Introduction to agriculture, livestock, forestry, energy and water & sanitation sectors in Ethiopia

Agriculture, livestock and forestry sectors

Main public organizations

- Government of Ethiopia (GoE)
- Ministry of Agriculture and Natural Resources (MoANR)
- Ministry of Livestock & Fisheries (MoLF)
- Agricultural Transformation Agency (ATA) to address systemic bottlenecks in the agriculture sector

Opportunities and challenges in agriculture

Ethiopia is endowed with abundant agricultural resources and has diverse ecological zones. Agriculture is the ***backbone of Ethiopia's economy***, accounting for 42% of GDP, nearly 80% of employment, and 85% of exports. The combined output of the sector is largely generated from the exports of coffee, sesame, vegetables, beans, oilseeds and dry salted sheep skins.

Facts on agriculture

- 100+ crop types produced nationwide
- Yield of all crops has grown in recent years, especially cereals, whose yield grew from 1,446 kg/hectare in 2008, to 2,325 kg/hectare in 2014
- Twice-yearly rainfall (March and June-September) allows for multiple crops to be produced; coupled with irrigation schemes, year-round double/rotational cropping is possible.
- Several crops are already exported (fruits and vegetables, flowers, coffee, sesame) and others offer export potential (tef and maize). The top 3 agricultural exports include coffee, sesame, and fruits and vegetables

Generally, Ethiopian agriculture is characterized by small-scale, rain-fed farming with limited use of modern inputs. On average, 83% of rural households cultivate crops on less than 2ha per household and 52% on less than 1 hectare.

Challenges in agriculture include

- Subsistence farming leaves little marketable surplus; majority of farmers are smallholders who practice low input/low output farming.
- Techniques are outdated and often unsustainable.
- Heavy reliance on erratic rainfall, which often leads to high levels of loss.
- Limited mechanization makes farming labor-intensive and time-consuming

Over the last 20 years, the Federal Government of Ethiopia (GoE) has prioritized the transformation of the agricultural sector. GOE has identified increasing productivity of smallholder farms and expanding large-scale commercial farms as two of its priority areas. In addition, as part of the second Growth & Transformation Plan (GTP II), the government is looking to the agro-processing sector as one engine to

spur future economic growth. Strategies have been designed to increase agricultural production, improve nature resource management, improve disaster prevention and preparedness capacity, and widen access to agricultural markets to ensure food security. This includes the shift to produce high-valued crops to support the development of large-scale commercial agriculture. The government has identified over 3 million hectares of land to transfer to investors to establish large-scale commercial farms, through the Agricultural Investment Agency.

According to FAO, Several products show significant potential for investment. Downstream industries (processing agricultural products such as dairy, edible oil processing, beverages, meat processing, coffee and tea processing, textiles and garments, leather products, wood and wood processing, paper and paper products, rubber products and biofuel products) offer business opportunities in the range of USD 3.6 billion per year and upstream industries (supplying inputs to farmers such as fertilizer, seeds, irrigation system, agricultural equipment, cold storage and pesticide) offer business opportunities in the range of USD 0.5 billion per year.

Ethiopia has also prepared an economy-wide climate policy, known as the Climate Resilient Green Economy (CRGE) Strategy. The CRGE Strategy was initiated in recognition of the vulnerability of the country to climate change impacts and the compelling need for greening Ethiopia's economy. As Ethiopia's economy is largely dependent on weather sensitive agriculture and hence vulnerable to climate change impacts, it is in the interest of the country to participate in the global efforts to curb climate change. The government of Ethiopia has taken the bold step of shifting the development paradigm from a carbon intensive approach to a carbon neutral and climate resilient pathway.

Growth and Transformation Plan II (2015-2020) for agriculture

GTP II currently provides the roadmap for Ethiopia's over all development agenda, with a strong emphasis on agriculture as the backbone of economic development. The following strategic directions will be pursued in the next generation of transformation and sustainable development plan for Agriculture and Rural Transformation:

- development of smallholder crop and pastoral agriculture will be further enhanced;
- Provide all rounded support to educated youth to enable them organize and engage in agriculture investment;
- Enhance provision of the necessary support for domestic and selected foreign investors taking their capacity into consideration to enable them participate in transformative agriculture sub sectors
- Further pursue implementation of the scaling up strategy as suitable to the various agro-ecological development zones;
- Pursue holistic measures aimed at addressing constraints and challenges related to supply of agricultural inputs and utilization of agricultural technologies.

Rural land use and administration

The lack of a comprehensive land use polity framework in Ethiopia has resulted in a certain confusion on appropriate utilization of agricultural land, resulting in continued negative environmental effects and land degradation; and, unabated land conflicts among different sectors and community groups due to competing land use requirements. Unlocking systemic bottlenecks in the area of land administration (including the use of modern and cost efficient land registration modalities and more effective land certification processes) is expected to promote more sustainable land use by farmers. Additionally, given that land certification serves to formalize farmers' land rights, it will also encourage longer term investments on land.

Opportunities and challenges in livestock

Ethiopia is home to one of the ***largest livestock populations in Africa***. According to government statistics, there are approximately 50 million cattle, 50 million goats and sheep, plus an assortment of horses, donkeys, camels and chickens.

Livestock production plays an important role in Ethiopia's economy. Estimates indicate that livestock production contribute one-third of agriculture's share of GDP, or nearly 15 percent of total GDP.

Facts on livestock production

- 180+ domestic animals; biggest cattle population in Africa.
- Existing exports of beef and live animals, especially to the Middle East and North Africa.
- Growing domestic demand for meat and dairy.
- Animals used for agricultural labor in the absence of mechanization.
- Large leather industry –domestic production and consumption, as well as export.

Challenges

- Areas with high livestock populations tend to be arid and prone to drought.
- Limited access to livestock inputs such nutritious food and fodder; improved genetic stock; and veterinary services
- Increasing livestock population demands more grazing ground, which can degrade vegetation and natural resources.
- Low levels of production of animal products with limited quality standards.

The GOE, as part of its Livestock Master Plan (LMP, link below), intends to transform this sector and increase production and exports of meat in order to generate foreign exchange. The LMP also calls for increases in dairy, chicken (i.e. broiler), and egg production to satisfy increasing consumer demand for affordable livestock proteins.

Ethiopia's commercial red meat (beef, mutton and goat) industry has made remarkable progress to date and shows considerable growth potential for the future. The GOE encourages investments in meat processing, especially those that are focused on exporting value-added products abroad. A large chunk of this commercially-produced red meat, most of which is currently mutton and goat meat is largely going for export to the Middle East in order to generate foreign exchange. Beef exports are also growing, with additional market opportunities on the horizon.

In addition to red meat, there are emerging opportunities in chicken, egg, and dairy production and processing.

Sources and further reading

- Ethiopian Government Portal
- Ethiopia's Climate-Resilient Green Economy (2013)
- Growth and Transformation Plan II (GTP II) (2015/16-2019/20) for guiding Government investment and policies from 2015-2020
- Ethiopia livestock master plan (August 2015)
- Ethiopia livestock Master Plan (Slideshare)
- Ethiopian Agriculture and Strategies for Growth (November 2017)
- US government overview on Ethiopian agriculture (June 2017)
- US government overview on Ethiopian livestock (June 2017)
- The Next Stage in Dairy Development for Ethiopia (November 2010)
- FAO in Ethiopia
- Rural Land Use & Administration by ATA

Opportunities and challenges in forestry sector

Ethiopia's current forest policy and strategy aim is to meet public demand in forest and forest products and to enhance the socio-economic and environmental contribution of forests.

The forestry sector in Ethiopia contributed over 893 million USD to the economy in 2011, which is approximately 3.2 percent of the GDP. The share of forests to the country's rapidly growing economy is expected to rise, as more forest products are needed in the years to come, if well managed.

Ethiopia is suffering from deforestation. Depending on the source, 3% (by Woody Biomass Inventory and Strategic Planning Project) to 11% (FAO) of the total land area is now covered by forest. The disappearance of the forests has been most drastic during the past 100 years. In the beginning of the 1900s, the forested area of the country was estimated at about 40% (EFAP, 1994).

There are two main reasons for deforestation.

- The main cause is the expansion of Ethiopia's small-scale agriculture that necessitated the clearing of forests to make way for agricultural lands.
- Biomass fuel is the other factor, as the dominant energy source for rural households in the country is firewood and charcoal. This subsequently has led to the unsustainable harvesting of forests for the production of this biomass fuel.

Additionally, the country's capital city of Addis Ababa, already home to about 3.4 million people, is expanding outward and impacting forestland in its periphery. And a legacy of poor forest management has long plagued Ethiopia's efforts to protect and manage indigenous tree species and the habitat in which they grow. Forest fires and illegal logging are less significant reasons for deforestation.

The federal and regional governments of Ethiopia recognize the economic and social values of forests and support their conservation and management for sustainable use. However, there is no

comprehensive federal policy that covers either land use or forest management. Currently, the forestry sector at a federal level has a lower organizational profile in the Ministry of agriculture. Budget allocations and staff resources are often inadequate to monitor forest resources effectively and to ensure sustainable management.

However, something has been done. Recent successful forest preservation projects in Ethiopia notably includes a Participatory Forest Management (PFM) scheme pioneered by Farm Africa close to 20 years ago. Launched in collaboration with local and international partners, PFMs have led to the preservation of close to 1 million hectares of natural forest in Ethiopia. The scheme benefits the livelihoods of communities who rely on the forests areas.

Today, PFMs are formally recognized in forest proclamations of Ethiopia's federal government and several regional states. Despite the program's encouraging success in some areas (like Oromia), many other locations in Ethiopia still continue to experience deforestation at an alarming rate, especially in the north, northeastern and northwestern parts of the country.

In April 2015, Ethiopian officials announced to local media that the country's forest coverage had increased 15 percent, with a 4 percent increase over just a decade. Some experts cast doubt on the 15 percent figure, though, stating that it is difficult to judge whether the forest coverage in Ethiopia is increasing or decreasing. According to REDDdesk.org, the average deforestation rate can be estimated at somewhere between 1.0-1.5 percent annually. Accurate forest data in Ethiopia has long been problematic, due in part to conflicting data sources and differing classifications between natural forests and plantations.

Sources and further reading

FAO: Current status of the forestry sector (2018)

FAO: Participatory Forest Management in Ethiopia (2013)

Energy and water sectors

Main public organizations

- Government of Ethiopia (GoE)
- Ministry of Water, Irrigation and Electricity (MoWIE)

Opportunities and challenges in energy sector

Ethiopia has abundant renewable energy resources and has a potential to generate over 60,000 megawatts (MW) of electric power from hydroelectric, wind, solar and geothermal sources. Despite Ethiopia's huge energy potential, the country is experiencing energy shortages as it struggles to serve a population of over 95 million people and meet growing electricity demand which is forecasted to grow by approximately 30% per year.

Approximately 90% of the installed generation capacity is from hydropower while the remaining 8% and 1% is from wind and thermal sources respectively. The hydro dominated systems has been severely

affected by drought, and the Government of Ethiopia (GOE) is now diversifying the generation mix with other sources such as solar, wind and geothermal that will result in a more climate-resilient power system.

The Grand Ethiopian Renaissance Dam (GERD), with a 6,000 MW generation capacity, is reportedly 60% completed. Ethiopia is exporting electricity to Djibouti (up to 60 MW) and to Sudan (up to 100 MW) and has concluded power export deals with Kenya and South Sudan. Construction of an Ethio-Kenya-Tanzania transmission line is expected to be completed in 2018. Ethiopia has plans to export up to 400 MW of electricity to Tanzania.

The GOE recognizes that engagement with the private sector as Independent Power Producers (IPP) for power generation is crucial to meet the country's needs. Ethiopia Electric Power (EEP) is developing procurement processes to select contractors and is awarding projects using a competitive bidding process.

According to the revised Master Plan, Ethiopia's average solar energy potential is 5.5 KWh/m2/day and mainly centralized in the north part of the country in Tigray and Afar regions.

Sources and further reading:

Ethiopia – Energy by US Department of Commerce (2017)

Ethiopian Electric Power Company's website

THE ETHIOPIAN ENERGY SECTOR – INVESTMENT OPPORTUNITIES (2015)

Renewable Energy Projects in Ethiopia (2014)

Ethiopian Government Portal

Growth & Transformation Plan (GTP II) for guiding Government investment and policies from 2015-2020

Opportunities and challenges in water and sanitation sectors

The economy of the country is highly dependent on agriculture, which is in turn dependent on the availability of seasonal rainfall. Agricultural activity is by far the largest consumer of water in Ethiopia. An estimated 93 percent of all water withdrawals in the country (surface water and groundwater) are for agricultural use, much higher than the global average of 70 percent. However, water withdrawn for agriculture represents only an estimated four percent of the overall country's available renewable water resources.

Although the country's ***renewable surface and ground freshwater*** amounts to 123 and 2.6 billion cubic metres per annum, respectively, its ***distribution in terms of area and season does not give adequate opportunity for sustainable growth to the economy***. The intensity of recurrent droughts affects the livelihoods of agricultural communities and the whole economy. Even in a year of good rain, the occurrence of floods affects the livelihoods of riparian residents with little capacity to neither protect

themselves from the seasonal flood nor mitigate the impact. Excess water is also responsible for the soil erosion in the highlands.

61 million Ethiopians lack access to safe water and 65 million lack access to improved sanitation. Of those who lack access to improved sanitation, a staggering 27 million practice open defecation.

The Government of Ethiopia aims to increase access to safe water supply and basic sanitation in rural and urban areas and to invest more resources into water related infrastructure.

According to Growth and Transformation National Plan II, the main challenges of the water sector include;

- There is no adequate overall (government, private and community) capacity to fulfill and manage the growing water supply demand in line with the socio-economic development of the country.
- Even though there are attempts to improve good governance in urban water supply, still there are significant problems in this regard coupled with significant water supply leakage.
- There is no coordination mechanism with the relevant stakeholders in urban master plan development to properly incorporate water supply and sanitation infrastructures in the plan.
- Significant quantity of construction materials and equipment required in this sector are imported from overseas demanding foreign currency and taking long time.
- As the country's topography is rugged and mountainous in most parts of the country, rural settlement is dispersed making water supply delivery with piped system extremely difficult.
- Safe water supply sources are getting far from settlements because of groundwater depletion and pollution.

In the Second Growth and Transformation National Plan for the Water Supply and Sanitation Sub-sector (2015/16- 2019/20), prepared by Ministry of Water, Irrigation and Electricity of Ethiopia, the core strategic directions of GTP-2 include, inter alia:

- Upgrade the water supply service infrastructure to the level of middle-income countries by 2020.
- Increase the water supply access coverage upgrading the service level.
- Ensure good governance improving sustainability, effectiveness and efficiency of water supply services.
- Build the water sector's implementation capacity.
- Build effective and efficient civil service development army through strengthening the civil service reform program.
- Establish urban wastewater management system.
- Encourage use of labor intensive low cost technologies using renewable energies such as wind and solar and utilize piped system water supply technologies in urban areas and in rural areas where there are significant number of settlers such as kebele centers.
- Facilitate enabling environments for the private sector to import substitution manufacturing.

Sources and further reading

Second Growth and Transformation National Plan for the Water Supply and Sanitation SubSector (2015/16 – 2019/20)

Water sector by Embassy of Finland

Business opportunities in Ethiopia in the water and sanitation sector (2017) by Finpro

Ethiopia's water and sanitation crisis (2018) by Water.org

Ethiopia – water by USAID