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## The Role of Safety Net in Ensuring Food Security: The Case of East Harerghe Zone

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### Abstract

Food insecurity affects large area and a large number of people in Ethiopia. Consequently, government and donor agencies have been collaboratively working to curb the problem. A case in point is the Safety Net project in East Hararghe Zone. Nevertheless, corroboration is lacking to reveal the success of the project in ensuring household food requirements. The intent of this research, therefore, is to examine the contribution of Safety Net Project in three districts of East Hararghe zone towards household food security. The research is a descriptive and exploratory case study where both qualitative and quantitative methods are used. Analysis of the data based on standard food security model showed that the contribution of the project to increased mean household food availability is 67.4%. The data also showed that for a one percent increase in relief food, household food availability increases by 76 percent. However, 72.1% of the households could not meet the daily minimum recommended allowance of 2100 calorie per capita. By the same token, the asset creation role of the project was very minimal in that 67 % of the respondents revealed they were compelled to sell their assets. Therefore, it could be concluded that the project did not reliably bring about changes in the livelihoods of the target households. This calls for the formulation and implementation of well thought-out and sound project objectives, incorporation of indigenous knowledge at the various stages of the project, emphasizing on asset building strategies, applying environment friendly agricultural technologies among others.

**Keywords:** Safety Net; Food Security; Food Insecurity.

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## **1. Introduction**

The Ethiopian economy is among the most vulnerable in Sub-Saharan Africa. This has entailed inadequate food and shelter, poor health, unemployment, etc in the country. The country has been haunted by pervasive poverty [1]. It has particularly suffered from recurrent drought and the resultant extreme fluctuations in output, which has resulted in poverty and hunger [2]. Therefore, a large number of the country's population live in conditions of chronic hunger with both a low average daily energy supply and a very high prevalence of under-nourishment [3].

Food insecurity in Ethiopia covers a large area and a significant number of people [4]. It has become one of the defining features of both rural and urban poverty and more than 12 million people are chronically or at least periodically food insecure [5]. In simple terms, the country is hit hard by the dangerous and complex food crisis.

As a result, the government of Ethiopia has decided that there is an urgent need to address the basic food need of the food insecure households via a productive safety net programme. The programme, to this effect, has been developed by the collaboration between the government of Ethiopia and joint donor groups involved in the vulnerability policy dialogue and the coalition for food security [6]. The establishment of these projects is accompanied by channelling huge investment and marshalling massive outlays of resources.

The project is meant to provide transfers to the food insecure population in chronically food insecure districts of the East Hararghe Zone with the hope that it prevents asset depletion at the household level and creates assets at the community level. As such, it is intended to provide people in need with immediate employment and income, alleviate poverty, fortify self-help capacity, and enable the construction and improvement of infrastructure for the enhancement of agricultural productivity and stimulation of rural development via works that are labour intensive.

Food security is concerned with a physical and economic access by all people at all times to sufficient food to meet their dietary needs for a productive and healthy life [7]. It is defined as access by all people at all times to enough food for an active and healthy life [8]. This remarks that food security is a fundamental need for all human society. But it is true that an increase in food production and availability and its accessibility do not guarantee food security unless its efficient utilization is invariably ensured. In the years following 1997 global food production has risen to an all-time high, and if divided on per capita basis, could have given every one around 2,700 calories per day-an adequate diet for most [9]. Nonetheless, in the early 2001, food emergency situations arose in 33 countries and affected more than 60 million people.

Availability, access and utilization of enough food in turn are attributed back to an array of factors. These include land holdings, agricultural inputs and productivity, income, human capital, policy environments, etc. Food insecurity for some households is rooted in the ways the entire livelihood systems have changed and adapted to, or failed to adapt to challenges from the ecological and economic environment. The inference, therefore, is that ensuring food security and realizing sustainable livelihood calls for averting the risks that can disrupt food security by affecting all the three components-availability, access, and utilization.

In contrast, food insecurity refers to the lack of access to enough food and the consequential failure to live an active and healthy life. It can be defined as people's inability to secure a regular supply of food from their own farm lands or through off-farm incomes. Households/individual's failure to meet consumption requirement, as such, significantly reveal the persistence of food insecurity. This goes in contrary to God's prayer that says "Give us this day our daily bread" [10]. The poor are especially vulnerable to food insecurity and famine because, having few resources they are virtually defenceless against series of misfortunes or unprecedented disasters [11]. Poverty and food insecurity are highly interwoven issues that reciprocally reinforce each other. Poverty is a driving force for household food insecurity, and food insecurity, in turn, impoverishes a household [12]. Food insecurity is not confined to and defined in association with poor performance in agriculture. It is not simply seen as a failure of *agriculture* to produce sufficient food at *national* level, but instead as a failure of *livelihoods* to guarantee access to sufficient food at household level. Food insecurity can be of two types: chronic food insecurity (under nutrition) and acute food insecurity (famine). Both forms of food insecurity are highly prevalent in Africa. As per the report by FAO, out of the total 840 million undernourished people, 26 percent of them live in Africa [13].

Ethiopia is one of the world's poor countries with indicators suggesting low levels of development. As stated in [3], many Ethiopians live in conditions of chronic hunger with both a low average daily energy supply (kcal/capita) of 1880 and a very high (44%) prevalence of under-nourishment. As per the 1999/2000 report by Well Fare Monitoring Unit, the proportion of population unable to attain their minimum nutritional requirements is estimated at 52% of the rural population and 36% of the urban population. In line with this the Ministry of Agriculture and Rural Development stated in revising the productive safety net program in 2006 that: food insecurity has become one of the defining features of rural poverty, particularly in drought-prone areas of Ethiopia. Poverty is widespread in both rural and urban areas. However, the magnitude is much greater in drought-prone rural areas than in urban areas.

Consequently, there are a number of districts that are chronically food insecure in the eastern Hararghe zone of the country. Gursum, Fedis and Goro gutu are among these districts. The districts are grouped among the chronically food insecure areas identified by the Ministry of Agriculture and Rural Development, where a Productive Safety Net program is being implemented.

The Safety Net Programme has been developed by the collaboration between the government of Ethiopia and joint donor groups involved in the vulnerability policy dialogue and the coalition for food security. It is meant to ensure temporary alleviation of hunger and prevention of starvation. Nevertheless, some potential may exist, even in this situation, to provide some more lasting benefits in addition to keeping people alive or tiding them over the periods of crisis. In addition to avoiding undercutting development, emergency feeding needs to be linked to disaster mitigation and rehabilitation developmental activities that have significant congruence with and apparently linked to national development plan.

These recurring emergencies are outlined in line with the national disaster mitigation and rehabilitation strategies and programmes. Safety net, as such, can be looked at as an emergency program that is intended to provide people in need with immediate employment and income, alleviate poverty, fortify self-help capacity,

and enable the construction and improvement of infrastructure for the enhancement of agricultural productivity and stimulation of rural development via works that are labour intensive. These labour intensive works and the accompanying food, income and health interventions, according to Joseph, could improve the wellbeing of the poor and help enable them to withstand future food shortages. The programme also incorporates direct ration of food and/or money to the elderly, the handicapped, orphans, and the weak. That is, though the most important element of safety net program is public work, members of the community who cannot participate in the public work are destined to benefit from direct support.

The different ways through which intervention by safety net is carried out include: cash transfers including family allowances, need-based assistance programs; food based programs including supplementary feeding programs, school feeding programs, food for work, emergency food distribution, and food stamps, vouchers, and coupons; general subsidies such as universal/indirect support for food, subsidized untargeted sales, subsidies for energy and utilities; public works including road construction and maintenance, maintenance of public spaces and buildings, irrigation infrastructure, reforestation and soil conservation; fee waivers and exemptions for schooling and for health care. Fee waivers and exemptions as such are intended to provide poor people with the financial resources to use public services such as education and health facilities.

As mentioned with a desirable degree of precision under the topic devoted to food security in the Ethiopian context, food insecurity in the country is normally understood in terms of recurrent food crises and famines. These situations have, for long, called for emergency food based interventions.

Because of these realities the Ethiopian government initiated a productive safety net programme in 2004 with the objective of reducing house hold vulnerability, improving household and community resilience to shocks and breaking the cycle of dependency on food aid.

Safety net programme in the country is intended to condition the way for a gradual shift away from a system dominated by emergency humanitarian aid to productive safety net resources via multi-year frame work [14]. Similar line of argument is advanced by Ministry of Agriculture and Rural Development where it is stated the Government of Ethiopia has decided that there is an urgent need to address the basic food needs of food insecure households via a productive safety net system financed through multi-year predictable resources, rather than through a system dominated by emergency humanitarian aid. Moreover, the Government seeks to shift the financing of the programme from food aid to cash. The program, accordingly, is intended to scale up the efficiency and productivity of the transfers that flow to the food insecure group and, thereby, reduce vulnerability, improve resilience and promote sustainable community development. It is preordained towards addressing not only immediate food insecurity but also to addressing the underlying causes of food rations. The allotment of cash to the beneficiaries is primarily meant to render households with flexibility over consumption decisions and consequently encourage the development of market in the rural setting.

Because there is a significant donor commitment to the program with donors seeing the PSNP as an innovative and priority action in Ethiopia, the PSNP has been developed by intensive collaboration between the government of Ethiopia and the joint donor group involved in the vulnerability policy dialogue and the coalition

for Food Security. The joint donor group, as stated by the brief, is made up of the European Commission, United States Agency for International Development, World Bank, Canada International Development Agency, Development Cooperation Ireland, and the UK Department for International Development. Moreover, the brief underscores that the donors have sought to use the Ethiopian government's own documents as the principle guidelines for programme implementation and minimize the replication of appraisal documentation.

The final allocation of budget and resources is made at the district level, which means in allocating budgets districts cannot exceed the resources handed to them by the Bureau of Agriculture and Rural Development and Bureau of Finance and Economic Development. The problem, therefore, is whether the budget allocated is proportionate with the actual size of food insecure households.

However, corroboration is lacking to reveal how far stakeholders in development can and do curtail the pervasive and acute predicaments. Beyond the walls of a particular development project funding agency very little is known about individual project performance [15]. In some cases they fall short of sufficient geographic coverage and as such fail to reach the poor. There is lack of fit between programme design and the needs of the poor. Likewise, evidence hardly exists on how much of the money donated by the various funding agencies has served and is serving the purpose it is meant for. Because there are some who claim that development funds flow into the pockets of the non-targeted few individuals rather than finding their way to poor people [16]. As stated in [15], others question whether agencies intervene purely from humanitarian point of view or with expecting some benefits in return. It can, therefore, be inferred that a number of intermingled and sometimes skirmishing problems are apparently recognized as far as the operation of stakeholders in development and, those in safety net for our purpose, is concerned.

The purpose of this descriptive and exploratory research is to examine and assess (by using household food balance model explained under model specification) the role the project is playing in Gursum, Fedis and Goro Gutu districts from the vantage point of household food availability.

## **2. The study Area**

The study was conducted in Goro Gutu, Gursum and Fedis districts of Eastern Hararge zone. The selected PAs in the districts include Odaa Oromia and Kaasaa Oromia from Gursum district, Nadhii and Jiruu from Goro Gutu district, and Risqii and Agudooraa from Fedis district. The districts comprise three agro-climatic zones: lowlands, midlands and high land. At the lower altitudes the rural countryside where this research is conducted, parts of Fedis and Gursum districts, crop cultivation is limited. At the higher altitudes the economy is characterized by scanty food and cash crops.

The agriculture system in these districts is rain-fed. Hence, agricultural production and productivity in the districts remain at the mercy of the pattern of rainfall. Thus, food self-sufficiency is unimaginable luxury for the multitudes of the community. In addition to production shortfalls, the different skirmishing and interrelated factors prevailing in the districts have made food insecurity the lot of the people. Accordingly, these districts have been regularly requiring major relief food intervention.

### 3. The Model

The empirical model applied to capture the contribution of safety to household food availability in the districts is a modified Household Food Balance Model [17]. The model is written as:

$$N_{ij}=(P_{ij}+B_{ij}+R_{ij})-(H_{ij}+S_{ij}+M_{ij}).$$

Where:

- $N_{ij}$  is net food available for house hold  $i$  in year  $j$ .

- $P_{ij}$  is total grain produced by house hold  $i$  in year  $j$ .

- $B_{ij}$  is total grain purchased by house hold  $i$  in year  $j$ . ( $B_{ij}$  is the sum of  $C_{ij}$  and  $D_{ij}$ , where  $C_{ij}$  is total grain obtained by money gained from safety net, and  $D_{ij}$  is total grain purchased by the money obtained from other sources.)

- $R_{ij}$  is total relief food received by house hold  $i$  in year  $j$ . (This includes direct relief assistance and food for work.)

- $H_{ij}$  is post-harvest losses to house hold  $i$  in year  $j$ .

- $S_{ij}$  is total crop utilized for seed from home by house hold  $i$  in year  $j$ .

- $M_{ij}$  is total marketed output by house hold  $i$  in year  $j$ .

Thus, the contribution of the project to house hold food availability is:

$$R_{ij}+C_{ij}.$$

This model demonstrates the interplay of various variables having an impact on household food condition. The model is used to divulge the share of each of the existing variables, and thereby extract the effect of safety net from the overall food balance. Moreover, the model is used to estimate the daily Minimum Recommended Allowance of 2100cal per capita. The analysis is supplemented by the qualitative information obtained through focused group discussion and interview held with peasants (farmers, PA leaders, community elders) and district officers.

In this model data for the different food groups is collected in the course of household survey. Post-harvest crop loss is estimated at 10% of the total harvest for those households who replied their produce suffered from post-harvest damages. The data obtained for all food groups comprising variables  $P_{ij}$ ,  $B_{ij}$ ,  $R_{ij}$ ,  $H_{ij}$ ,  $S_{ij}$ , and  $M_{ij}$  is converted into an equivalent kilocalorie by using conversion factor. (Consider the conversion table for estimated food groups and their corresponding energy content in appendix 1).

Next, the energy values are added up across all foods acquired by each household. Then the energy in the food acquired by the household over one year period is divided by the number of days in a year and the number of household members. That is each household’s daily food energy availability is divided by household size to adjust for the number of people for which the energy or food is available. Finally, the share of food delivered by safety net is extracted from the mean household food availability in kg after changing all foods into wheat equivalent based on their energy content.

#### 4. Results and Discussion

Analysis of the model, as depicted in the following paired sample statistics, shows that the project is making a contribution of 67.4% to the mean household food availability.

**Table 1:** Paired sample statistics for net food available per capita and the average share of the project

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Nij	897.5897	240	636.45713	51.96651
Nijless	329.9690	240	565.83308	46.20008

						T	Df	Sig. (2-tailed)
	Mean	std. Deviation	Std. Error Mean	95% Confidence interval of the Difference				
Pair 1 Nij-Nijless	604.975456	266.11000	21.72779	Lower 524.68627	Upper 610.55507	26.124	149	.000

Source: Author’s computation of field survey.

N.B. Nijless is net household food availability minus Pij and Bij.

As tacitly implied by Nicholas et.al the result shows that the project makes significant contribution to the net household food availability [18]. As it can be inferred from table 2 on the next page, for one percent increase in relief food, household food availability increases by 76 percent.

In the table, asset and household size are newly slotted in by excluding Pij and Hij to overcome the problem of multi-collinearity. They are excluded because there is strong correlation between them. Accordingly, a new economic formula is derived:

$$\hat{Y} = Y_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

Which is,

$$N_{ij} = R_{ij} + B_{ij} + M_{ij} + S_{ij} + \text{Asset} + \text{Size}$$

**Table 2:** Regression for R<sub>ij</sub>, family size, asset, B<sub>ij</sub>, M<sub>ij</sub>, S<sub>ij</sub>

Lnetfood	Coef. Interval]	Std.	Err.	t	P> t	[95% Conf.
Asset	-.0726932	.1270965	-0.57	0.568	-.3239542	.1785678
Size	.0184843	.0472697	0.39	0.696	-.0749647	.1119332
B <sub>ij</sub>	.0009743	.0003033	3.21	0.002	.0003747	.0015738
M <sub>ij</sub>	.0009561	.0002082	4.59	0.000	.0005446	.0013677
R <sub>ij</sub>	.7610494	.1609413	4.51	0.000	.4073195	1.043659
S <sub>ij</sub>	-.2583893	.0891943	-2.90	0.004	-.4347203	-.0820584
-cons	3.289199	.912888	3.60	0.000	1.484482	5.093916

Source: Author’s computation based on field survey

It is worth noticing, however, that 72.1% of the households could not meet the daily minimum recommended allowance of 2100c per capita. This shows households are unable to access a minimum basket of food items (even) after project’s intervention and thereby failed to meet the minimum daily recommended allowance. As shown in table 3, only 27.9 percent of them have a daily food access to above 2100 calorie.

The implication, therefore, is that, though not dead, substantial majority of the community in the district are yet leading a terrible and degrading life situation. This result authenticates the respondents’ inspection that “we did not surrender to death; it has helped us to straddle between life and death”.

**Table 3:** Average net food available for consumption in kilocalorie per capita

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	173	72.1	72.1	72.1
1	67	27.9	27.9	100.0
Total	240	100.0	100.0	

Source: Author’s computation based on field survey.



Moreover, regardless of the food assistance that families have been receiving in the form of cash or grain, as depicted by 67% of the sample households, it could not safeguard them from depleting their asset. The sample households have marketed their livestock and other assets to fill their food gap. Likewise, it is cited by the same number of respondents that the intervention did not enable them to develop resilience to food insecurity. Similar to the finding of the Independent Evaluation Group on the performance of Safety Net Project that stipulates that the project is being criticized as ineffective in the sense that it saved lives but not livelihoods [19], though the aid has certainly contributed to the lifesaving mission, it did not help the beneficiaries to use it in more constructive ways. In contrary to Daniel O. Gilligan et.al who argues asset level of the beneficiaries did not fall [20], it was revealed by the focused group discussion that the non-beneficiary households that had been better off have now virtually depleted their asset and become food insecure. This has further deteriorated local capacity; depletion of assets has further eroded future coping mechanisms. Thus, it can be voiced with a desirable degree of authenticity that the continual depletion of assets together with the absence of effective supporting programmes has invariably contributed to the failure of the project from graduating the anticipated beneficiaries.

In contrary to Camila Anderson, Alemu Mekonnen and Jesper Stage who argue that targeting has reached households as [21], this research vindicates the targeting is evidently ineffective. It is elucidated by the analysis and the discussion held with selected informants that better-off families were encompassed by the programme. This confirms with the position of Anasuya Sengupta that there was leakage of benefits to non-target groups [22].

In addition, in contrary to the thoughts of Joseph Hamilton [23], there are instances when food does not reach the neediest on time. This could be one reason for household asset depletion.

The analysis has also shown that safety net is a country wide program that was put under implementation without critical and thorough look at local realities. Unlike what is stated in [18], donors, foreign implementers', and governmental organs that are far away from the problems at the grass root level have taken too large role in designing strategies and implementing programs. Beneficiaries were denied of significant leverage in deciding on their foreseeable future by taking part in the project starting from the time of its inception. This has the tendency to continuously incapacitate the community from being intuitive in surmounting their problems. It reasonably implies that determination and flexibility are lacking in identifying and implementing more suitable service delivery strategies.

Climate change and its obvious outcome-drought are also tremendously affecting production and bringing about food insecurity. As 93.5 percent of the respondents clearly stated, these factors counter affect the possibility to obtain a required amount of output from rain fed agriculture or through the application of irrigation that has the tendency to increase and diversify production. This issue is clearly shown by F.A Hassan where he stated "no one can afford to ignore the current and potential impact of climatic variability on our contemporary human affairs, and it would be irresponsible not to seek in the past for insights into the hoe climatic change has influenced food security and the course of change in our human condition" [24]. This problem is highly magnificent in the districts under study. Similarly, WFP [25], Claudia Ringer, et al. [26] and Oxfam have

affirmed the resultant impact of climate change on food security. The drought in the areas has plighted a number of poor people and adversely affected the livelihood of the community. The cumulative effect of these factors is the gradual decrease in agricultural productivity and the resultant hunger and the miseries thereof.

## **5. Conclusions**

This research has investigated the role of safety Net in ensuring food security at the age of climatic change considering the cases of Gursum, Fedis and Goro Gutu districts.

As depicted by the undertaking, food self-sufficiency is unimaginable luxury for the multitudes of the community living in Gursum, Fedis and Goro Gutu districts of Eastern Hararge zone. Climatic change and the other skirmishing and interrelated factors leading to production shortfalls have made food insecurity the lot of the population in these districts. Accordingly, these districts have been getting relief food intervention through the safety net program.

In investigating the contribution of Safety net project in the districts in curbing food insecurity a modified household food balance model is used and supplemented by qualitative information. Results of the analysis divulge that the income from the project has undeniably contributed to the lifesaving aspiration. It is making an average contribution of 67.4% to the net household food availability. Nonetheless, it could not enable the households meet the minimum daily recommended allowance of 2,100kcal per capita. Moreover, the proportion of food insecure households by far outweighs those whose mean daily calorie is 2100 and above, i.e., 72.1% to 27.9%.

It is also disclosed that there was ineffective targeting of the beneficiaries. While targeting the beneficiaries, there are discriminations made among people in the same circumstances while at the same time better-off households are incorporated. This has led to disruption of social structures-prevalence of hatred among the beneficiaries and those who are not included in the program. Equally important, is delay in delivery of food that has exacerbated household asset depletion.

As elucidated during the field survey Donors, foreign implementers', and governmental organs that are far away from the problems at the grass root level have taken too large role in designing strategies and implementing programs and that the beneficiaries were denied of significant leverage in deciding on their foreseeable future by taking part in the project starting from the time of its inception. This has the tendency to continuously incapacitate the community from being intuitive in surmounting their problems.

When we pay a glance back to the practical circumstance in the districts in relation to the four elements in food security (availability, access, utilization, and risks that hamper these elements), the first three elements are terribly missing. The number of meal per day is not improved compared to that of the good time. Risks that counter affect the availability, access, and utilization of food is widely prevalent.

In general terms, regardless of the 'inflow' of emergency relief to the district through the so called safety net program, abject poverty, undernourishment, and merciless food insecurity have taken siege over considerable

portion of the population in the district. This circumstance, come what may, gives us an idea that the propensity to wipe out poverty and hunger by 2015, as agreed during the 2000 meeting of head of states and government, is desolately gloomy.

## **6. Recommendations**

Significant latitude needs to be rendered to community involvement in designing strategies and implementing programs rather than resorting to the expeditious route so as to create demonstrable positive impact. Because the beneficiaries do have an idea of what would work for them and what they need. Since the poor are supposed to be the primary beneficiaries of food security related policies, it would be prudent to at least listen to them. Thus, the local community must have an increasing say in food security policies and programs that impinge upon them.

Creative partnership needs to be encouraged between and/or within the donors, implementers (domestic and foreign), the concerned government organs at the various levels, and the target community.

Budget allocation should be made in such a way that it reasonably and equally serves those in the same line of food insecurity and thereby overcome disruption of social structures/the hatred that perpetuates between the beneficiaries and the other food insecure group but yet excluded from the program. The government should reconsider its verdict and allow the remaining group already haunted by food insecurity to be beneficiaries from the project. Moreover, there is an apparent need to expand food-basket needs and incorporate food types that are better in their energy content, because the failure of households to meet the minimum recommended allowance might be attributed to these factors.

Timeliness in delivering food has to be critically reconsidered and delay be tackled. Timely delivery of food and non-food assistance has to be ensured if the intension is to sustain positive impact on the nutritional status of the recipients. If this is not made starvation and depletion of household assets will be inevitable outcomes.

Performance monitoring and evaluation needs to be undertaken in such a way that it welcomes feedback from various sources for further strength and effectiveness of the program.

It is audible that food aid cannot be an end in itself. Food solutions will not solve the surpassing problems of poverty. Equally true is the distrustful nature of fiscal sustainability of safety net. Hence, there is an apparent need to adopt basic human rights to food and poverty eradication that will help households to produce enough food or earn enough money to purchase it. In other words, the problem invariably calls for fetching food security policies, programs and strategies with antipoverty programs and their unfailing implementation. Below are core medium and long term policy directives to sustainably address sufferings of the paupers in the district:

By virtue of the spread of drought in the district augmenting productivity based on rain fed cultivation is unimaginable. That is, future of agricultural development in a country that has been subject to rain-fed system but ensnared by persistent drought depends on the exploitation of irrigation technology and various water resources. Hence, increasing agricultural productivity, developing self-reliance, and addressing food insecurity

invariably calls for the application of irrigation. Unequivocal support for irrigation efforts, for mechanizing agriculture, and for promoting and expanding infrastructure is needed to avert what truncated agricultural productivity.

An important policy directive to ensure food self-sufficiency at this age of wide spread climate change might include research in to heat-resistant and low-water consuming crops. It is wise to intensify production through the adoption of improved, simple, low-cost, low-risk water, soil, and crop management. By the same token, problems of post harvest loss must be tackled.

Moreover, given that household asset is tremendously depleted and their livelihood seriously ravaged they are scarcely left with farm-animal and other live stocks. Thus, addressing the surpassing problem demands the availability of either farm animal or farming machinery.

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## **Appendix**

Food groups and their equivalent energy content:

Food type	Quantity in Kilogram/liter	Equivalent Kcal
Corn	1kg	4.07
Other cereals	1kg	3.78
Oil seeds	1kg	4.07
Legumes	1kg	4.07
Oil	1kg	8.8

Source: Food Composition Table prepared for use in Ethiopia by MPH and SIDA based on the 1968s work of Argen G. and Gibson R [27]. The energy content of one liter of oil and its corresponding kg equivalent is acquired from internet.