

# Ethiopian Agriculture and Development Cooperation \*

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## 1. Background

Ethiopia is a country located in the horn of Africa bordered by Eritrea to the north, Djibouti and Somalia to the east, Sudan and South Sudan to the west, and Kenya to the south. With over 86 million inhabitants, Ethiopia is the most populous landlocked country in the world and the second-most populated nation on the African continent. It occupies a total area of 1.13 million square kilometers (420,000 sq mi), roughly five times the size of UK.

The country is divided into nine regional states; namely, Afar, Amhara, Benishangul/Gumuz, Gambella, Harari, Oromiya, Southern Nations Nationalities and Peoples', Somali and Tigray; and two chartered cities: Addis Ababa and Dire-Dawa. All the regional governments and the chartered cities have got administrative divisions by zone, woreda, and kebele, the zone level division represents the biggest in the hierarchy with in the region.

Ethiopia is characterized as a mountainous country with steep terrain. The country shows a great geographical diversity, comprising a highland complex of mountains and dissected plateaus divided by the Great Rift Valley. The great diversity of terrain determines wide variations in

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Figure 1 Regional states and chartered cities of the Federal Democratic Republic of Ethiopia

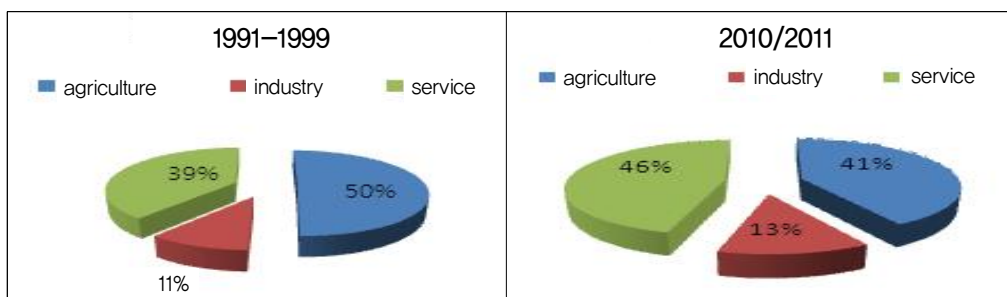


climate, soils, natural vegetation, and settlement patterns. It is an ecologically diverse country, ranging from the deserts along the eastern border to the tropical forests in the south to extensive Afromontane in the northern and southwestern parts. Elevation ranges from 130 meters below sea level (b.s.l.) in the Danakil Depression to 4,620 m.a.s.l. at Ethiopia's highest mountain, Ras Dashen.

## 2. Overview of Ethiopian Agriculture

Agriculture remains the largest sector and the mainstay of the Ethiopian economy. It is the most important source of growth, accounting for almost 48% of GDP in 2005/6. Over the last few years the share of the sector in GDP has been slightly declining from its average level of

Figure 2 Structure of the Ethiopian Economy



Source: Report on the Ethiopian Economy, EEA (2012).

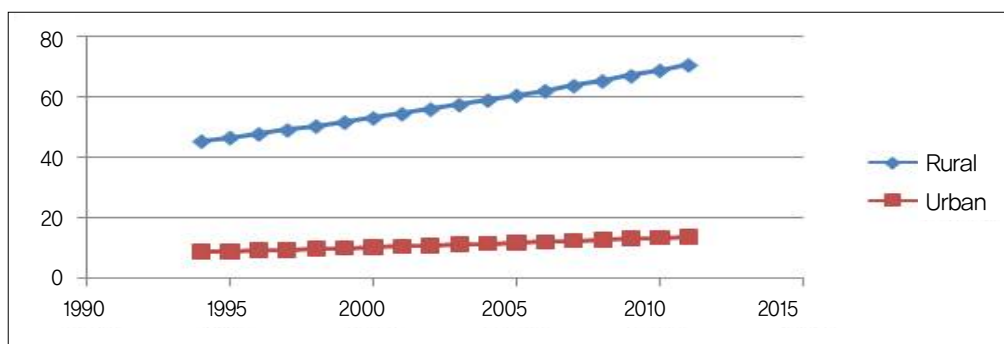
about 50% during 1991-1999 to 41% in 2010/11 (figure 2).

However, the sector remains still dominant in the economy: it is the main income earner, livelihood and way-of-living for 85 percent of Ethiopians living in rural areas. Moreover, it contributes to about 85% of the country's export earnings in 2005/6.

Ethiopia has great agricultural potential because of its vast areas of fertile land, diverse climate, generally adequate rainfall, and large labor pool. Moreover, some estimates indicate that more than 65% (78.9 million hectares) of land is fertile and suitable for agricultural purposes (Haile 1998). Despite this potential, however, Ethiopian agriculture has remained underdeveloped. Because of drought, which has repeatedly affected the country since the early 1970s, a poor economic base (low productivity, weak infrastructure, and low level of technology), and overpopulation, the agricultural sector has performed poorly. For instance, according to the World Bank between 1980 and 1987 agricultural production dropped at an annual rate of 2.1 percent, while the population grew at an annual rate of 2.4 percent.

In recent years, Ethiopia has been experiencing a strong and generally broad-based real economic growth of around 11% a year on average from 2005/6 to 2009/10. More recently, annual growth rates have declined slightly, but still remain at high single-digit levels. Nevertheless, the Regional Economic Outlook (April 2011) puts Ethiopia as the third world's fastest growing economy (IMF 2011). In addition, despite high population growth of 2.2 percent a year, GDP per capita (at PPP) has increased from US\$965 in 2007/08 to US\$1,196 in 2010/11. Nonetheless, Ethiopia's GDP per capita remains among the lowest in the world (169th out of 181 countries, assessed by the World Bank).

Figure 3 Projected population growths in Ethiopia, 1994–2011 (millions)



Source: CSA, 1994 and 2007 Population and Housing Census of Ethiopia.

There has been a steady increase in the population growth rate since 1960. Based on 1984 census data, population growth was projected to grow at 2.83% rate for 1985-90 and a 2.96 percent growth rate for 1990-95. The resulting population growth is higher in rural areas than in urban, although both show upward trends as is depicted in figure 3 below.

### 3. CHARACTERISTICS OF ETHIOPIAN AGRICULTURE

Ethiopian agriculture is characterized by low-productivity, low-input use, low-output farming. The sector is dominated by smallholder farmers who practice rain-fed mixed farming by employing traditional technology, adopting a low input and low output production system. While much of Ethiopia's agriculture remains for subsistence purposes, smallholders also provide a large part of traded commodities, including for exports. Smallholder farm households account for 95% of the total area under crop and for over 90% of the total agricultural output. Moreover, smallholders produce 94% of the total food crops and 98% of coffee in Ethiopia. About 37% of farm households in the country cultivate less than 0.5 ha of land, while about 87% cultivate less than 2 ha of land.

Compared to smallholder farms, private and state commercial farms produce just 6 percent of food crops and 2 percent of the coffee grown. These commercial farms use about 5 percent of the total cultivated land. Coffee, cotton, tea, fruits, and vegetables are the major crops grown by the few commercialized state farms, although with very minimal return despite huge investments in them. With these statistics, one can easily infer to what extent the small-scale farmers (who are all rural dwellers) are the key element in strengthening the effort towards agricultural growth and consequently to the overall economic growth.

Agriculture is extremely vulnerable to climatic conditions. The occurrence of regular droughts has caused major fluctuations in agricultural yields. Moreover, there is considerable land degradation and deterioration of soil fertility. The farming system in Ethiopia is essentially mixed farming, with livestock rearing being an integral part of production alongside crop production. There are three production systems; namely, smallholder, pastoral nomadic and commercial farming systems. The crop sector accounts for about 65% of total agricultural output; while livestock and hunting make out 26.5% and 8.4% respectively. Ethiopia is the world's tenth largest live-

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stock producer, and the biggest exporter of livestock in Africa.

### 3.1. Agro–Ecological Zones of Ethiopia

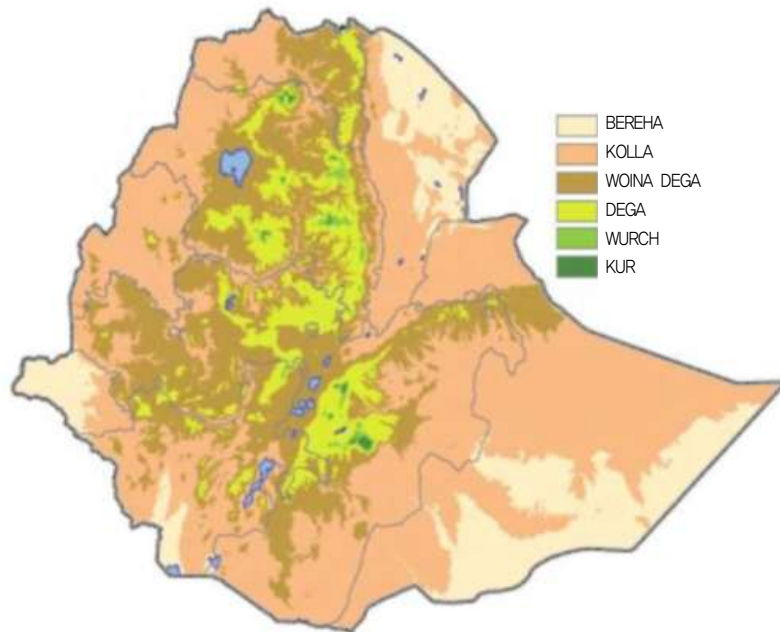
Ethiopia is an ecologically diverse country with a diverse terrain and agro-ecological climate that can grow a variety of crops. It is distinctive in Africa with regard to climate for its large extent of high altitudes and cool tropics. However great variations in climate occur across Ethiopia, and are to a large extent responsible for the country's widely varying soils, and to a lesser extent, widely varying landforms; from the deserts of the Danakil to the mountains of southwestern Ethiopia where precipitation reaches over 2800 mm annually. The mean minimum and maximum temperatures vary between 0°C in the highlands and 45°C in the lowlands.

There are various agro-climatic classifications in the country. The Government extension program classifies the country into three: areas of adequate rainfall; areas of moisture stress; and pastoral areas. On the other hand, farmers traditionally classify areas as dega (cool), woina dega (temperate) and qolla (low land; warm climate). This diversity makes it a favorable region for growing a variety of crops (Desalegn 2008).

Another traditional classification uses mainly altitude to classify the country into six regions as listed below..

- i. Bereha (hot and arid lowlands, less than 500 meters, In the arid east, crop production is very limited , in the humid west root crops and maize are largely grown)
- ii. Kolla (warm semi-arid lowlands, ranging between 500 to 1,500 meters. Major crops include: sorghum, finger millet, sesame, cowpeas, groundnuts)
- iii. Woina Dega (midlands, ranging between 1,500 to 2,300 meters. Major crops include: wheat, teff, barley, maize, sorghum, chickpeas , haricot beans)
- iv. Dega (highlands, ranging between 2,300 to 3,200 meters. Major crops include: barley, wheat, highland oilseeds, highland pulses)
- v. Wurch (highlands, ranging between 3,200 to 3,700 meters. Barley is common in such areas)
- vi. Kur (highland, Over 3,700 meters, primarily for grazing).

Figure 4 Map of Traditional agro-ecological zones in Ethiopia



The western highlands have particularly high rainfall, averaging more than 1,200 millimetres annually in many areas. Rainfall is lower at lower elevation, especially toward the east. Most of the eastern lowland areas of Afar and Somali are unsuitable for crop production because of lack of rainfall. Rain fall is seasonal with long rainy season called “Kiremt” from June to September of the year and short rain called “Belg” from March to May. Rainfall varies throughout the country, not only spatially but also temporally. Some parts of the western highlands experience rainfall for most of the year. Most of the rest of the country experiences rainfall within either the main rainy season (Kiremt, roughly July through Sept) or possibly also the short rains (Belg, roughly March through May).

### 3.2. Land use patterns

With a total area of about 113 million ha, of which 51.3 million hectares (45.4%) is arable land, Ethiopia has tremendous potential for agricultural development. Only about 11.7 million ha of land, however, are currently being cultivated constituting just over 20 per cent of the to-

tal arable area. Around 90% of the country's agricultural output is produced by smallholder farmers. The smallholder farming setup is characterized by low utilization of agricultural inputs; dependence on inconsistent, uneven and unpredictable rains; poor irrigation system; low technology; little access to know-how; limited capital; and fragmented plots hampering economies of scale in production and productivity.

### 3.3. Agricultural production

Agriculture is composed of crop production, livestock, forestry and fishery subsectors. Cereals crops accounted for more than 70% of the total cultivated land, while vegetables, root crops and permanent crops played a less important role in terms of area coverage and output during the period 2009/10. Crop production is mainly exercised in the highland areas together with livestock production and contributes almost 65% of the agricultural GDP and animal husbandry contributes 25%. The remaining 10% is generated from forestry, fishing and other activities. The dominant activity in the lowlands is animal husbandry.

Table 1 Crop area and production by smallholders, 2009/10

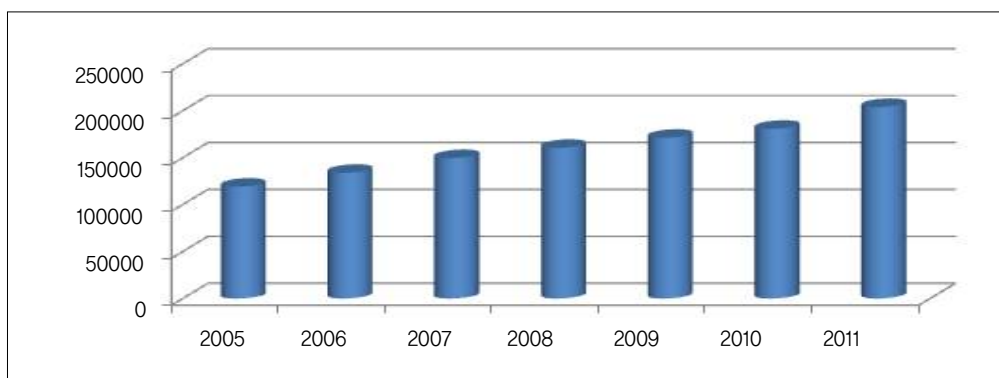
Crop	Area Cultivated		Production in quintals	
	Area (ha)	Share in total area (%)	Production (Qt)	Share in total production (%)
Cereals	9233025	72	155342000	68
Pulses	1489308	12	18980473	8
Oilseeds	780916	6	6436144	3
Vegetables	138393	1	5573568	2
Root crops	212208	2	18063778	8
Fruit crops	50271	0	3993522	2
Khat	138811	1	1162797	1
Coffee	395003	3	2654693	1
Hopes	23908	0	309384	0,14
Sugarcane	18908	0	6724394	3
Enset	395632	0	8015531	4
Total	12876473	100	227256284	100

Source: EEA (2011).

### 3.4. Major crops

Major crops grown in Ethiopia include: cereals, pulses, oilseeds, vegetables, roots and tubers, fruits, fibers, stimulants (coffee, tea, khat) and sugarcane. In 2010/11, the country produced 20.4 million tons of grain from 11.8 million hectare of cultivated land. Over the last five years there has been over 70% increase in grain production, mainly due to expansion in cultivated land as well as improvement in land productivity. Land productivity increased by 42% while cultivated land increased by 21% during 2005/06 to 2010/11. This has an important significance to ensuring food security.

Figure 5 Grain production, 2005–2011 (thousand QT)



Source: Computed from EEA 2011 & 2012.

Cereals take the largest share of the total grain production (88%) followed by pulses and oilseeds. Lack of structural change in the smallholder production system can be seen from the distribution of allocation of cultivated land to various commodity groups (figure below). In the cropping year 2009/10, over 70% of the cultivated land was under cereals, leaving the remaining less than 30% of the land to several other crops, with coffee (the major source of foreign earnings) taking only 3.1%.

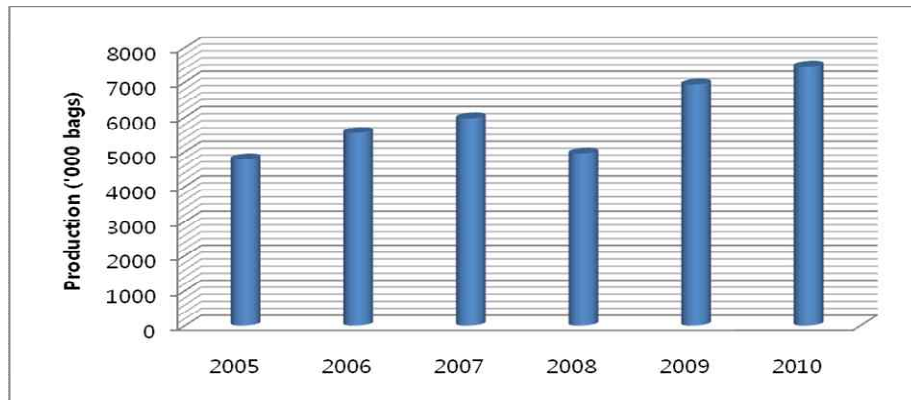
Other than agro-ecological suitability, few major factors may explain why land allocation is largely dominated by cereal crops. Due to the traditional focus of extension and other agricultural support services on cereals as major sources of food security, there has been limited attention to other crops with regard to research, extension, incentives of production- inputs, markets, and prices.



### 3.5. Coffee production

Coffee contributes more than 35% to the country's foreign earning during the period 2002-2009. The production of coffee has been consistently growing over the last few years. The country was the fifth largest producer of coffee in the world in 2011/12.

Figure 6 Coffee production trends in Ethiopia, 2005–2010

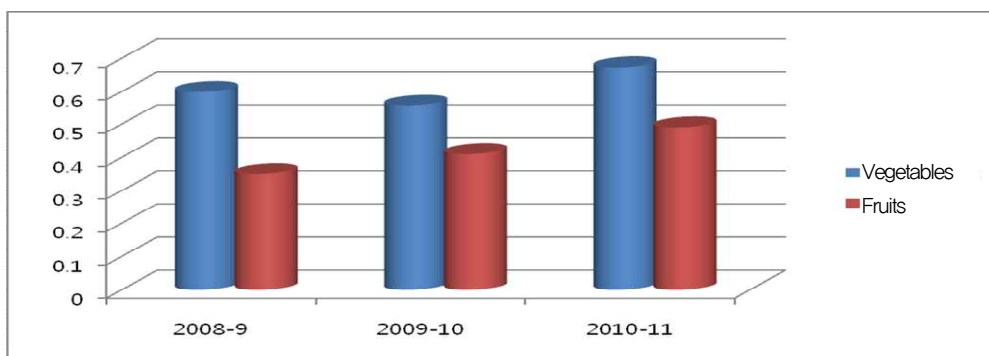


Source: ICO (2011).

### 3.6. Production of fruits and vegetables

Fruits and vegetables are important crops with high potential to transform subsistent agriculture to more market-led production. However, to most Ethiopian smallholders, this subsector is not a main activity. It is only a supplementary to the production of main crops.

Figure 7 Vegetables and fruits production, 2008/9 to 2010/11 (millions of quintals)



Source: EEA (2012).

### 3.7. Livestock production

Livestock is considered as a security during crop failure and additional income for farmers in Ethiopia. There are about 41 million cattle, 14.7 million sheep, 13.7 million goats, 0.5 million camels, 1.5 million horses, 4 million Asses, 42.9 million poultry and 4.6 million bee colonies. A large proportion of cattle and sheep are found in the highlands, while a large number of goats and camels are found in the lowlands. Substantial regional variations have been observed in terms of the distribution of the livestock population. For instance, about 43.3% of the total cattle population was found in the Oromia region, followed by Amhara (25.5%) and SNNP (21.3%) in 2001/02. In pastoral regions such as Afar and Somali, the cattle population accounts for 2.1% of the total, compared to 49.3% of camels. A significant number of cattle found in Borena, a pastoral area of Oromia.

The role of livestock as a source of food is critical for both highland and lowland inhabitants. The main food contributions include, among other things, meat and meat products, milk and milk products, eggs, and honey. In the highlands where mixed farming system is practiced, 26% of the livestock output is used as food, while the rest is marketed. On the other hand in the pastoral areas the consumption is up to 61%, since livestock products are the main source of food in such areas.

### 3.8. Food consumption patterns

In general, there is wide variation in Ethiopia's food consumption patterns, depending on specific geographical and sociocultural characteristics. Due to this wide variety, there is no single crop which dominates the national food basket. Teff is consumed much more frequently in urban areas, whereas in rural areas it is considered a luxury good. In contrast, enset, maize, and sorghum are predominantly rural grains. In general, calorie consumption across Ethiopia is low,

Table 2 Quantity of per capita food consumption in Ethiopia by location (Kg), 2004/05

Location	Teff	Wheat	Barley	Maize	Sorghum	Other cereals	Total Cereals	Enset	Other items	Total foods
Rural	20.1	31.2	14.3	42.2	35.9	8.1	151.7	47.2	133.9	332.9
Urban	61.4	20.2	3.8	10.4	9.3	32.2	137.2	6	126	269.3
National	25.9	29.6	12.8	37.7	32.2	11.4	149.6	41.4	132.9	323.8

but a high percentage of this consumption is coming from cereals.

As incomes in Ethiopia continue to grow, the expectation is that the proportion of money spent on food continues to decline, consistent with current trends. The proportion of income spent on (raw) cereals is high, implying that the purchase of processed cereals and non-cereal food is low. This may be partly due to the underdeveloped food processing market in the country. Policy makers may need to look into this sector as it has potential linkage effects to agricultural growth as well as national food consumption patterns.

Table 3 Share (%) of major cereals in total food expenditures in Ethiopia, 2004/05

Food item	Bottom 40% of income groups		Top 60% of income groups	
	Urban	Rural	Urban	Rural
Teff	17.3	7.9	16.4	7.3
Wheat	6	9.8	4.3	9.5
Barley	1.3	5.5	0.9	4.7
Maize	3.2	11.1	1.2	9.1
Sorghum	2.7	9.9	1.3	8.9
Other cereals	1.2	1.7	0.7	1.7
Processed-cereals	14.3	1.3	11.6	1.6
Total cereals	46	47.3	36.4	43
Enset	0.9	4.4	0.3	5.5

Source: Guush, et.al (2011).

### 3.9. Exports

Ethiopia's major agricultural export commodities include; coffee, oil seeds, chat, fruit and vegetables, flowers, leather, hides and skins, pulses, live animals, meat and others. The average shares of these crops in export earnings during 2002-2009 were: Coffee (35%), Oilseeds (17%), Livestock (11%), Chat (10%), Flower (3.5 %) and Fruit and vegetables (1.49%). The shares of major export partners are in 2009 are: China (10.87%), Germany (9.75%), Saudi Arabia (7.39%), USA (7.21%), Netherlands (6.38%), Switzerland (5.33%), Sudan (4.35%), and Belgium (4%).

## 4. AGRICULTURAL POLICY IN ETHIOPIA

Ethiopia has undertaken a far reaching program of economic reforms over the last 20 years. The reforms have delivered strong economic growth over the last seven years. Although measures of human development have improved, they remain unacceptably low. Poverty and food insecurity is concentrated in rural areas. The poorest sub-section of rural households is unable to meet their basic needs and is chronically food insecure.

Since the mid-1990s the guiding economic development strategy in Ethiopia has been the Agricultural Development-Led Industrialization (ADLI), that sees agriculture as the engine of growth. ADLI envisages an economically transformed society within which agriculture will grow rapidly. The essence of ADLI is that by supporting the smallholder agriculture development, capital and wealth can be created for investment and development of industry and other sectors of the economy. The support for the smallholder agriculture has been devised in terms of massive extension work, technology packages mainly in crop production, livestock production, and land and water resource management.

Besides ADLI, the Rural Development Policy and Strategy(RDPS) developed and adopted in 2004, has guided investment and development efforts in the agriculture and rural economy. This strategy presents specific policies and strategies to guide agricultural and rural development. The Plan for Accelerated and Sustainable development to End Poverty(PASDEP) was implemented from 2005/06 to 2009/10). PASDEP also gave high priority to agriculture and rural development. PASDEP's aim was to : (i) improve implementation capacity; (ii) promote accelerated and sustained economic growth; (iii) manage population growth; (iv) empower women; (v) strengthen infrastructure; (vi) develop human resources; (vii) manage risk and volatility; and (viii) create employment opportunities. In the agricultural sector, the PASDEP called for: (i) market-based agricultural development; (ii) increased private sector investment; (iii) specialized support services for differentiated agro-ecological zones; (iv) improved rural-urban linkages; and (v) special efforts to support pastoral development.

Achieving food security is another important aspect of Ethiopia's development plans. In 2005 Ethiopia began implementation of a more comprehensive approach to this critical issue under its Food Security Program (FSP). In the past much of the support for the chronically food insecure was met through emergency food assistance. This approach was insufficient and unpredictable

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and failed to address underlying causes of food insecurity. A key element of the FSP is the Productive Safety Net Program (PSNP), in which more predictable food and cash transfers are made to chronically food insecure households in return for labor on public works projects, in particular community-based watershed rehabilitation. These investments help to protect and build household assets, while at the same time strengthening the productive base of food insecure areas and help to reduce chronic food insecurity.

The Five-Year Growth and Transformation Plan(FYGTP) for 2010/11 to 2014/15 succeeded both PASDEP and the previous five-year development plan. The FYGTP, which was unveiled for consultations in August 2010, projects continuing economic growth at a minimum of 10 per cent per annum, and an ambitious best-case scenario of doubling GDP over the five year plan period. The plan aims to reach all of the MDGs and to continue to consolidate democratic governance and institutions and maintain the path towards a stable multi-party democratic system. This will be achieved through balanced participation of the state and private sectors and special support for the emerging states to catch up with the more advanced ones. The plan has three major goals: (i) continuing rapid economic growth; (ii) expanding access to, and improving the quality of social services; and (iii) infrastructure development. Agriculture is seen as the key driver of economic development with particular attention given to scaling-up best agricultural practices to provide a foundation forexpansion of the industrial sector.

## **5. OPPORTUNITIES AND CHALLENGES FACING ETHIOPIAN AGRICULTURAL DEVELOPMENT**

Ethiopia is endowed with immense natural resources: vast amounts of agriculturally suitable land; varied agro-climatic zones favorable for raising wide varieties of flora and fauna; readily available water resources that can be used for irrigation and power generation; and a relatively numerous and cheap labor force. However, despite such endowments, the country's economy was stagnant due to the poor performance of the sector (even though there has been positive developments recently), natural calamities, backward farming techniques with low input-output ratio have hampered the sector's development.

## 5.1. Major challenges facing Ethiopian agriculture

Ethiopian agriculture has been suffering from various external and internal problems and its growth has been constrained in many fronts that have led to stagnation. One set of factors contributing to the poor performance of the agriculture sector are land related challenges. These include land degradation, deterioration of soil fertility, problems related to soil acidity and salinity, poor soil management, and land policy related problems.

A second set of challenges relates to production. These include shortage of improved seeds, improved livestock feed and low productive local breeds, pre- and post-harvest losses, declining land size and land fragmentation problems. Natural and ecological problems have also been contributing to the poor performance of the sector. These include natural disasters (drought, flooding, diseases), excessive diversity in agro-ecology, soil erosion, heavy dependence of agriculture on seasonal rainfall (only less than five percent of the irrigable land is under irrigated agriculture).

Finally, poor institutional support schemes have also been blamed for the poor performance of the agricultural sector. For instance, poor agricultural marketing system, limited implementation capacity and limited private sector participation, shortage of adequately trained human resource, inadequate infrastructure are some of the institutional related constraints.

Since the mid-1990s, the government has given huge attention to the development of the agricultural sector. Accordingly, there have been a number of developments and opportunities, which have been positively contributing to the development of the sector.

## 5.2. Opportunities

Firstly, there is a conducive policy framework. Such a conducive policy environment includes primarily government's commitments to eliminate poverty and dedication to economic progress through giving priority to the agricultural sector development. Other internal enabling conditions include: the ongoing National Capacity Building Program, successful on-going sector development programs; domestic resource mobilization effort which is currently underway, the opening up of the environment for private investment and business activity. On the other hand, there are also external conditions which are favorable to the sector development. These include the global initiatives for scaling up aid to LDCs and debt relief, good climate for foreign invest-

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ors in highland crop production like floriculture, and government commitment to encourage foreign investors through incentives and protection.

With regard to infrastructural development, there have been favorable developments in the country. These include, increased public investment in the sector, the cumulative effects of past investments on human development and physical infrastructure, the construction of Renaissance Dam on Blue Nile which can reduce the problem of power shortage and irrigation water.

Other opportunities include the development potential such as the natural resource endowments, the large untapped domestic market and labor force all of which are under exploited; the potential impact of agricultural transformation agenda and on-going food security programs, expansion of education and awareness creation.

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