

## **Some Thoughts on Prospects for Achieving Food Security in Ethiopia: Resource and Policy Aspects**

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### **Abstract**

This paper has attempted to examine prospects for attaining food security in Ethiopia in the area of crop production excluding livestock. Possible areas of intervention of food production we have considered are physical resources, human resources, policy issues, and the management of the agricultural sector. In each case merits and demerits are identified. Among the merits of physical resources are land area, diverse climate, and relatively abundant water. The possibility of bringing more area of land under rain-fed and irrigated cultivation, benefiting from the climatic variations the country is characterized with, exploiting more water resources, and raising productivity are examined. At the same time, the need to overcome certain difficulties that may arise in the process of expanding food production is indicated. As regards the human resource, the large population size the country has, and the presence of unemployed and underemployed population in rural Ethiopia are considered useful pools to draw labor force from to the proposed expansion of agriculture. However, that appropriate use of the labor force requires expanding education, training, and health care is also noted. The need to re-examine our land tenure policy, internal mobility of people, and diversifying our economy as part of our strategy of achieving food security is suggested.

### **1. Introduction**

In the introductory part we will briefly discuss the problem, some concepts, the data used, and the methodology applied in this discussion on food security. It must be made clear at the outset that the discussion on food security is limited to crop production; animal husbandry is not included. While there is no denying the fact that livestock contributes to food security, it is difficult to treat both crop and animal production in a short paper like we are writing here.

#### **1.1 The problem**

Ethiopia is one of the most food insecure countries in the world. The country is often cited as an example where food insecurity prevails at its

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most distressful condition - famine. Let us note that food insecurity and famine are not synonymous though they appear in this article interchangeably. Food insecurity does not necessarily entail famine. Famine is the worst form of food insecurity. Hence, where famine prevails food insecurity prevails too.

Famine has been a recurring phenomenon during the long history of the country. The most dramatic ones that occurred before the mid-twentieth century are recorded by Pankhurst (Pankhurst 1961; Pankhurst 1968; Pankhurst 1972; Pankhurst 1984). Mesfin (1984) studied in detail and identified critically food insecure years that caused famines between 1955 and 1977. Dessalegn (1991) has studied in detail clearly showed famine and peasant survival strategies in Wello, Northeastern Ethiopia, a region severely and frequently subjected to famine. Since 1991, food insecurity is often discussed in seminars and conferences in which relevant government departments and NGOs have participated. Famine has brought about the deaths of thousands of people in mid-1970s and mid-1980s. Famine had been one of the causes of political unrest in the country, and no doubt, that the demise of the Imperial and PDRE governments had been precipitated by famine, among others. In the last 10 years, one or the other part of the country has experienced food insecurity; the worst being in 2003/4 when some 15 million Ethiopians depended wholly or partially on food aid.

Food insecurity occurs when the food production system is incompatible with a growing population, or when a continually degraded natural resource produces a progressively declining amount of food. The consequences of such processes are explained in two major ways. According to Malthus, misery and vice set-in, death rate caused by starvation, famine, and disease rises and brings the population down to the level of food supply (McCleary 1952; Malthus 1965). The opposite view is that held by Boserup (Boserup 1993). According to her, it is population that controls agriculture, not otherwise. A growing population devises a new agricultural system - intensifies land use to overcome food shortage.

As stated above, the history, causes and consequences of famine and food insecurity have been discussed by many authors and at many conferences, and seminars. Two major ways of interpreting the consequences of food insecurity have also been given. This paper attempts to contribute to the continuing debate on food insecurity and famine by

indicating areas of expansion and intensification of crop production, and some concomitant steps that should be taken.

### **1.2 Definitions of some important terms**

Defining the important terms in the title of the paper is indispensable to establish common understanding between the author and readers of the article. Food security is defined as access to enough food for all individuals, at all times, for active and healthy life (Maxwell 1996). Food security is an issue because there is food insecurity. Food insecurity is defined as the lack of access to sufficient food. It is divided into transitory and chronic. Transitory food insecurity is a temporary shortage of food that afflicts households. On the other hand, chronic food insecurity refers to a continuously inadequate diet resulting from shortage of resources to produce or acquire food (Salih 1994). The two types of food insecurity can occur independent of one another or together.

### **1.3 Source of data and methods of analysis**

This analysis on prospects for food security depends fully on secondary data. They are obtained from both governmental and nongovernmental sources. The major source of the data used in this paper is the Central Statistical Authority (CSA). It is established as a government agency to collect and distribute data regularly on subjects at country level. In this respect there is no other government department better informed than the CSA. The other sources of data are academics and individuals heading certain departments, and who have direct access to data related to the department or project they are responsible for. The methods of analysis employed are calculations of simple indices, and presentation of raw data and findings in tables and figures.

## **2. Factors of Food Security**

Food security or insecurity is a resource and policy issue related to population. Hereafter, we will briefly and in a loud manner appraise some factors of food security in Ethiopia. We recognize four broad categories of factors of food security; they are:

1. Physical resources
2. Human resources,
3. Policy issues, and
4. Management of food production.

Each of them, obviously, plays positive and /or negative roles.

## **2.1 Physical factors of food security**

The major aspects of physical factors affecting food security/insecurity are:  
a) available area of land for crop production, b) climate, and, c) water resources.

### **2.1.1 Positive aspects of physical factors**

Under this section we shall allude to the merits for food security of physical factors. The negative aspects of the physical factors shall be discussed later on in this paper.

#### **a) Positive aspects of land area in view of food security**

Under land area we will consider absolute area, cultivable area, yield per unit of land, and irrigable and irrigated area.

**i) Absolute area** – of the estimated 1,000,000 km<sup>2</sup> total area of the country, only about 11% (124,000 km<sup>2</sup>) is regularly cultivated. Another 12% (135,000 km<sup>2</sup>) is believed to be occasionally under cultivation. It is useful to note that the ratio 11% of regularly cultivated land is similar to the world average cultivated land. If under careful agricultural practice, we are able to bring half of the occasionally cultivated land to regular cultivation, the area of cultivated land will rise to 150%. The present agricultural area, say 100, is sufficient to support (67 – 15 million) 52 million people. The 15 million people subtracted refer to the population that depended on food aid in 2003/4. This number is the largest recorded so far. The area raised to 150% can support, theoretically, more than 75 million people. This is the projected population of Ethiopia for 2006.

ii) **Land productivity** – the land area discussed above will be more meaningful if related to productivity under existing technological and managerial conditions, and to a guesstimate of what may be realized if production practices are improved. The present yield (Table 1) is one of the lowest in the world.

**Table 1. Yield of major crops in qt/ha (2001/2002, Meher<sup>2</sup> Season)**

Cereals (Yield, qt/ha)		Pulses (Yield, qt/ha)		Oil seeds (Yield, qt/ha)		Vegetables (Yield, qt/ha)	
Barley	12.08	Chick-peas	9.73	Linseed	5.18	Lettuce	89.16
Maize	21.16	Field peas	8.40	Neug	3.63	Head cab.	116.74
Sorghum	13.65	Har. Beans	8.23	Sesame	6.62	Eth. Cab.	98.90
F. millet	10.88	Hor. Beans	12.11	Grd. nuts	8.29	Tomatoes	149.19
Teff	8.95	Lentils	6.39	Sunflower	6.88	Green p.	96.97
Wheat	14.37	Vetch	11.06	Rapeseed	11.26	Red p.	14.17
Oats	11.77	Soya beans	9.16			Swiss. Ch.	92.65
Rice	18.42	Fenugreek	6.66				
		Gibto	8.23				
Average	13.67		10.04		4.80		

**Source:** (CSA 2002) pp. 96 – 97

Total production in quintal for the year under consideration was as given under column B in Table 2. Column C (Table 2) is total production under Column B raised by 20%. We believe that this is not unrealistic as demonstration plots in Ethiopia showed that traditional productivity of maize, wheat, sorghum, and teff could at least be doubled if proper extension services and credit facilities are available, and research information is properly packaged (Takele 1996).

<sup>2</sup> Meher is the major rainy season extending from June/July to September in most parts of the country.

**Table 2 – 20 percent increase over yields in Table 1**

Crop groups A	Total product (2001/2002) B	Total product at 20% increase (B x 1.20) C	Difference (C – B) D
Cereals	87,068,275.50	104,481,930.60	17,413,655.10
Pulses	10,212,146.50	12,254,575.80	2,042,429.30
Oilseeds	2,081,356.99	2,497,628.39	416,271.40
Vegetables	2,886,097.17	3,463,316.60	577,219.43
Root crops	11,361,366.83	11,929,435.17	13,633,640.20

**Source:** Calculated by the author

Assuming that application of modern inputs and improved management enable us to raise present yields by 20% (i.e. raising 13.65 qt/ha/year to 16.4 qt/ha/year) production will be as under column C. This yields an additional cereal production of 17,413,655.10 qt/year (column D). Again, assuming that pulses, oil seeds, vegetables, and root crops are complementary diet to cereals, at two quintals per capita cereal consumption per annum ( $17,413,655.10 \div 2$ ) an additional population in the order of 8,706, 825 can be fed.

**b) Irrigable and irrigated area** – another possible area of agricultural expansion is irrigation. Table 3 presents what is irrigable and irrigated area in some recent past in our river basins.

**Table 3. Irrigable and irrigated area**

River basin A	Mean annual Flow (billion M <sup>3</sup> /year) B	Potential gross Irrigable area (000 ha) C	Net irrigated Area (000 ha) D	Percent irrigated (D/C x 100) E
Abbay	52.62	978	21.00	2.15
Rift Valley L.	4.64	122	12.20	10.00
Awash	4.60	204	69.70	34.17
Omo- Ghibe	17.96	450	27.30	6.07
Ghenale-Dawa	5.85	435	0.08	0.02
Wabishebele	3.16	204	20.30	9.95
Baro-Akobo	11.81	748	0.35	0.05
Tekeze	7.63	313	1.80	0.58
<b>Total</b>	<b>108.27</b>	<b>3,454</b>	<b>152.73</b>	<b>4.42</b>

**Source:** (Gedion 1993), adapted

Table 3 shows that of the total irrigable area (3,454,000 ha) only less than 5% (152,730 ha) is put to use. Another study (Zewdie 1994) gives a slightly different figure of the irrigated area according to which large and medium scale irrigated areas were 96,785 ha (1988), small scale irrigated area was 64,000 ha (1987) and 38,310 ha were being developed in 1989. Despite the variations between the two data, both prove that irrigated area is less than 5% of the total irrigable land. The largest irrigated area (69,700 or about 45%) is in the Awash Valley.

If half of the potential irrigable area is brought under irrigated cultivation  $[(3,454,000 - 153,000)/2 = 1,651,000]$  it can either be used for the production of staple crops, or cash crops that can be exchanged for food crops. In any way, since irrigable areas are in most cases outside the presently cultivated area under rainfed agriculture, an additional 1,651,000 ha can be brought under cultivation. At the rate of 16.4 qt/ha/year, more than 27,000,000 qt could be harvested to feed an additional 13.5 million people. The pastoral population in the areas to be irrigated can be made to benefit from the irrigation schemes in one way or other.

Thus, increasing land under cultivation by bringing into cultivation half of the occasionally cultivated land and half of the potentially irrigable land, and raising the present land productivity by 20% enable us to feed about  $(53 + 22 + 8.7 + 13.5) = 97$  million people. This is the projected population of the country for 2016 (CSA 1999)

### **2.1.2 Positive aspects of climate for achieving food security**

We will briefly discuss the impact of altitude and latitude on climate, agroclimatic zones, spatial and temporal variation of climate, and their possible roles in bringing about food security.

**a) Diverse climates** – in Ethiopia, two controls of climate, altitude and latitude combine to produce diverse types of climate in terms of both temperature and rainfall, including temporal and spatial distribution of both. Thus, temperatures range from one of the hottest in the world in the Afar Depression to the significantly cool tropical highland temperatures, in the highlands such as the Semen Mountain, which approach the zero degree centigrade during a good part of the year. Precipitation also ranges between less than 100 mm year in the lowlands to more than 2,000 mm year in the

southwestern highlands. Both temperatures and precipitation exhibit noticeable seasonal variations.

**b) Agro-climatic zones** – as a result of climatic variation, the country is divided into six agroclimatic zones, which, from high altitude to low altitude, are as in Table 4.

**Table 4. Agro-climatic zones of Ethiopia**

Agro-climatic zone	Altitude, meters Above sea level	Average annual temperatures °C	Average annual rainfall mm/year
High Wurch	>3700	<7	±1,400
W & M Wurch	3,200 – 3,700	7 – 12	900 – 1400+
W & M Dega	2,300 – 3,200	12 – 18	900 – 1400+
W,M, & D WD	1,500 – 2,300	18 – 25	300 –900 – 1400+
M & D Kolla	500 – 1,500	>25	300 – 900 – 1400+
Bereha	<500	>25	<300

**Source:** (Hurni 1986) adapted; W=wurch, M=moist, D=dry

**c) Spatio-temporal distribution** – temporal distribution of the rainfall over the country manifests significant variation in annual amount and seasonal occurrence. Annual amount in general decreases from the southwestern highlands northward, northeastward, eastward, southeastward and southward. Variations in seasonal occurrence are no less noticeable. In the southwest of the country we have rainfall during most of the year. In the south, southeast, and east of the country, rainfall occurs predominantly during spring and autumn. In the remaining part of the country summer rainfall dominates (Fig. 1).



Fig. 1

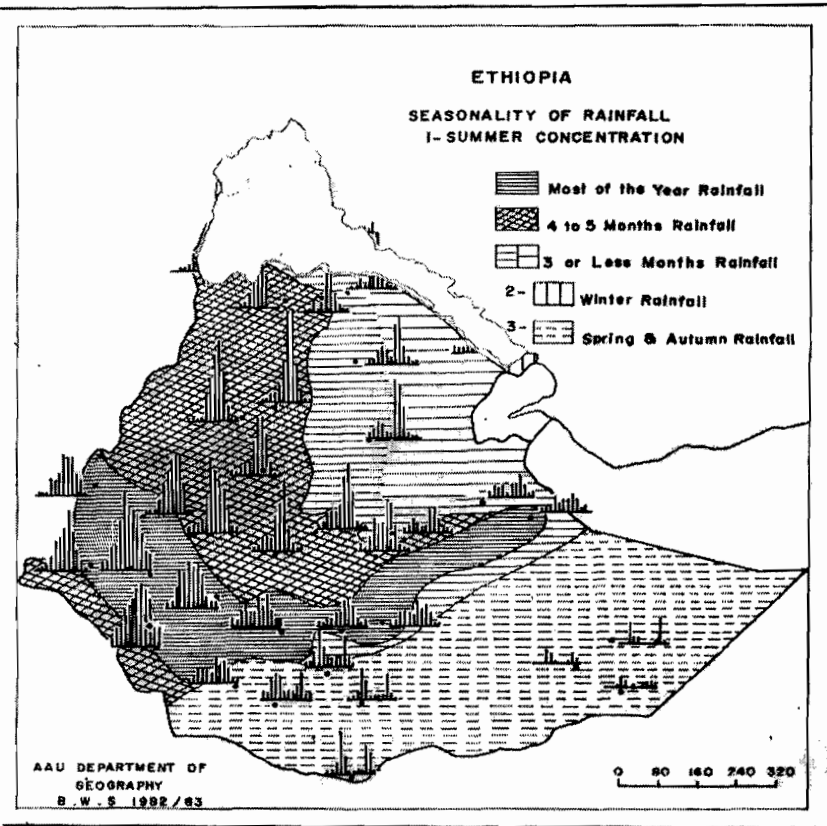


Fig. 1

Properly planned and implemented, supplemented by irrigation when necessary, agricultural production can benefit from the temporal distribution of the rainfall and help realize food security. The diverse climates facilitate the production of warm to cool weather crops and, wet to arid land crops. In spite of the location of the country in the tropical latitudes, climatic diversity allows the production of tropical, subtropical, and mid-latitude crops at different seasons

### **2.1.3 Positive aspects of water resource for food security**

Compared with the vicinal countries – Eritrea, Djibouti, Kenya, and the Sudan – Ethiopia has significantly more stream water (Table 3). For this reason Ethiopia is some times called the ‘water tower’ of the Horn of Africa. However, she is not a water rich country by world standard. With 1,400m<sup>3</sup> of water per capita per annum, she belongs to the category of countries that will have major problems during drought years (Zewdie 1994). Nonetheless, fishery from inland water is estimated to provide 30,000 tons /year at a sustainable rate. In addition, the major rivers dammed for either irrigation or hydroelectric power generation can be used for additional fish production. It can be stated that the water resources of the country can be significantly developed for agriculture – production of crops, livestock, and fishery - contributing to food security.

### **2.2 Physical resources constraints**

The preceding discussion on the merits of the physical resources should not leave us with too much optimism. Neither unjustified optimism nor its corollary, unjustified pessimism, enables us to solve our chronic food problems. Therefore, it is necessary to base our aspiration to attain food security on realistic ground to the extent possible. Awareness of resource constraints allows us to put the necessary effort to overcome them and not to easily despair in front of the challenges that face us as we attempt to exploit them. The following are some of the major resource constraints.

#### **2.2.1 Constraints regarding land area**

One needs to be aware that expanding of cultivated land under irrigation and rainfed farming as well as raising yield per hectare entails constraints that have to be tackled with more effort and determination.

**a) Constraints on expanding cultivated land** – the fact that only 11% of the total area of the country is regularly cultivated despite the need for more agricultural land, leads one to suspect that there must be social/cultural and natural constraints mitigating against extending the area of cultivated land. Hence, a study of possible social and natural constraints must precede any attempt to bring under cultivation land heretofore uncultivated. Such land is not perhaps simply to exploit; it is to be developed before exploitation. The

failure of resettlement areas to provide expected agricultural products to settlers in the 1980s should serve us as example against venturing into activities, results of which are unknown.

**b) Constraints on increasing yield per hectare** – in this case too, increasing yield should not be considered as a readily available opportunity to be exploited. The productivity of land under peasant farming has never manifested any noticeable rise so far. In fact, one is justified to expect the opposite; intensification of crop production without a parallel introduction of innovation in our farming systems and in the thinking of peasants will very likely be a failure. Intensification of agriculture in some river basins in southern and eastern Asia often quoted as examples for possible intensification of agriculture in Ethiopia at conferences and workshops on improving agriculture ignores the unique cultural and natural context in which they are practiced. They are practiced under different social and natural environment. The regions mentioned have a long history of intensive cultivation, they have extensive low land plains that we have not; and they have more ‘national’ rivers while most of our rivers are international. Intensification requires the generation and supply of agricultural inputs in the form of manure/fertilizer, technology and changes in peasant attitudes and working habits. Even when scientific, technological, and cultural changes are achieved, the application of chemical inputs and irrigation have not only positive but also negative consequences such as pollution. The often mentioned pollution problem in the Awash River emanating from industrial waste and irrigation is a vivid example. Offsetting the negative consequences is an additional effort that needs to be expended.

**c) Constraints on expanding irrigated land** – expanding land under irrigation also requires complementary developments. Irrigable areas on highland Ethiopia where the population with experience in arable agriculture is concentrated is estimated at between 165,000 and 187,000 ha out of which about 60,000 ha have been already developed (Zewdie 1994). Irrigable land on the highland is between 5 and 5.5% of the potentially gross irrigable land of the country. Hence, 95% of the gross irrigable land is in the lowlands, defined as land at less than 1,500 masl. It poses two problems: 1. only large-scale enterprises can be implemented in such areas,

and 2. the irrigable areas in lowland Ethiopia are generally inhabited by livestock herders rather than by peasants engaged in arable farming. This demands more effort in obtaining the large investment fund required and recruiting labor locally. The fact that the commercial farms established in the 1950s, 1960s, and 1970s in lowland river basins recruited labor from outside local areas should serve as an example. Such constraints have to be taken care of.

### **2.2.2 Climatic constraints, pests and diseases**

Climatic and related constraints refer to aridity, variability, drought, pests and diseases, which we will discuss briefly hereunder.

**a) Arid zones** - the climatic variations created by variations in altitude and latitude provide not only opportunities but disadvantages as well. Arid zones (arid, semi-arid, and dry sub-humid areas) are areas, other than polar and sub-polar regions, in which the ratio of annual precipitation to potential evapotranspiration falls within the range from 0.5 to 0.65 (UN 1996). Hyper arid area is defined as area with rainfall to PET ratio of  $<0.5$ . On the basis of this definition, an estimated 30% of the area of the country is arid or hyper arid. If one adds the semiarid zones to the arid and hyper arid areas, the percentage rises to more than 55 (EPA 1998). The two zones – arid and hyper arid are not favorable to rain fed arable farming; the third zone needs supplementary water of varying amounts for crop production and or animal husbandry.

**b) Variability of rainfall** – the degree of certainty/uncertainty of the occurrence of the rain in predictable time and volume is an important factor of crop and animal production. Coefficient of variation, which is an index of rainfall variability, can be computed as the percentage of the standard variation over the mean annual precipitation. The rainfall variability is very much associated with the annual amount of rainfall. Thus, the dry lowlands have considerably low rainfall but conversely high variability. The southwestern part of the country, which has the highest annual precipitation, has the lowest variability. Thus the arid and semiarid zones, which constitute more than 55% of the area of the country, have between 30% and 90% coefficient of annual rainfall variation. On the other hand, the

southwestern part with the highest annual precipitation exhibits coefficient of variation below 10% (Fig. 2).

Fig.2

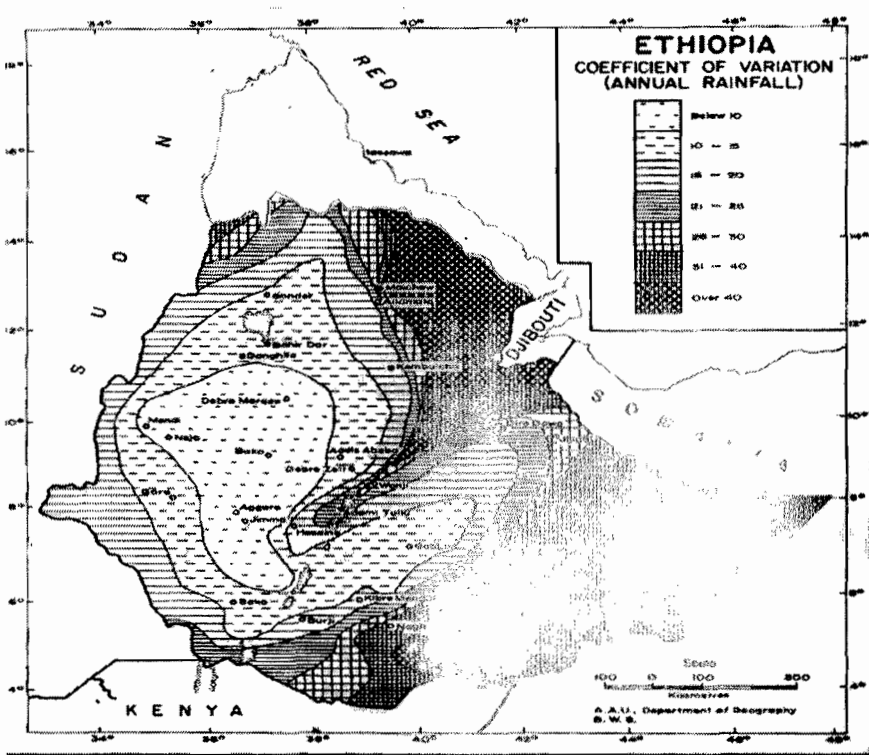


FIG. 16

c) **Drought probability** – associated with aridity and variability of rainfall drought occurs. Drought is said to occur when precipitation falls significantly below normal recorded levels. It causes hydrological imbalances that adversely affect land resource production systems (UN 1996). Close to 40% of the area of the country is categorized as high drought probability zone. When medium probability zones are added to it the percentage approaches 70. As known, this country is no stranger to

drought devastation. The effects of rainfall variability and drought can be averted by undertaking supportive measures such as irrigation and water conservation.

**d) Pests and diseases** – climatic conditions facilitate or discourage the development and distribution of crop pests and diseases. Certain combination of temperature, humidity, and wind are found to be conducive to the occurrence of pests and diseases. Except the extreme climates – the Wurch above 3700 masl, and the hyper arid areas of the Afar and Ogaden areas, generally of less than 300 masl, the rest of the country is susceptible to the occurrence of plant and animal pests and diseases. The precise damage that pests and diseases cause is not known since this aspect of our agricultural problem is the least studied. Official documents like the Statistical Abstracts or the agricultural sample surveys and the agricultural census neither provide information regarding spread of pests and diseases nor the damage caused by them. Nonetheless, it is common for farmers to suffer from damages caused by pests and diseases.

Birds and crows consume a lot of seeds and fruits in the field during the period of late crop-maturing stage or crops heaped in the field before threshing. Rodents like rats and mice do considerable damage. As one walks in crop fields freshly harvested, rodents run right and left reminding one of their presence in large numbers. Baboons and apes not only consume crops but also destroy several times the amount they consume as they trample over crop fields in large numbers. Earth, stem and leaf worms destroy a considerable amount of grain, vegetables, fruits and cotton. Ethiopia is in the desert locust zone of East Africa; though mostly controlled, the threat of locust has not disappeared completely. Termites in the semiarid areas reduce cultivable area by the numerous and conspicuously visible mounds they construct. Rust and smut occur if rain falls during certain stages of crop development. These destroy a considerable part of crops both at the growing stage and while in storage. Hence, attaining food security involves controlling plant and animal pests and diseases.

### **2.2.3 Constraints on water resource development**

Although only 5% of the water resource is developed at present for irrigation purpose, there are some important hydrological constraints on its further development.

**a) Surface water** - since rainfall is seasonal covering from less than one month in the arid and about nine months in the wet regions, water flow is characterized by fluctuation. During the dry season water in the rivers dwindles down to a small fraction of its rainy season flow. Daniel (1977) calculated stream flow variations at specific points for seven rivers. For instance, annual stream flow variations, in cubic meters per second, for Angar, Awash, and Beles rivers of the rainy months average peak flows were 22, 20 and more than 30 times the dry months flow. In addition, the water is laden with high amount of sediments during the rainy season, which reduces the effective life of storage structures. The effect of topography on using water for agriculture has already been noted under irrigation. Consequently, it is only about 50% of the surface run-off that can be developed technically (Zewdie 1994). Hence, regulating annual river flow fluctuation, and overcoming the effects of relief need serious consideration

**b) Ground water** – as regards ground water, the complex geological structure of the country is considered less promising both in availability and development of water resources (Zewdie 1994). Thus, the feasible total annually exploitable ground water is estimated at 2.6 billion cubic meters. Hence, planning and working for food security involves considering not only opportunities created by potentially cultivable land, climate and water resources, but also the challenges posed by them.

## **3. The human resource**

Human resource has dual roles regarding development. It is the sole agent of development and at the same time beneficiary of development results. Consequently, it is considered an asset and a liability at the same time. For this reason, the role of population resource in development is one of the most debated subjects, some assigning it a positive role while others judge its role negatively.

**3.1 Positive aspects of the human resource**

One of the merits of the human resource is its magnitude – the size of the population measured by the total number of people living in a country at a given period of time – in our case in 2003. The 1994 Population and Housing Census of Ethiopia calculated projections according to low, medium, and high variants. The medium variant is the most probable projection, which for 2003 estimates a population of 69,127,000. This forms the pool from which the human resource is drawn.

**3.1.1 The ‘gross’ population resource** - 69,127,000 is the gross population resource. By form of residence, 10,745,000 (15.54%) is urban and 58,382,000 (84.46%) is rural. With this size of population resource, the country is the 3<sup>rd</sup> populous in Africa after Nigeria and Egypt with estimated populations of about 133 million, and 78 million, respectively. Therefore in gross population resource, Ethiopia is one of the largest in Africa. Of course, the total population consists of people with different working capacity and employment status.

**3.1.2 Economically active population** – the gross population resource we have cited above, consists of economically active and inactive population, i.e. population in and out of working age. Table 4 shows the economically active and inactive population.

**Table 4. Economically active and inactive population in July 2003.**

Population Category	Economically Active pop.		Economically Inactive pop.		Total Population	
	Number	%	Number	%	Number	%
Total population	45,436,308	65.7	23,690,692	34.2	69,127,000	100
Rural population	36,624,764	62.7	21,757,236	37.2	58,382,000	100
Urban population	7,683,267	71.5	3,061,733	28.4	10,745,000	100

**Source:** (CSA 2002). Statistical Abstract (adapted)

The economically active population is defined as the population of all persons between the ages of 10 and 60 whether employed or unemployed.



More than 45 million (65.73%) of the total population, more than 36 million (62.73%) of the rural population, and more than 7 million (71.51%) of the urban population are, respectively, economically active. A large chunk of the total population (23,590,692) is chopped off to give only about 45 million economically active population due to preponderance of young age population. However, there is a difference between the urban and rural population; the urban population has more percentage of economically active population than the rural one. This suggests that the urban population has an age structure where the population less than 10 years old is relatively smaller resulting in more aging population, perhaps, due to reduced birth rate, age selective population migration, and better medical facilities.

**3.1.3 Unemployed population** – another pool of human resource is the mass of unemployed or underemployed population. There is no precise and up-to-date figure of unemployment for the total population of the country, i.e. urban and rural. We will use the 1994 PHCE data as an indicator of unemployment for the total population. The economic participation rate (economic activity rate) at the time of the census was 72.5%, 50%, and 76.5% of the total, urban, and rural population, respectively. In other words, the unemployed population was 27.5%, 50%, and 23.5% for the total, urban, and rural population, respectively. However, the Central Agricultural Census Commission (CACC) gives employment figures for agricultural households for 2001/02. The CACC states that of the agricultural household population aged 10 years and over, 72.8% was working while 27.2% was not (CACC 2003). I think that it is permissible to state that the working population hides a large number of disguised unemployment since rural economic activities are highly seasonal. The percentage of working population varies according to residence and gender – the percentage of the working population was more in rural areas than in urban, and more males were working than females. It is worth noting that there is no significant difference in the percentages of working and not-working population between the 1994 and 2001 data. Therefore, if the economy, more specifically the agricultural sector, can expand there is a considerable labor force that can be mobilized into production.

**3.2 Constraints on the human resource** – the magnitude of the human resource cannot be appreciated by its number alone; the quality aspect –

skill and training - is also important. Unfortunately, there is no data on specific training and skill of the population. Assessment of the quality aspect of the population can be appraised indirectly by examining the literacy and education participation rates.

**3.2.1 Low literacy rates** – literacy rate for the population around the year 2003 was less than 45%. According to the CACC, about 35% of the agricultural households were literate in 2001/02. Here again the urban agricultural households had higher percentage of literacy than the rural, and males were more literate than females (CACC, 2003, Part I: 54) Excluding Addis Ababa, the percentage of literates varied between 25% for the Somali Region and 46% for Gambella Region. Hence, the base (literacy) for skill training is enormously inadequate.

**3.2.2 Limited education and training enrolment** – in 2002/03, the number of primary education pupils was about 8.7 million; secondary school students numbered 665,464, technical and vocational education and training 54,026, teacher trainees 7,000, and tertiary level education enrolment 96,757, in the regular programs(MOE 2003). Hence, despite a steep rise in enrolment in recent years, education coverage is limited viewed against the base population of more than 69 million

**3.2.3 High natural population growth** – matching population increase to socio-economic development rate is one of the concerns of societies. Different natural increase rates for the population of Ethiopia are given by different sources. According to the National Office of Population, the population of the country would grow by 3.1% or more per annum until the close of the century, i.e. the year 2000 (TGE 1993). CSA's projection based on the 1994 census uses gradually declining rates from 3.15% in 1996 to 2.9% in 2001(CSA 1999). Population Reference Bureau (PRB) gives 2.4% natural increase for 2002 (PRB 2002). Whichever of the figures quoted above (or a compromise figure between the two extreme figures) may be accurate, Ethiopia's natural increase is among the highest in the world. Taking 207 countries and territories in the world (PRB 2002), Ethiopia's rate is among the top 24% if one accepts the 2.4% rate; among the top 13% if one accepts the 2.9% rate, and among the top 5% if one accepts the 3.1% rate. Such natural increase is too high to enable socioeconomic

improvement of the population – more specifically food security. The high natural increase of the population undermines economic development in general and development of the agricultural sector in particular, thereby reducing food security.

**3.2.4 Unsatisfactory health condition** – there are a number of indicators of poor health in Ethiopia. The first of such indicators is the prevalence of undernourished population. In 2003/4, close to 15 million people needed food-aid. The following year, though harvest seemed good, some 7 million people were expected to need food-aid. A malnourished population has poor resistance to disease, and less urge and energy to produce. The three major endemic diseases affecting people in many parts of the world, are prevalent in Ethiopia too. These are: HIV/AIDS, malaria (a recent statement from an NGO said that every day 5,000 Ethiopians contract the disease), and tuberculosis (TB). All the three are spreading fast making the country one of the highest affected in the world. To make matters worse, health care was inadequately developed. In 2001, for an estimated population of 65 million, there were 115 hospitals, 1,332 medical doctors, 8,426 nurses, and 11,710 hospital beds (CSA 2002). Consequently, on average a hospital served more than half a million people, a medical doctor attended to close to 50 thousand people, one nurse attended to close to 8,000 people, and a hospital bed served close to 6,000. The health situation greatly reduces the productivity of the population thereby contributing to food insecurity.

## **4. Policy Issues Related to Food Security**

Since policy issues affecting food security are too many, we will mention only a few. Here again one encounters food security promoting and impeding policies. We will start with policies that positively contribute to food security.

### **4.1 Policies promoting food security**

Among the policies that I feel promote food security are: 1) recognition by the government of the extreme need to develop the agricultural sector, 2) the establishment of government and non-government partnership to combat food insecurity, 3) the setting of a time target to solve the food

problem in the coming three years, 4) the intent to establish price stabilizing fund, and 5) maintaining the cancellation by the defunct government towards the end of its rule of forced crop delivery to government marketing boards at low prices.

#### **4.1.1 Recognition of the need to develop the agricultural sector**

Though there are still about five million people needing food assistance every year and achievement of food security is far off, the EPDRF government has always stated its commitment to the development of the rural sector. Agricultural development led industrialization (ADLI) is based on recognizing the need to develop the agricultural sector, though this policy is one of the most contested development strategies of the government. The failure to achieve food security, in spite of the stated intention to develop the agricultural sector, may be indicative of the important strategies and policy instruments that are not yet properly identified. It must be time to search passionately for the possibly missing strategies and policy instruments.

#### **4.1.2 Formation of government and NGO partnership**

As we know there was a meeting of relevant government departments and NGOs in the month of December 2003. At the end of the meeting the participants have pledged to do their best to solve the food security problem in Ethiopia. Both the government and NGOs need not only show commitment, but also sound approach that can lead them to the achievement of the goals they have set to themselves. One also hopes that working together requires according importance to the inevitably different views of the members of the partnership thereby establishing confidence in one another. None should aspire to be on the command side; the problem should determine who should be in the command post and guide the actors to the attainment of the target – food security in Ethiopia.

#### **4.1.3 Setting time target to achieve food security – setting a time period to achieve food security based on appropriately identified and analyzed problems, duties, capabilities, and strategies, will properly guide the direction and rate of our actions. Pronouncements from government circles to solve the food problem in three years period abound. Though what has gone into the calculation of the time frame is unknown, one has to**

encourage the idea of setting a time limit. One also hopes that these words are meant to, and can be interpreted into action.

**4.1.4 Agricultural product prices stabilization policy** – the government estimates that this year (2003/04) there will be surplus agricultural product. This expectation has led the government to think that too much agricultural products coming to the market will lower prices to a level that will be discouraging to farmers with the consequence that they will not make effort to produce surplus in the future. To avoid the setting on of discouragingly low prices the government is promising to establish fund to stabilize agricultural product prices.

**4.1.5 Cancellation of forced delivery of agricultural products at fixed prices** – under the PDRE government, farmers were forced to deliver a portion of their products to government-owned marketing boards at fixed low prices. Under internal and external pressure the PDRE was forced to declare mixed economic policy on the eve of its fall. This led to the abolition of the forced delivery. The EPRDF government reinforced the cancellation and completely annulled it. Therefore, the artificial and discouraging market prices have been avoided giving incentive to farmers to produce surplus when and where possible. No doubt that this policy positively contributes to attaining food security.

## **4.2 Policies contributing food insecurity**

In this part we will see the presence of policies that do not promote food security or the absence of policies that promote food security.

**4.2.1. Land policy** – it is stated in the constitution that land is the property of the state and peoples of Ethiopia (Article 40: [3 – 6]). It is also stated that peasants and pastoralists have the right to access land without payment. What is then the problem with this land policy of the country? There are three issues that are considered unfavorable to agricultural development by opponents of the policy.

**a) Tenure insecurity** – There is frequent land redistribution to allot land to young people who had been part of a household up to a time, but have now

established their own households, and to correct alleged discrepancies created by previous allotments (Sarah and Simeon 1996; Sarah and Amare 1996; Yigremew 2003). The new households need land to work on and earn their livelihood. In addition, since land allocation is under the direct management of the government, dispossessing a farmer and reallocating land for other purposes takes place with out sufficient compensation given to the peasant. Hence, the peasant is not sure how long he/she can use the piece of land under his/her possession. Consequently, one would not undertake long-term land development and land use plans. This reduces productivity and induces food insecurity.

**b) Favoritism during reallocation of land** – Reallocation of land takes place to accommodate rural newly wed young couples wishing to engage in farming. In some areas reallocation has been done to provide land for those people who were assumed to have been mistreated some time in the past, i. e under the defunct government. It is alleged that such people, cooperate with the present government and are favorably treated now. There is a feeling by the previous holders of land that the reallocation is unfairly done to favor supporters of the government against those that are neutral or unsupportive of government policies. This feeling, right or wrong, is not conducive to attaining food security.

**c) No inbuilt mechanism for farm expansion** – The tenure system is not conducive to expand farmland under operation by enterprising peasants. The average size of small- holder farms at country level is less than one hectare (0.79 ha). Close to 40% of the holdings are < 0.5 ha and more than 60%  $\leq 1$  ha (CSA, 2002: 114). Food security cannot be attained under artificially limited important resource base – land. Enterprising farmers must be facilitated to access land to work to their capacity.

**d) Incompatibility with market economy** – opponents of the land policy also indicate that withdrawing land alone from the free market while every other means of production is freely exchanged is incompatible with the free market economy. Factories, and most service establishments are privately owned. Thus, privatization of land does not aggravate socioeconomic injustice more than do other means of production and services. On the other hand, public ownership, with the various mismanagements that characterize

it, harms the achievement of food security. As a result of internal and external pressure, the government has opted to certify land tenure and has started issuing land tenure certificates recently.

**4.2.2 Mobility constraint** – Article 32 (1) of the Constitution provides that any Ethiopian has the right to movement and freedom to choose his residence in the national territory of Ethiopia. Choosing one's residence is meaningful and practical only if one also has the right to engage in legal life-supporting production, and in the community's social, and political life. In the ethnic-based federal structure it has become difficult to individuals to implement the right of choice of residence. Clashes along inter-regional boundaries due to territorial claims by adjoining regions, attempts to evict groups considered 'outsiders' by others that consider themselves 'insiders', and exclusion of so-called 'outsiders' from participating in the political life of some regional states, do not encourage choice of ones residence. This is especially true regarding access to rural land. The situation does not promote food security.

**4.2.3 Limited perspective of food security policy** - one doubtful policy is the stand that food security can be achieved only by increasing agricultural production in Ethiopia. Diversification of production must be seriously considered. Another drawback is to fail to identify the real root causes of the failure of the agricultural sector so far. That the agricultural sector should develop cannot be contested. At the same time, recognizing that the agricultural sector can benefit from other sectors of the economy, which may play the role of a motor, or trailer, or a counterpart is indispensable. Our development policy should not be hooked, unnecessarily and too long, on ideas such as ADLI.

By way of diversifying the economy one may consider urbanization, (meaning the development of non-rural based activities) as a general area needing a clearly defined policy. In general, urbanization in Third World countries is viewed as a dreadful phenomenon that should be avoided, or as a process that be left better to follow its own course of development. In the first case, governments try to put every possible barrier to arrest or slow down urbanization. Obviously, no country has successfully locked out people from coming to urban areas. The second alternative, remaining indifferent to urbanization, has only reinforced the state of mind of the

dreadful monster to be avoided. One easily forgets that Europe, N. America, and Oceania have more than 70% of their population living in urban centers without facing great inconvenience, while Africa and Asia have less than 40%. Ethiopia has only about 15% of its population living in 'urban' centers. Hence, how and if urbanization can contribute to achieving food security should be seriously studied.

Appropriate urban policies will relieve the rural area from disguised or openly unemployed mass of population. This population, if engaged in non-agricultural activities, mostly urban employment, will benefit the agricultural sector by being source of input and destination of output for the agricultural products. The population mobilized in this manner, can contribute to achieving food security since it facilitates full employment of the remaining rural labor force, and can acquire food from inside and outside the country since it will have the means to do so.

## **5. Summary**

Food security is a resource, policy, and management issue. Two types of resources – the physical and human – have been examined with the purpose of identifying possible aspects of food production expansion. It is suggested that expanding cultivable land under rainfed and irrigated agriculture, raising yield per hectare by a modest percentage over the present yield can raise food security to a considerable degree. The diverse types of the country's climates – wet and sub-humid, warm and cool - have also been assessed as offering possibilities for attaining food security. At the same time, possible constraints on expanding cultivable land, raising yield per hectare, and benefiting from the diverse types of climate were alluded to. The purpose of raising the possible constraints was to prepare us to face the challenges if and when they arise and to arrange an inbuilt mechanism as part of our effort of exploiting the resources.

The size of the population of the country is considered as having merits in terms of serving us as a rich pool of labor force for developing our resources. In addition, the presence of open and disguised unemployed population in both the rural and urban areas was taken as another pool of labor force. We have also recognized the demerits of the human resource. The low level of education, training, and skill, the environmental health



problems and the inadequacies of health facilities, and the high rate of population growth are the demerits of the population resource.

Major policy issues contributing for and against achieving food security have been discussed. It has been rationalized that the recognition of the need to develop the agricultural sector, the establishment of government-NGOs partnership to work for food security, setting time limit (three years) to overcome food insecurity, establishing agricultural products price stabilizing fund, and annulling forced delivery of agricultural products at low and fixed prices to government owned marketing boards are assumed important means of achieving food security. There are also policies that are judged by many as not helpful to achieving food security. The most debated ones are land tenure policy, allegedly characterized by favoritism during reallocation, absence of in built mechanism for farm expansion by enterprising farmers, discouragement of long term investment, and land development. Difficulty of population mobility between regional states especially for small-scale farmers is another impediment to attaining food security. In the same manner, not according due consideration to diversification of the economy makes attaining food security rather difficult. .

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