, about 4.86 per cent of the households were dependent on both GFA and markets.

Analysis has also been made in terms of types of food crops and their sources. It is found that over 42 per cent of the total food stock was accessed by households that procured food simultaneously from PSNP and market sources of which about 90 per cent was constituted from roots and tubers, 2.2 per cent from cereals and 0.8 per cent from pulses (Fig.2.1c). Since PSNP does not provide households with any form of root and tuber crops and pulses, about 97.8 per cent of the food crops was purchased from markets and only about 2.2 per cent of cereals was obtained from both PSNP and P sources. The next largest food crop concentration was found among households that accessed food from both OP and PSNP simultaneously. They covered over 28 per cent of the total available food. In terms of food crop items, since about 99 per cent was constituted by roots and tubers the sources of which was OP, the contribution of from PSNP was only about 1 per cent. About 13 per cent of the total food crop was weighed

Table 2: Post-harvest food stuff access by food sources

Source	Household		Total food		Roots & Tubers		Cereals		pulses	
	Num-ber	%	Metric tons	%	Metric tons	%	Metric tons	%	Metric tons	%
PSNP	73	10.43	6.81	0.69	0.00	0.00	6.81	3.11	0.00	0.00
PSNP + P	82	11.71	37.30	3.80	18.67	2.56	17.86	8.17	0.77	2.15
OP + PSNP	42	6.00	53.74	5.47	40.13	5.51	12.88	5.89	0.73	2.03
OP	341	48.71	626.54	63.75	458.70	62.99	138.49	63.32	29.35	81.78
P	25	3.57	24.93	2.54	21.62	2.97	3.22	1.47	0.09	0.25
OP + GFA	7	1.00	1.49	0.15	0.00	0.00	1.49	0.68	0.00	0.00
GFA + P	12	1.71	1.88	0.19	0.05	0.01	1.83	0.84	0.00	0.00
OP + P	117	16.71	229.99	23.40	189.02	25.96	36.02	16.47	4.95	13.79
GFA	1	0.14	0.10	0.01	0.00	0.00	0.10	0.05	0.00	0.00
Total	700		982.78		728.19		218.70		35.89	

Source: Field Survey, 2010

for households that accessed food from OP alone. The least amount of food was found in households that were dependent on GFA alone. Even though more households were reported to procure food from PSNP, the net food acquired from same source constituted only about 0.2 per cent of the food stock. The findings further revealed that roots and tubers were the largest purchased food items from markets indicating the inclination of households towards these food items.

As to the sources of individual food crops, over 42 per cent of roots and tubers were accessed from the combination of PSNP and market sources (Fig.2.1d), about 28 per cent from both OP and PSNP sources, about 12.85 per cent from OP and nearly 16 per cent from the remaining sources. Highest concentration of cereals i.e. 37.20 per cent was procured from both PSNP and market sources (Fig. 2.1e) followed by that from OP with 22.04 per cent and 2.33 per cent from GFA. In case of pulses, over 71 per cent was accessed from simultaneously PSNP and market sources (Fig. 2.1f), about 10 percent from both OP and PSNP sources, about 8.22 percent from both OP and market sources and about 10 per cent from sources the remaining sources.

Post-harvest Season

Roots and tubers covered about 74.1 percent of the total available food crops in post-harvest season followed by cereals and pulses with 22.25 and 3.65 per cent respectively (Fig.2.2a). It is expected majority of farm households get food from their OP during the post-harvest season. However, only about 48.71 per cent (Table 2) of the surveyed households accessed food from only OP source (Fig.2.2b). Households that accessed food from both OP and markets constituted about

Table-3: Seasonal variations of food stuff sources (%)

Source	Households	Total food	Roots & Tubers	Cereals	Pulses
PSNP	-62.56	84.10	0.00	84.10	0.00
PSNP + P	-53.93	-95.37	-97.62	1.81	-75.24
OP + PSNP	-53.85	-89.90	-92.40	256.29	57.42
OP	408.96	153.27	93.68	1232.29	19463.50
P	-52.83	-0.88	-4.67	30.26	*
OP + GFA	-80.56	-98.60	-100.00	-46.86	-100.00
GFA + P	-64.71	-95.68	-99.89	-32.81	-100.00
OP + P	387.50	78.75	50.64	1176.29	1274.17
GFA	-95.45	-90.89	0.00	-90.89	0.00
Total		-48.11	-60.48	363.65	719.63

* Computational error as no pulse was purchased in pre-harvest season. Source: Field survey

16.71 per cent. Table 2 further shows that even though it was post-harvest season, PSNP continued to support considerable number of households. Well over a quarter of the surveyed households covered their food mainly from PSNP supplemented from OP and market sources. About a third of the households accessed food largely from market sources with some additional from OP, PSNP and GFA. However, food crop supply from GFA was significantly decreased during this season.

Table 2 also reveals that OP sources alone covered about 63.75 per cent of the total food stock during this season (Fig.2.2c). Food stock in households that covered their food from both OP and market sources at the same time accounted for about 23.4 per cent. Furthermore, over 28 per cent of the total available food in the surveyed households was constituted by households that heavily dependent mainly on markets and to some extent on OP, PSNP and GFA.

On the other hand, almost 63 percent of the total roots and tubers was accessed by households that were totally dependent on only OP source (Fig.2.2d), 25.96 per cent from both OP and market sources and the remaining 11 per cent from the rest sources. Households that accessed their food from only OP source covered the lion's share of cereals with over 63 percent followed by households that covered their food both from OP and markets (Fig.2.2e). About 8.17 per cent of cereals was weighed in households that accessed their food from both PSNP and market sources, about 5.89 per cent from both OP and PSNP sources and about 6.15 percent from the remaining sources. Pulses were accessed from limited sources for the fact that they are supplementary (Fig.2.2f). About 81.78 percent of pulses was covered only from OP, about 13.79 percent from both OP and P sources and the remaining 4.43 per cent from other sources.

Seasonal Variation

Many rural households in the study area face great seasonal fluctuations in food availability and also variations in food procuring sources as can be understood by comparing Fig.2.1 and 2.2. The sources from where the households procure food vary with variation in type of food available at different sources. Households that accessed their food items from only OP during the post-harvest season were about four times of that accessed from same source during the pre-harvest season (Table 3). The same was also true for households that accessed food from both OP and market sources. The size of households that accessed food from all remaining sources was significantly decreased during the post-harvest season. The greatest decrease was among households those solely dependent on GFA with 95.45 per cent and the lowest among P with about 52 per cent.

As to the changes in the amount of food crops from various sources, the amount of food crops acquired from all sources significantly diminished during the post-harvest season with the exception that acquired from OP, PSNP and simultaneously from OP and P sources. The increment in the amount of food crops accessed by households that were dependent only on OP in post-harvest season was about 153.27 per cent of that from same source in pre-harvest season, from PSNP was about 84.1 per cent and that simultaneously from OP and P was about 78.75 per cent. The highest reduction in the amount of food was observed among households that accessed their food from both OP and GFA (-98.6%) due to marked decline in GFA and the least was those from market sources (-0.88%). In general, the amount of food in post-harvest season was decreased by about 48.11 per cent of that of the pre-harvest season. The amount of increment in roots and tubers from households that accessed food from only OP in post-harvest season was the highest one with about 93.68 per cent increment of that from same source in the pre-harvest season and the lowest was among the households that accessed their food simultaneously from both OP and GFA sources. The amount of total available roots and tubers was decreased in the post-harvest season by about 60.48 per cent of that of the pre-harvest season. The amount of cereals in post-harvest season increased by nearly four times of that was in the pre-harvest season. Particularly, the amount of post-harvest cereals accessed by households solely dependent on OP was over twelve times of that accessed from same source in the pre-harvest season. The amount of cereals accessed by households that procured food simultaneously from both OP and market sources in post-harvest season was over eleven times of that accessed from same source in the pre-harvest season. The total available pulse in post-harvest season was over seven times larger than that of the pre-harvest season. In fact, highest (over 19 times) increment in pulses was recorded for households that accessed their food from only OP. From this it is interesting to note that pulses are consumed only if from OP. No pulse was weighed in the pre-harvest season from households that accessed their food solely from markets. So was also the case in post-harvest-season for households that accessed their food from the combined sources of OP and GFA as well as from both GFA and market sources.

Conclusion

It can be concluded from the findings that there were four major sources from where households procured food in the study area. These include own production (OP), safety net (PSNP), purchase (P) from *giiyaa* and *qootchaa / gullit* markets, and government food aid (GFA). PSNP was the source of food that supported the largest number of households in the pre-harvest season but the greatest amount of food was procured from the combined source of PSNP and markets in same season. Even though more households accessed their food from PSNP in pre-harvest season, this source was the second least contributor to over all available food crops during same season next to GFA. Furthermore, the lion's share of roots and tubers, cereals, and pulses were procured from the combined sources of PSNP and markets in the pre-harvest season.

In post-harvest season OP alone had significant role by supporting nearly half of the households, supplying over 63 per cent of the total food crops and also outstanding source of roots and tubers, cereals and pulses. The significant reduction in root and tuber crops was the cause for remarkable reduction in the amount of total food available in the post-harvest season. Cereals and pulses showed considerable boost in the post-harvest season than in the pre-harvest season.

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