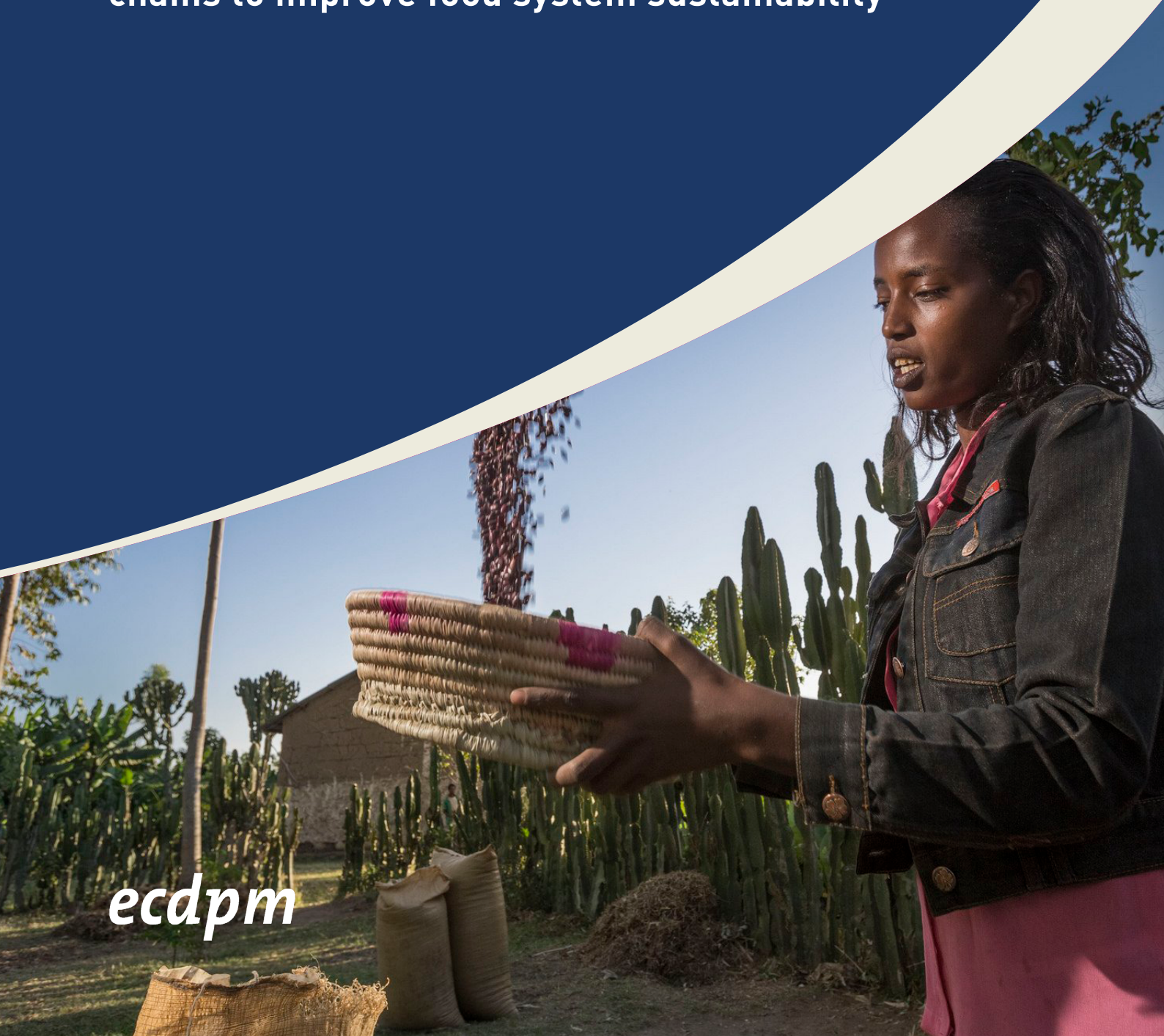
Food and Agriculture Organization of the United Nations

AgrInvest-Food Systems Project

Political economy analysis of the Ethiopian food system

Key political economy factors and promising value chains to improve food system sustainability



ecdpm

AgrInvest-Food Systems Project
Political economy analysis of the Ethiopian food system

Key political economy factors and promising value chains to improve food system sustainability

Authors: Sean Woolfrey, Paulina Bizzotto Molina and Martin Ronceray
European Centre for Development Policy Management (ECDPM)

Contributors: Massimo Pera, Milica Petruljeskov, and Margherita Bavagnoli
The Food and Agriculture Organization of the United Nations (FAO)

Food and Agriculture Organization of the United Nations
Rome, 2021

Required citation:
Woolfrey, S., Bizzotto Molina, P. and Ronceray, M. 2021. AgrInvest-Food Systems Project – Political economy analysis of the Ethiopian food system. Key political economy factors and promising value chains to improve food system sustainability. Rome, FAO. https://doi.org/10.4060/cb3255en

ISBN 978-92-5-133943-5

Cover photograph:
©FAO/Petterik Wiggers

Abstract

This study aims to inform the implementation in Ethiopia of the AgrInvest-Food Systems Project, a collaboration between the Food and Agricultural Organization of the United Nations (FAO) and the European Centre for Development Policy Management (ECDPM) to promote private investment in African food systems that contributes to sustainable development objectives. The study analyses the Ethiopian food system, identifying and explaining notable trends, important socio-economic, food security and nutrition and environmental outcomes generated by the food system, as well as the structural factors, institutions and actors that shape food system outcomes in Ethiopia. These outcomes reflect a number of sustainability challenges hampering the food system and its contribution to sustainable development in Ethiopia, including increasing land pressures, high levels of rural poverty, growing youth under-employment, gender inequality, persistent food insecurity and malnutrition, reduced biodiversity and the loss of ecosystem services, especially due to land degradation and deforestation, and weak resilience to climate change. Based on this analysis and on recent efforts to prioritise specific agri-food value chains in Ethiopia for focusing policy interventions and public and private investment, the study then identifies dairy, fruit and vegetable and pulses value chains as particularly promising ones on which to focus interventions to facilitate investment to achieve a sustainable impact. Digging deeper, the study concludes by analysing the commercial potential, relevance to sustainability objectives, political traction and potential pathways for impact from investment in these value chains, presenting this analysis as the basis for further engagement with Ethiopian stakeholders under the AgrInvest-Food Systems Project.

Contents

Figures

Tables

Boxes

Acknowledgements

This scoping study was prepared by Paulina Bizzotto Molina, Martin Ronceray and Sean Woolfrey of the European Centre for Development Policy Management (ECDPM), with support from Ayalew Abebe Ferede, AgrInvest-Food Systems Project Consultant to the Food and Agriculture Organization of the United Nations (FAO) Ethiopia country office. The authors benefited from the insights of a number of experts based in Ethiopia, including researchers from the International Food Policy Research Institute (IFPRI) and Addis Ababa University, and officials and representatives of the Ethiopian Investment Commission (EIC), the Agricultural Transformation Agency (ATA), AgriProFocus, CARE, SOS Sahel, the Strengthening African Rural Smallholders (STARS) and Bilateral Ethio-Netherlands Effort for Food, Income and Trade (BENEFIT) Partnership projects, the EU Business Forum in Ethiopia and the SNV Netherlands Development Organisation. The authors also received valuable feedback on earlier drafts of this study from Bruce Byiers (ECDPM), Margherita Bavagnoli, Massimo Pera (both FAO Rome office), and Pie Njinginya and Giacomo Casari (both FAO Ethiopia office). Assistance with the layout was provided by Alex Beijers and Inna Perova (ECDPM).

Abbreviations and acronyms

ACPZ	Agricultural Commercialisation Cluster
ATA	Agricultural Transformation Agency
COVID-19	The coronavirus disease of 2019
EABC	Ethiopian Agricultural Businesses Corporation
ECDPM	European Centre for Development Policy Management
EDRI	Ethiopian Development Research Institute
EHPEA	Ethiopian Horticulture Producers Exports Association
EIAR	Ethiopian Institute of Agricultural Research
EIC	Ethiopian Investment Commission
GoK	Government of Kenya
EPRDF	Ethiopian People's Revolutionary Democratic Front
ECX	Ethiopia Commodity Exchange
MOALF	Ministry of Agriculture, Livestock and Fisheries
FAO	Food and Agriculture Organization of the United Nations
SACCO	Savings and Credit Cooperative
FOLU	Food and Land Use
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GTP	Growth and Transformation Plan
IAIP	Integrated Agro-Industrial Park
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
ITC	International Trade Centre
MFI	Microfinance institution
MW	megawatt
PSNP	Productive Safety Net Programme
SDG	Sustainable Development Goal
SNNPR	Southern Nations, Nationalities, and Peoples' Region
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollar
WFP	World Food Programme
WHO	World Health Organisation
WUR	Wageningen University & Research

Executive summary

Ethiopia's evolving food system

Ethiopia's food system is crucial to the country's pursuit of sustainable economic development. The country's smallholder-dominated agriculture sector contributes a third of gross domestic product, provides livelihoods for three-quarters of the population and is the country's major foreign exchange earner. Agriculture is also an essential source of inputs for Ethiopia's growing manufacturing and services sectors, with food distribution, processing and retail representing important activities in these sectors.

Driven by population growth, urbanisation, growing incomes and improving infrastructure, Ethiopia's food system is evolving from a traditional system characterised by subsistence farming and localised value chains, to a 'transitional' one characterised by longer value chains, the increased importance of markets, growing urban demand and emerging quality standards. Nonetheless, the food system continues to be characterised by high levels of informality in agricultural production, trade and retail.

Agricultural production in Ethiopia has grown rapidly due to the expansion of cultivated land and the intensification and modernisation of agriculture in the country. Agricultural surpluses are generating structural changes in agri-food value chains, as producers and consumers become more reliant on markets. Ethiopia is also witnessing the emergence of modern food marketing methods, technologies and systems, reflected in the increased use of mobile phones, the establishment of a commodity exchange, a growing (but still small) modern food service sector and increasing differentiation in food retail markets. Growth and transformation are also occurring in food trading and transport, processing, distribution and retail, with such activities becoming increasingly important sources of employment and livelihoods.

Diets are also changing. Ethiopians are consuming more calories, and the dominance of starchy staples in household food consumption is declining as consumption of high-value products such as meat and dairy products and fruits and vegetables increases, albeit from a low base. In addition, Ethiopians, particularly in urban areas, are eating more processed and convenience foods, including meat- and wheat-derived products, and eating outside of the home more often. As the share of urban population increases, the dietary preferences of urban populations are likely to become more dominant.

Sustainability challenges in the Ethiopian food system

These ongoing transformations - currently taking place against a backdrop of interrelated political, security and health crises - are having, and will continue to have, significant impacts on the socio-economic, nutritional and environmental outcomes generated by the Ethiopian food system. Some of these outcomes pose critical sustainability challenges for Ethiopia.

For example, despite recent production and productivity growth, and the positive impact this has had on poverty, agriculture in Ethiopia is still predominantly subsistence-based, dependent on rainfall and vulnerable to frequent droughts. Consequently, rural poverty remains significant, and food insecurity, though declining, persists, especially among rural women and children. Despite changing diets, household consumption remains dominated by starchy staples, especially among the rural poor. Lack of dietary diversity and underconsumption of nutritious foods such as fruits and vegetables contribute to persistently high levels of malnutrition in Ethiopia.

Various barriers lead to lower levels of agricultural productivity among female-headed farming households, reinforcing broader gender inequality in the country. Meanwhile, Ethiopia's rapidly growing and largely rural population is generating increased pressure on the country's available land. Growing numbers of youth are finding themselves landless and underemployed, which in turn contributes to rural-urban migration and to political unrest and instability. Conflict over land has also arisen in the past from large-scale agricultural investments that displaced local populations. This has led to a de facto moratorium being placed on such investments.

Against a backdrop of climate change and a rapidly growing population, agricultural expansion has caused significant damage to the country's natural resources, by way of soil erosion, land degradation, deforestation and increased pressure on water availability in agricultural areas. Clearance of natural forests, overgrazing by livestock, water pollution and increased use of agrochemicals have all contributed to biodiversity and ecosystem loss, increasing the vulnerability of many Ethiopians to food and water insecurity, and reducing climate resilience.

Given the agroclimatic and socio-economic dynamics driving the Ethiopian food system, and the interests of key stakeholders in the system, there is significant opportunity for private investments in Ethiopia's agri-food value chains to support the country's agricultural transformation and commercialisation objectives. Yet there are also plenty of obstacles to attracting such investment. Given the sustainability challenges highlighted here, there is also a need to identify and exploit opportunities for investments that can have a positive impact on the socioeconomic, nutritional and environmental sustainability of the Ethiopian food system.

Promising entry points for sustainable investment in the Ethiopian food system

Based on a review of past analysis and interviews with various Ethiopian food system experts, as well as a bespoke methodology, three sets of agri-food value chains are found to be particularly promising in terms of the opportunities they present to attract private investment that can generate positive sustainability impacts.

Ethiopia's emerging **dairy value chains** display significant commercial potential due to increasing local demand for dairy products, current supply gaps and potential for improved yields. Investment in dairy value chains can contribute to improving rural and peri-urban livelihoods, including for women, given their prominent role in dairy production, while increased consumption of dairy products can help address malnutrition and micronutrient deficiencies. There is also strong government backing for promoting the dairy subsector, and Ethiopia's agro-industrial parks present opportunities for investing in dairy processing.

Fruit and vegetable value chains are also promising. Growing local demand for fruits and vegetables means high prices on the local market, and there is significant export potential for products such as avocados, as well as underutilised irrigation potential and abundant cheap labour. Fruit and vegetable production can create jobs, including processing jobs for unskilled workers and for women, while increased consumption of fruits and vegetables can help address the lack of dietary diversity. Meanwhile, investing in reducing post-harvest losses, agroforestry systems and/or more appropriate use of agro-chemicals can have a positive impact on Ethiopia's natural environment. Processing horticulture products for export is strongly encouraged by the Ethiopian government, and there are opportunities for investment in tomato and avocado production in the country's Agro-Commodity Procurement Zones (ACPZs), attached to its flagship agro-industrial parks.

There is also significant commercial opportunity for investment in Ethiopia's **pulses value chains**, in production (especially for export), contract farming, input supply, processing and trading. Such investments could improve the livelihoods of smallholder farmers as they boost Ethiopia's foreign exchange earnings. Pulses are also highly nutritious, and increased consumption can help tackle persistent food insecurity and malnutrition in Ethiopia. Pulses also play an important role in sustainable land management, by improving soil fertility, reducing soil and water erosion, and improving climate resilience. Given these advantages, the Ethiopian government is increasingly promoting investment in pulses, including through the National Pulses Strategy and through its ACPZs and agro-industrial parks. Investments in pulses can build on large-scale programmes to boost exports to Asia as well as efforts to exploit opportunities to supply regional markets.

1. Background, context and approach

1.1 The AgrInvest-Food Systems Project

In developing countries, and particularly in Africa, farmers, processors and other actors in food systems struggle to access the finance needed to accelerate progress towards the Sustainable Development Goals (SDGs) and to increase their resilience to global shocks. The inability of financial institutions and private investors to identify profitable opportunities within food systems is just one of the barriers that hinder investment. The AgrInvest-Food Systems Project, financed by the Italian Ministry of Foreign Affairs and International Cooperation, is a collaboration between the Food and Agricultural Organization of the United Nations (FAO) and the European Centre for Development Policy Management (ECDPM) to promote investments in African food systems that contribute to sustainable economic growth and boost rural employment, particularly for women and young people. The project, implemented in Burkina Faso, Ethiopia, Kenya and the Niger, analyses food systems and agri-food value chains at national level, seeks innovative ways to promote private sector financing while encouraging investments that help improve the sustainability of local food systems, and convenes and facilitates meetings, fora, events, and fairs to bring together value chain stakeholders, private investors and public actors. The project also works to create a conducive environment for private investment and shares knowledge to promote sustainable investments for food system transformation across Africa.

1.2. This scoping study

1.2.1. Objectives

To inform the implementation of the AgrInvest-Food Systems Project in Ethiopia, this study aims to improve understanding of the context for promoting sustainable private investment in the Ethiopian food system and to identify promising entry points for interventions to facilitate such investments. Using the ECDPM's methodological approach for food systems analysis (Dekeyser *et al.*, 2020), the study provides a snapshot of the major socio-economic, nutritional and environmental outcomes of the Ethiopian food system, identifying crucial sustainability challenges, and analyses the major political economy dynamics (structural drivers, institutions and actors) influencing investment in the food system. Building on this analysis, the study identifies promising agri-food value chains, and assesses them to identify entry points for further work under the AgrInvest-Food Systems Project. By using political economy analysis to understand the drivers of investment in the Ethiopian food system, the study seeks to lay the groundwork for adopting a politically astute approach to facilitating private investment in the food system under the AgrInvest-Food Systems Project.

1.2.2. Approach and limitations

This study was conducted through a desk-based literature review and remote (virtual) interviews with Ethiopia-based experts between June and October 2020. This was a time of rapidly changing dynamics. The global COVID-19 pandemic disrupted processes, made most physical meetings impossible and put international stakeholders in crisis mode. Moreover, the political situation in Ethiopia at the time of writing is one of transition. The key processes of economic and agricultural policymaking have been suspended until after elections, originally due in 2020 but postponed to next year. Uncertainty around these elections is compounded by civil unrest, including widespread protest movements that triggered a month-long internet shutdown with a further disruptive impact. However, Ethiopian stakeholders are by now well accustomed to working in emergency situations: crisis management has become a form of routine for many, and it does not preclude policymaking and the development of initiatives relating to investment and agriculture. That said, the volatile situation does mean that some of the findings of the study may only be valid in the short-run, and should be taken as a snapshot of the situation in 2020.

2. Mapping the food system in Ethiopia

Agriculture is a key sector in Ethiopia, contributing more than a third of gross domestic product (GDP), providing livelihoods for around three-quarters of the population and generating the vast majority of the country's foreign exchange earnings. Food production is dominated by smallholder farmers, who together produce more than 90 percent of the country's agricultural output (Ayele *et al.*, 2019). Over three-quarters of cultivated land is used for cereals, the main source of food and income for most smallholders. Government policy has generally focused on smallholder agriculture development, with a more recent focus on larger commercial farms. Despite recent production and productivity growth, and the positive impact this has had on poverty, agriculture in Ethiopia is still predominantly subsistence-based, dependent on rainfall and vulnerable to frequent droughts (ibid.). Consequently, the country remains relatively food insecure, a situation that has been exacerbated by the impact of the COVID-19 pandemic. Nonetheless, there is huge potential for further agricultural growth and transformation in Ethiopia, including through agricultural expansion in parts of the country's lowlands and by increasing the very low levels of irrigation, mechanisation and use of improved seeds and other inputs by Ethiopian farmers. Investment in Ethiopia's food system could generate improved livelihoods and nutrition, solving chronic poverty and food insecurity in the country.

2.1. A rapidly evolving food system

Driven by rapid population growth and increasing urbanisation, growing incomes and investments in infrastructure, Ethiopia's food system is evolving from a 'traditional system' characterised by subsistence farming, low levels of urbanisation and localised value chains, to a 'transitional system' characterised by longer value chains, the increased importance of markets, growing urban demand and emerging quality standards (Minten *et al.*, 2018). This evolution involves transformations in food production, in food marketing and supply chains and in changing diets.

There has been significant **growth in agricultural production** in Ethiopia, resulting from an expansion of land under cultivation[1] and improving yields due to increased use of modern inputs. The **intensification and modernisation** of Ethiopian agriculture is being driven by the increasing availability of agricultural extension agents, improved market access, better price incentives and higher farmer education levels (ibid.). This process is reflected in the rapid growth in the use of chemical fertilisers and pesticides by Ethiopian farmers, which generates a 'trade-off' in terms of increasing risks to human and environmental health from over- and misuse of agrochemicals. The Ethiopian government has put **increasing emphasis on promoting large commercial farms** to stimulate agricultural production, particularly for export; however, the role of such farms in agricultural production remains relatively small[2]. Meanwhile, **smallholder farmers are facing increasing land constraints** due to a growing population. Farm sizes are declining and younger farmers are increasingly having to rent land to farm (ibid.).

Growing agricultural commercial surpluses are generating structural changes in food supply chains, as **producers and consumers are becoming more reliant on markets** (ibid.). Ethiopia is witnessing the **emergence of modern food marketing methods, technologies and systems**, reflected in the increased use of mobile phones, the establishment of a commodity exchange, a growing (but still small) modern food service sector and increasing differentiation in food retail markets (ibid.). **Spatial and seasonal price margins are shrinking** as markets become better integrated and storage conditions improve. Ethiopia is

[1] Total agricultural area increased by 40 percent between 2004 and 2016 (Posthumus *et al.*, 2018).

[2] Such farms account for about 7 percent of all cultivated land in Ethiopia (Minten *et al.*, 2018).

also experiencing **growth and transformation in food trading and transport, processing, distribution and retail**, with such activities becoming increasingly important sources of employment and livelihoods (ibid.). However, **the real price of non-cereal foods is increasing**.

Diets are also changing. Ethiopians are consuming more calories, while the dominance of starchy staples (particularly domestically grown cereals) in household food consumption is declining as consumption of high-value products such as meat and dairy products and fruits and vegetables increases, albeit from a low base (Posthumus *et al.*, 2018). Ethiopians, particularly in urban areas, are eating more processed and convenience foods, including meat and wheat-derived products, and eating outside of the home more often, developments typically seen as incomes rise. As the share of the urban population increases rapidly (although from a very low basis of around one in five Ethiopians), the dietary preferences of urban populations are likely to become more dominant (Minten *et al.*, 2018).

These ongoing transformations are having, and will continue to have, significant impacts on the socio-economic, food security and nutrition and environmental outcomes generated by the Ethiopian food system. These outcomes, and the sustainability challenges they pose, are presented in Section 2.2 below. In many cases, these outcomes also reinforce broader dynamics, such as growing incomes, trade deficits and gender inequality, that are themselves important 'drivers' of food system outcomes in Ethiopia. These drivers are examined in Section 2.3.

2.2. Food system outcomes and sustainability challenges

2.2.1. Socio-economic outcomes

Economic output and growth. Agriculture has traditionally been the biggest sector of the Ethiopian economy, as well as a crucial source of inputs for the manufacturing and services sector. While the share of agriculture[3] value added in Ethiopia's GDP declined from 45 percent in 2000, to 34 percent in 2019, reflecting Ethiopia's ongoing structural transformation,[4] the value of Ethiopia's agricultural production grew almost tenfold[5] (in nominal terms) over that period[6], contributing greatly to Ethiopia's impressive recent economic growth. As well as agricultural production, food distribution, processing and retail are important subsectors of Ethiopia's services and manufacturing sectors. The impact of the COVID-19 pandemic has led to declines in the contributions of agriculture and food processing to Ethiopia's GDP during 2020 (WUR, 2020).

Poverty alleviation. Along with improved infrastructure and connectivity, growth in agricultural production has been a major contributor to poverty reduction, particularly in rural areas, as the number of Ethiopians living below the poverty line decreased from 44.2 percent in 2000 to 23.5 percent in 2016 (Ayele *et al.*, 2019; Bachewe *et al.*, 2016). The declining share of food items in the overall consumption basket (even if Wwol spending on food has increased) reflects improving welfare in the country (Minten *et al.*, 2018). It is estimated, however, that between 2 and 4 million Ethiopians will fall into poverty as a result of COVID-19 and its impact on the Ethiopian economy (WUR, 2020).

Dependence on international food markets. Despite growing agricultural production, Ethiopia's reliance on agricultural imports has grown over the past two decades, with imports increasing from USD 259 million in 2001 to USD 2.25 billion in 2018 (accounting for 15 percent of overall imports).[7] Palm oil, wheat, sugar and

[3] Including forestry and fishing.
[4] World Bank, World Development Indicators.
[5] 6.5 percent a year (Ayele *et al.*, 2019).
[6] From USD 3.7 billion to USD 32.6 billion. World Bank, World Development Indicators.
[7] ITC Trademap, using data from UN Comtrade and from the Ethiopian Revenues and Customs Authority.

rice are the most imported food products. Although Ethiopia is the third largest producer of wheat in Africa, the country imports around USD 400 million a year of wheat (equivalent to just under a fifth of domestic consumption).[8] Most of this wheat is imported by the government or international agencies like the World Food Programme (WFP) to be used for distribution as part of humanitarian activities[9] or in Ethiopia's Productive Safety Net Programme (PSNP) (Minten *et al.*, 2018).

Foreign exchange earnings. Agricultural exports are Ethiopia's main source of foreign exchange. This is significant, as Ethiopia imports far more than it exports (a trend likely to be exacerbated by the impact of COVID-19), leading to persistent foreign exchange shortages (see the discussion of Ethiopia's trade deficit as a driver of food systems outcomes in section 2.3.1 below). Agricultural products[10] account for 75 percent of the value of Ethiopia's total exports, with coffee accounting for about a third of these exports, and oilseeds (particularly sesame) and pulses the next most important food exports (cut flowers have become a significant non-food agricultural export in recent years).[11] As with imports, the value of Ethiopia's agricultural exports (including cut flowers), has increased significantly in recent years, from USD 294 million in 2001 to USD 1.15 billion in 2018.

Employment and livelihoods. The agricultural sector generates between 65[12] and 85 percent[13] of total employment in Ethiopia, and absorbs large amounts of informal labour, including family labour and casual labour (WUR, 2020). Expanding agricultural supply chains, encompassing growth in food transport, processing, distribution and retail, are also becoming important sources of employment. Around a million Ethiopians (2 percent of the economically active population) work in food processing, with about a tenth of these engaged in injera production in urban areas. Small-scale manufacturing (half of which involves agri-food processing) plays a more important role in generating employment, especially for women, than larger manufacturing companies do (Minten *et al.*, 2018). Agricultural trade and transport are also significant sources of employment in the service sector, with agricultural trade being one of the main non-farm activities in rural parts of the country (ibid.). However, COVID-19 is negatively impacting livelihoods in Ethiopia by causing job losses in various agricultural and agro-processing industries, and losses of income from casual labour (WUR, 2020).

Youth un(der)employment and rural-urban migration. Insufficient investment, limited access to finance and the decreasing availability of agricultural land for younger generations (due to population growth, land scarcity and market restrictions) contribute to insufficient levels of rural job creation and high levels of un(der)employment - and growing landlessness - among the rural youth in Ethiopia, the group most affected by poverty and unemployment in the country (Tigabu & Gebeyehu, 2020). As a result, growing numbers of youth jobseekers are exiting Ethiopia's rural areas, leading to unabating rural-urban migration and migration abroad (ibid.). Growing youth un(der)employment also contributes to political unrest in Ethiopia. Young people are also likely to be the worst hit by job losses caused by COVID-19, particularly in activities such as food processing and street vending (WUR, 2020).

Gender gap in agricultural productivity. As in many African countries, there is a 'gender gap' in agricultural productivity in Ethiopia, which reinforces broader gender inequality in the country (see the discussion of gender inequality as a driver of food system outcomes in section 2.3.1 below). On average, female-headed

[8] EIC & ATA, 2019.
[9] The WFP provides food and other support to an estimated 700 000 registered refugees in Ethiopia.
[10] Not including leather and leather products.
[11] ITC Trademap, using data from UN Comtrade and from the Ethiopian Revenues and Customs Authority.
[12] World Bank data.
[13] See: http://www.fao.org/ethiopia/fao-in-ethiopia/ethiopia-at-a-glance/en/.

farming households in Ethiopia are 11 percent less productive than their male-headed counterparts because, among other things, they have lower access to (family or hired) male labour and to inputs such as pesticides (UN Women *et al.*, 2018). Female-headed households in Ethiopia are also more likely to suffer from reduced assets, income or consumption when food prices are high (Gebru *et al.*, 2018). In addition, land displacement caused by large-scale agricultural investments has more adverse effects on women in terms of labour needed to make up for lost land livestock, time needed for collecting firewood and water from distant locations and increased household responsibilities when male members have migrated for work (Hajjar *et al.*, 2020).

Displacement, dispossession, land-based conflict and political unrest. The promotion in recent years of large-scale agricultural investment has had some negative social impacts in Ethiopia, particularly for already marginalised communities in the Ethiopian lowlands, where land allocation to investors has been concentrated (Cochrane & Legault, 2020). Such investments have led to local communities losing access to traditional lands used for subsistence farming (ibid.). For pastoralists in Ethiopia's arid and semiarid rangelands, such investments have contributed to diminished grazing areas and increased competition for pasture and water (USAID, 2011). The displacement and dispossession caused by some large-scale agricultural investments have in turn contributed to land-based conflict,[14] which in many cases takes on an ethnic dimension, and to growing rural landlessness (particularly among youth), which contributes to political unrest (Lavers, 2018). Ethnic conflict and political unrest are in turn major drivers (along with climate shocks) of displacement in Ethiopia (Yigzaw & Abitew, 2019).[15]

Health risks from overuse and misuse of pesticides. The import and use of pesticides in Ethiopia has increased significantly in recent years as agricultural intensification has been promoted. Although the country has a legal framework for pesticide registration, distribution and use, regulations are not strictly implemented by farmers (Fikadu, 2020). Overuse of pesticides (especially on fruit and vegetables) is a big problem,[16] and creates potential health risks for local consumers. Small-scale farmers in Ethiopia regularly expose themselves to health and safety risks by, for example, not using protective devices when applying pesticides or not disposing of pesticide containers safely (Teklu, 2016).

2.2.2. Food security and nutrition

Persistent (but declining) food insecurity. Food security in Ethiopia has improved over the past couple of decades, as food consumption, measured in calories, has increased (Minten *et al.*, 2018). Nonetheless, food insecurity remains a problem. Recent estimates suggest that about 20 percent of the population are undernourished (down from 37 percent in 2004-06), while 14 percent of the population are severely food insecure and 58 percent either moderately or severely food insecure (see Figure). Food security indicators have also worsened significantly since the arrival of the COVID-19 pandemic in Ethiopia. There are significant differences in regional vulnerability to food insecurity, with the lowlands, pastoral areas and drought-prone highlands among the most food insecure regions (CIAT; BFS/USAID, 2017). Food insecurity also has a gendered aspect in Ethiopia, with studies finding that adolescent girls tend to be more food insecure than their male counterparts (Gebru *et al.*, 2018). Persistent food insecurity and vulnerability to food crises also mean that Ethiopia is reliant on food aid and social protection mechanisms such as the Productive Safety Net Programme (PSNP).

[14] Land-grabbing fuelled conflict in the Oromia region, where a lot of foreign agricultural investments are concentrated. This conflict initially involved attacks on foreign-owned investments and later spilled over into interethnic conflict. consequently, the Ethiopian government is no longer providing land to foreign investors in Oromia, and investors are now targeting locations in the Amhara region (interviews).

[15] Approximately 1.8 million Ethiopians are internally displaced (see: https://www.usaid.gov/ethiopia/food-assistance).

[16] Interview.


NON DISPERDERE
IL CONTENITORE
NELL'AMBIENTE.
#UTILIZZALO!
Importato in Italia da
FAO BRAND CENTRE.
Viale delle Terme
di Caracalla, 1
00153 - Roma

©FAO/Filippo Brasesco

Table 1 Ethiopia's food security and nutrition outcomes in context

PROGRESS TOWARDS THE SUSTAINABLE DEVELOPMENT GOALS (SDGs) AND GLOBAL NUTRITION TARGETS: PREVALENCE OF UNDERNOURISHMENT, MODERATE OR SEVERE FOOD INSECURITY, SELECTED FORMS OF MALNUTRITION, EXCLUSIVE BREASTFEEDING AND LOW BIRTHWEIGHT

REGIONS/ SUBREGIONS/ COUNTRIES	PREVALENCE OF UNDERNOURISHMENT IN THE TOTAL POPULATION		PREVALENCE OF SEVERE FOOD INSECURITY IN THE TOTAL POPULATION		PREVALENCE OF MODERATE OR SEVERE FOOD INSECURITY IN THE TOTAL POPULATION		PREVALENCE OF WASTING IN CHILDREN (UNDER 5 YEARS OF AGE)	PREVALENCE OF STUNTING IN CHILDREN (UNDER 5 YEARS OF AGE)		PREVALENCE OF OVERWEIGHT IN CHILDREN (UNDER 5 YEARS OF AGE)		PREVALENCE OF OBESITY IN THE ADULT POPULATION (18 YEARS AND OLDER)		PREVALENCE OF ANAEMIA AMONG WOMEN OF REPRODUCTIVE AGE (15–49)		PREVALENCE OF EXCLUSIVE BREASTFEEDING AMONG INFANTS 0–5 MONTHS OF AGE		PREVALENCE OF LOW BIRTHWEIGHT	
	2004–06	2017–19	2014–16	2017–19	2014–16	2017–19	2019	2012	2019	2012	2019	2012	2016	2012	2016	2012	2019	2012	2015
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
WORLD	12.5	8.8	8.1	9.2	22.7	25.5	6.9	24.8	21.3	5.3	5.6	11.8	13.1	30.3	32.8	37.0	44.1	15.0	14.6
Low-income countries	32.2	28.1	19.7	21.6	50.5	54.7	6.6	38.9	34.1	3.0	2.7	6.6	7.7	38.2	38.4	43.8	55.1	14.8	14.3
AFRICA	21.4	18.8	17.2	18.6	47.4	51.2	6.4	32.3	29.1	4.8	4.7	11.5	12.8	37.7	37.7	35.5	43.7	14.1	13.7
Ethiopia	37.2	19.7	14.5	14.1	56.2	57.9	7.2	44.4	36.8	1.8	2.1	3.6	4.5	21.7	23.4	52.0	58.8	n.a.	n.a.

Source: FAO et al., 2020.

Low dietary diversity. Household food consumption in Ethiopia is dominated by cereals and pulses. Consumption of animal products and micronutrient-rich fruits and vegetables is increasing, particularly in urban areas,[17] but remains very low,[18] resulting in insufficient levels of protein and of micronutrients such as vitamin A and zinc in Ethiopian diets (Bachewe *et al.*, 2019; Gebru *et al.*, 2018). Rising food inflation and government commitment to increasing the productivity of staple crops has meant that the cost of animal product foods, fruits, vegetables and pulses has increased much more rapidly than the cost of starchy staples over the last decade (FAO *et al.*, 2020). The increasing real prices of nutritionally-rich foods also reflects the fact that growing demand for such products - driven by rising incomes, particularly in urban areas - is outstripping supply (Minten *et al.*, 2018). Increasing prices limit the accessibility of nutritious foods for the poorest households and suggest that investment and attention is needed to improve their affordability for consumers (FAO *et al.*, 2020; Minten *et al.*, 2018).

Malnutrition. Limited consumption of nutritious foods contributes to malnutrition and the incidence of non-communicable diseases in Ethiopia (Gebru *et al.*, 2018). Child and infant malnutrition are particularly prevalent. Despite some improvement in recent years, child stunting remains widespread in Ethiopia, even in food surplus areas. Around 37 percent of children under five are affected by stunting (down from 58 percent in 2000 - see Figure). Around 10 percent of children are affected by wasting (low weight for height), a figure that has not shifted much in recent years, but which is predicted to rise as a result of COVID-19 and its socioeconomic impacts (WUR, 2020). Obesity is less of an issue than in other countries, as only 4.5 percent of Ethiopians are obese (FAO *et al.*, 2020), but it is increasing, particularly in urban areas, possibly driven by the fact that Ethiopians are consuming more processed convenience foods and increasingly eating outside the home (Posthumus *et al.*, 2018). The number of adults with diabetes in Ethiopia is also predicted to rise significantly in the coming decades (ibid.).

[17] Given urbanisation and growing incomes, a shift to increased consumption of high-value products, such as meat, dairy products, and fruits and vegetables is likely to persist (Gebru *et al.*, 2018).

[18] One factor behind the low consumption of animal products is the adherence by Ethiopian Orthodox Christians (who make up just under half the population) to numerous religious 'fasting days' during which the consumption of animal products is prohibited (interview).

2.2.3. Environmental outcomes

Against a backdrop of climate change and a rapidly growing population, agricultural expansion in Ethiopia in recent decades has caused significant damage to the country's natural resources, particularly its forests, soils and water. Clearance of natural forests, overgrazing by livestock, water pollution and increased (and often improper or over-) use of pesticides and other agrochemicals by farmers who often lack proper knowledge about the use of such inputs have all contributed to **reduced biodiversity and the loss of ecosystem services** in Ethiopia, increasing the vulnerability of many Ethiopians to food and water insecurity and reducing climate resilience (Posthumus *et al.*, 2018).

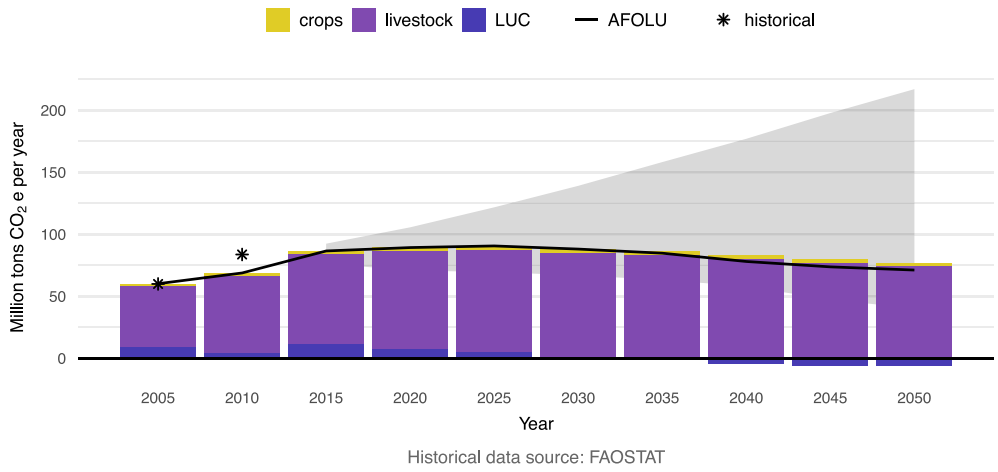
Soil erosion and land degradation. Soil erosion and land degradation in Ethiopia are among the most significant causes of low and declining agricultural productivity, persistent food insecurity and rural poverty in the country (Daley, 2015). This is especially so in the densely populated Ethiopian highlands, a historically productive region that encompasses approximately 90 percent of the country's arable land and 60 percent of its livestock (ibid.). Steep slopes and high rainfall rates make these upland areas prone to soil erosion, but this natural vulnerability has been exacerbated in recent decades by unsustainable land use practices linked to agriculture - including deforestation to clear land for agriculture, overgrazing by livestock on communal lands (a problem throughout the country) and intensive crop cultivation, including on marginal land - which have resulted in severe land degradation and highly acidic and infertile soils (ibid.). While the government subsidises some farmers for the use of crushed limestone to reduce soil acidity, not enough farmers practise proper sustainable land management (e.g. following or terracing) or soil fertility amendment practices (ibid.).[19]

Deforestation and forest degradation. Most of Ethiopia's forests have been lost and the remaining areas of cloud forest are being rapidly depleted, despite their importance for livelihoods, ecosystem services and ecological resilience (Daley, 2015). In addition to the harvesting of forest products (mainly wood for household fuel), the main driver of deforestation and forest degradation in Ethiopia is the conversion of land for grazing and agriculture, including for both smallholders and large plantations. Deforestation leads to the loss of forest resources, biodiversity and carbon sequestration capacity, impacts local microclimates and is a significant driver of soil erosion (Daley, 2015). Soil erosion and grazing also exacerbate the impact of deforestation by reducing the rate of forest regeneration (ibid.).

The Ethiopian food system is also generating other unsustainable environmental outcomes. Growing demand for water for agriculture is **increasing the pressure on water availability** in Ethiopia, particularly in commercial agricultural areas (Posthumus *et al.*, 2018). Ethiopia is one of the world's lowest emitters of GHG emissions, ranking 182 of 188 countries on per capita emissions, and contributing only 0.27 percent of global emissions (ibid.). However, agriculture is the largest contributor to Ethiopia's GHG emissions, with livestock alone contributing 40 percent of total emissions (Netherlands MFA, 2018). Crops and land use change only have a marginal impact (see Figure 1 below). Meanwhile, reliance on biomass stoves for cooking contributes to **air pollution** in Ethiopia (Daley, 2015).

[14] Interview.

Figure 1 Greenhouse gas emissions from Ethiopia's agricolture sector[20]



Source: Molla & Woldeyes 2019.

2.2.4 Sustainability challenges, trade-offs and synergies

The outcomes presented above show the impact of the Ethiopian food system on the country's socio-economic development. They also illustrate the food system's current shortcomings in terms of generating sustainable outcomes in relation to employment and livelihoods (especially for women and youth), human health, food security and nutrition and the impact on the biophysical environment. Investments that aim to address these sustainability challenges may involve trade-offs. For example, investing in Ethiopia's growing livestock sector could promote increased consumption of animal products, greater dietary diversity and improved nutritional outcomes. If not managed properly, however, a growing livestock sector could also generate negative environmental impacts (Posthumus *et al.*, 2018). Similarly, investments in fruit and vegetable production could also lead to improved diets, but if accompanied by increased use of pesticides, they could also create human and environmental health risks (ibid.).

Nevertheless there are opportunities to capitalise on synergies when investing in more sustainable food system outcomes. For example, investments in more diversified agricultural production could promote more diverse diets and more resilient ecosystems. Investing in high value agricultural subsectors like livestock and fruits and vegetables, meanwhile, could support more diverse diets and better nutritional outcomes while also providing opportunities for raising incomes and improving livelihoods for actors in these subsectors, although environmental impact trade-offs would still need to be managed (ibid.). In seeking to promote investments for a more sustainable Ethiopian food system, such synergies should be exploited, and potential trade-offs mitigated.

2.3. Food system drivers

2.3.1. Structural drivers

Geography. Ethiopia is vast, covering a territory of 1.1 million km², which creates challenges for territorial governance. Such challenges are exacerbated by Ethiopia's location in an unstable regional neighbourhood (Horn of Africa) ravaged by conflict. The country is also landlocked and therefore highly

[20] Note: AFOLU (Agriculture, Forestry and Other Land Use) is the sum of computed GHG emissions from crops, livestock, and Land Use Change (LUC), emissions and sequestration from forestry are not included. Historical emissions include crops and livestock.

dependent on accessing neighbouring countries' seaports (particularly Djibouti's) for conducting international trade. Ethiopia's variable topography (altitudes range from 110 metres below sea level to over 4 600 metres above sea level), meanwhile, has influenced human settlement and agricultural patterns throughout Ethiopia's history (see below), while the rugged nature of Ethiopia's topography has also discouraged the creation of an extensive road network, leaving certain rural communities very isolated (Schmidt & Thomas, 2018).

Climate. Ethiopia's climate varies significantly (in terms of temperatures and rainfall) across its territory, which encompasses subtropical wet highlands and hot and dry desert lowlands. In general, the highlands of Ethiopia (defined as locations 1 500 metres above sea level or higher) are endowed with more predictable rainfall and are free from malaria and tsetse flies, giving them significant advantages for human settlement (ibid.). By contrast, the lowlands experience more erratic rainfall and have a greater disease risk (ibid.) This climatic diversity also creates distinct agroclimatic zones favouring different crop and livestock production systems. For example, in the hot and dry lowlands in the eastern part of Ethiopia, crop production is limited and the main agricultural activity is livestock rearing. The highlands, meanwhile, provide ideal conditions for producing cereals. Four of Ethiopia's regions are identified as having significant agricultural potential: Amhara, Oromia, Tigray and Southern Nations, Nationalities and Peoples Region (SNNPR) (Alemu & Berhanu, 2018). Climate change is a real threat to Ethiopia's food system, as agricultural production in the country is overwhelmingly rain-fed. Already a drought-prone country with erratic and unpredictable rainfall, Ethiopia is increasingly affected by recurrent adverse weather events, including droughts and floods (MFA, 2018). Data shows declining average annual rainfall and high variation in rainfall from year to year (Abebe, 2017). Similar trends are seen in terms of rising and more variable temperatures (ibid.).

Natural resources. An abundance of agricultural land and relatively generous water resources provide Ethiopia with significant potential for agricultural production, and underpin the central role of agriculture in the Ethiopian economy. However, unsustainable practices are degrading Ethiopia's agricultural land, exacerbating the erosion of its soils and diminishing its stock of other natural resources, such as timber. While Ethiopia is also endowed with mineral resources, no large-scale mining or oil and gas extraction industry has yet been developed in Ethiopia as a major alternative source of employment, output and foreign exchange earnings (Ministry of Mines & WBG, 2014).

Demographics. With a population over 100 million, Ethiopia is the second-most populous country in sub-Saharan Africa. Population density varies significantly across Ethiopia and is particularly high in Ethiopia's highlands, home to 80 percent of the country's population, while covering only 37 percent of its territory (Schmidt & Thomas, 2018). Ethiopia's population is young and growing rapidly, having increased by 35 million between 2000 and 2016 (Minten *et al.*, 2018). Rapid population growth is putting pressure on land availability in rural areas - particularly in the densely populated highlands. With little room for agricultural expansion in these regions, plot sizes are decreasing, and growing numbers of Ethiopia's rural youth are becoming landless and reliant on land rental markets (ibid.). Consequently, fewer Ethiopian youth participate in farming, and the average age of Ethiopia's farmers is rising.

Urbanisation. Land pressures are also contributing to rural-urban migration by Ethiopia's youth, an important driver of rapid urbanisation in the country. Ethiopia's population is still mostly rural - about 78 percent of the population live in rural areas - but cities are growing faster than rural areas (Minten *et al.*, 2018). The World Bank estimates that one-third of Ethiopia's population will live in urban areas by 2030 (ibid.). Rapid urbanisation and population growth are driving dietary shifts (increased

consumption of processed and high value foods) and food system transformation in Ethiopia, and towns and cities are becoming increasingly important commercial food markets (ibid.).

Economic and human development. Despite strong recent economic growth, the level of human development in Ethiopia remains low,[21] a large share of the country's population continues to live in poverty and the country itself remains reliant on food aid.[22] Many Ethiopians working in agriculture or other parts of the food system lack the income and/or assets to be able to invest in their own productivity. Poverty also contributes to insufficiently diverse or nutritious diets and to practices - such as using wood burning stoves - that are harmful to the environment. Low levels of education mean that (technical) knowledge and skills, including entrepreneurial skills, are lacking throughout the food system.[23] However, incomes in Ethiopia are rising on the back of recent economic growth, driving transformation in the food system and a shift to more varied and nutritious diets (Minten *et al.*, 2018).

Persistent trade deficit. With a large and fast-growing population, little exportable mineral wealth and a small (but developing) manufacturing sector, Ethiopia imports much more than it exports. Because of this persistent trade deficit, the Ethiopian government strictly regulates the availability of foreign exchange to the private sector in Ethiopia, severely limiting local businesses' ability to import. In the spirit of import substitution and export promotion, value chains that generate foreign exchange, such as coffee, are historically supported more intensely than those that do not and those that rely on imported inputs or technology.

Gender inequality. Despite recent progress in gender equality in areas such as political participation, significant gender inequalities persist in Ethiopia.[24] On average, women in Ethiopia have lower levels of education and literacy than men, and are significantly more likely to be financially excluded and/or to have difficulty accessing credit (Berhanu Lakew & Azadi, 2020). Landholding in Ethiopia is also disproportionately in favour of men. Women's participation in income-generating farming activities is restricted by cultural and religious norms that oblige them to seek permission from male members of their household, or that restrain their mobility (such as their disproportionate share of domestic activities) (Hajjar *et al.*, 2020). Gendered differences in access to tools, technologies, services and other inputs contribute to the gender gap in agricultural productivity Ethiopia (ibid.).

Infrastructure. Ethiopia has invested heavily in developing its road network, including rural roads, over the last two decades, greatly improving physical connectivity for the country's population (Minten *et al.*, 2018).[25] Increasing access to mobile phone infrastructures is improving communication in the country (ibid.). Nonetheless, the lowland areas of Ethiopia, where the bulk of available agricultural land is, are much more poorly covered by transport infrastructure than the highlands, and is generally characterised by a lack of basic infrastructure (Schmidt & Thomas, 2018; Alemu & Berhanu, 2018). Better transportation infrastructure would improve market access for producers in such areas. The recently restored railway between the capital and Djibouti improved the connection of some producers to the sea via a consistent cold chain. Irrigation is also underdeveloped in Ethiopia. While the country is endowed with abundant water resources, and has about 5 million hectares of irrigable land, only about 5 percent of this irrigable land is currently irrigated (Asrat & Anteneh, 2019). As a result, virtually all food crops in Ethiopia come from rain-fed agriculture (FAO, 2015).

[21] Ethiopia ranked 173rd out of 189 countries in the 2018 Human Development Index (UNDP, 2019).
[22] 83.5 percent of Ethiopia's population lives in 'multidimensional poverty' according to the 2019 Human Development Report (UNDP, 2019).
[23] More than half of Ethiopian farmers (55 percent) have no formal education (CIAT & BFS/USAID, 2017).
[24] Ethiopia ranks 123rd (out of 162 countries) on the Gender Inequality Index (UNDP, 2019).
[25] By 2015, almost 60 percent of the Ethiopian population was within 3 hours of a city of at least 50 000 inhabitants (compared with less than 23 percent in 1994) (Minten *et al.*, 2018).

(Mobile phone) technology. With an improved mobile phone infrastructure, mobile phone usage by agricultural traders in Ethiopia to coordinate logistics and trade has become ubiquitous. This has led to changes such as the bypassing of the Addis wholesale markets as clearance houses for agricultural trade (Minten *et al.*, 2018). Farmers and pastoralists are also increasingly using mobile phones to find buyers and pasture. It is debatable, however, whether mobile phone usage is having a significant impact on prices obtained by farmers (ibid.).

Multi-ethnicity and interethnic conflict. Ethiopia's population is diverse, comprising more than 80 ethnolinguistic groups. The country has a long history of inter-ethnic tensions and conflict, often over land. Following the overthrow of the Derg military regime in 1991, a system of 'ethnic federalism' was installed to address historic ethnic grievances by restructuring the country's regions along ethnic lines, giving the largest ethnic groups the opportunity to administer themselves (Shewadeg, 2019). This led to a redefining of citizenship, politics and identity on ethnic grounds, as well as to the rise of ethno-nationalist movements. As evidenced by the recent ethnically-charged political unrest, ethnic federalism has not eradicated inter-ethnic tensions in the country (Gedamu, 2018). As of the end of 2020, the most important ones to monitor are: the recurrent protests in the large Oromia regional state, which triggered violence and an internet shutdown over the summer; major tensions between the federal state and the northern regional state of Tigray, which culminated in a military intervention by federal armed forces to oust the regional government; and wider secessionist movements (Mulugeta 2020).

Official development assistance. Ethiopia has consistently been Africa's biggest recipient of official development assistance (ODA), receiving just under USD 5 billion in 2018, an amount equivalent to almost 6 percent of the country's GDP.[26] A significant share of this assistance is earmarked for food security (including in the form of humanitarian assistance and food aid) and for improving the performance of the agriculture sector. For instance, agriculture and food security were among the main focus areas of the European Union's support to Ethiopia via the European Development Fund (2014-2020).[27] Yet development partners do not exert that much influence over the formulation of policy priorities.[28] Instead, they support agricultural transformation and commercialisation efforts through, or in close collaboration with, government structures, and by aligning with their priorities and methods (Netherlands MFA, 2019). Reportedly, international actors are sometimes kept at a distance by government bodies, especially in the financial sector development, where the government is very cautious about losing control (interviews).

2.3.2. National policies, programmes and practices

Agriculture-led development policy. Aware that policy failure and neglect in the agriculture sector had precipitated the downfall of previous regimes, the Ethiopian People's Revolutionary Democratic Front (EPRDF), in power from 1991 to 2019, prioritised the 'transformation' of the agriculture sector. Recognising the importance of smallholders as a source of regime legitimacy, the EPRDF sought to achieve food security and economic growth by improving the productivity of smallholder farmers and putting them at the centre of the country's development strategy (Alemu & Berhanu, 2018). Ethiopia's development strategy under the EPRDF was anchored in the Agricultural Development-Led Industrialisation (ADLI) strategy - which aimed to strengthen linkages between agriculture and industry - and a succession of five-year plans, the most recent of which, the Growth and Transformation Plan II

[26] World Bank data. See: https://data.worldbank.org/indicator/DT.ODA.ALLD.CD?most_recent_value_desc=false.
[27] See: https://ec.europa.eu/international-partnerships/where-we-work/ethiopia_en.
[28] Various interviews.

(GTP II), nominally expired mid-2020 but has not been renewed at the time of writing (ibid.).[29] Ethiopia is one of only four African countries to have met its Comprehensive Africa Agriculture Development Programme (CAADP) commitment to allocating ten percent of annual government expenditures to the agricultural sector.[30]

Agriculture policy. Under the EPRDF, agriculture policy focused on improving the performance of smallholder agriculture (e.g. through expanded extension and research services) and, later, on promoting commercial farming to generate export earnings and backward linkages to smallholder farmers (ibid.). In recent years, Ethiopia's agriculture policy has aimed to: (i) improve the productivity (e.g. by improving yields through the use of modern inputs), increase the production (especially in lowland areas) of priority staple crops such as wheat, teff, rice and maize to keep them affordable for the local population (improving food security) and reduce dependence on food imports; (ii) improve the productivity and production of 'industrial crops' to ensure the supply of raw materials to the country's emerging agro-processing subsector, which is viewed as an important generator of local value addition and employment; and (iii) promote the production of high-value crops (e.g. coffee and horticulture products), particularly for export. Criticisms of the EPRDF's agriculture policy include a lack of meaningful public participation in policymaking processes and occasional policy incoherence in terms of efforts to promote both smallholder and large-scale commercial farming (ibid.).

The Homegrown Economic Reform Agenda. Ethiopia is going through a political transition under new Prime Minister Abiy Ahmed, who disbanded the EPRDF in 2019. With the 2020 elections postponed due to the COVID-19 pandemic, it is too early to determine how closely future agriculture policy will reflect the approaches and objectives of the ADLI strategy. Abiy's government stresses a greater role for the private sector in Ethiopia's economy, and has put an increased emphasis on attracting private investment in commercial agriculture. The Prime Minister's Homegrown Economic Reform Agenda sets out agriculture policy priorities, namely to: enhance the productivity of smallholders and pastoralists through provision of modern inputs and services; develop a legal framework that will allow farmers to lease land use rights and become shareholders in large commercial farms; modernise livestock production by improving veterinary infrastructure, research and innovation, and establishing linkages with other industries; establish effective linkages between producers and commodity markets as well as the commercial value chain; encourage private sector investment in agricultural research and development and explore public-private partnerships (PPPs) to expand medium and large-scale irrigation infrastructure; and develop a legal framework for agriculture-specific financial services such as micro-lending, crop insurance, and forward contracts (FDRE PM Office, 2019). However, this Agenda is first and foremost a 'vision' document, and its implementation methods still need to be specified in the successor to GTP II.

Decentralisation. Ethiopia has a nominally highly decentralised federal system of government comprising ten regional states[31] and two administrative cities. Key government institutions consist of line ministries, commissions, agencies and bureaus at the federal and regional levels respectively. Line ministries are responsible for coordinating the design and implementation of public strategies

[29] It is unlikely that a new plan will be adopted until the currently postponed 2020 elections have been held and a new government is in place (various interviews).

[30] For a breakdown of this budget, see for instance: https://cepheuscapital.com/wp-content/uploads/2019/01/Budget-Review-FY-2019-20.pdf.

[31] This number changed in 2020 with the recognition of Sidama in Southern Ethiopia, and may increase in the future, as the Ethiopian constitution recognises the right for ethnic communities to demand internal secession and other communities maybe inspired by this example (Getachew, 2020).

and policies. Regional bureaus are further decentralised into zone, woreda (district) and kebele (lowest administrative unit) levels. Of the many devolved powers of regional states, some are reportedly de facto exerted by federal structures for efficiency purposes or due to the lack of capacity in regional state administrations. Regions "design socio-economic development plans that meet national-level targets and are also able to generate their own revenue", although "dependency on [the] federal budget is still high" (CIAT; BFS/USAID, 2017). This points to a complex, fluid and relatively opaque distribution of labour between federal and regional authorities depending on the issue.

Food security and nutrition policy. The Ethiopian government promotes food security through improving agricultural productivity and ensuring the affordability of staples. In addition, it introduced, with donor support, a Productive Safety Net Program (PSNP) - currently in its fourth phase (2015-2020) - to shift millions of chronically food insecure households in drought-prone rural areas from a reliance on emergency food aid to a more predictable, largely direct cash-based form of social protection that has reduced household asset depletion (Alemu & Berhanu, 2018). Improving nutrition has also been a priority in Ethiopia, with, for example, GTP II setting out objectives to reduce levels of stunting (Bachewe & Minten, 2019). One of the main government initiatives to transform the food system for better nutrition is the National Nutrition Program, which aims to promote healthier diets to address undernutrition, micronutrient deficiencies and emerging diet-related non-communicable diseases and to link agricultural development to nutritional needs (Posthumus *et al.*, 2018).

Food safety standards. Ethiopia is in the process of updating the country's food safety, animal and plant health system. An important driver for this process is the country's export policy and the need to meet international safety standards to take advantage of opportunities. Reportedly, in export-oriented value chains, food safety systems are mainly guided by private standards, and in the domestic market, enforcement of regulations is weak. There are high potential health benefits from this drive to step up regulations, including reducing mortality and morbidity from foodborne diseases (Birke & Zawide, 2019).

Policies on environmental sustainability and climate resilience. Sustainable management of natural resources is a relatively new responsibility for the Ethiopian government, and environmental sustainability does not appear to be a major stand-alone policy priority. However, the government does seek to address environmental sustainability and climate resilience through integration into other sectoral policies and interventions, particularly in agriculture. For example, the Climate-Resilient Green Economy (CRGE) Strategy,[32] introduced in 2011, aims to integrate climate change and green growth efforts across all sectors of the economy (CIAT; BFS/USAID, 2017). The CRGE Strategy promotes climate-smart agricultural practices and technologies such as soil and water conservation measures, agroforestry, farmer-managed natural regeneration (FMNR), area closures, and dissemination of improved varieties (ibid.). Reportedly, an important channel for integrating environmental concerns is through environmental impact assessments. However, due to an inadequate institutional set-up and lack of capacity, the use of these instruments has not yet substantially improved the limited culture of coordination between institutional actors. As a result, environmental concerns are still rarely prioritised in policies addressing other issues (Yigzaw, 2020).

Agricultural Commercialisation Clusters (ACCs) have been established in four regions (Amhara, Oromia, SNNPR[33] and Tigray), which have identified a total of 29 clusters for priority commodities. The

[32] Federal Democratic Republic of Ethiopia, 2011.

[33] Southern Nations, Nationalities and Peoples Region.

role of ACCs is to drive specialisation, diversification and commercialisation, enhance production and productivity, quality of outputs, aggregation, value addition and market linkages; provide an integrated platform to implement multiple, priority interventions across value chains and sectors; and improve focus and coordination among actors in the public and private sectors, as well as donors and non-governmental organisations (NGOs) (Berhanu & Alemu 2018). Priority commodities include the major cereal crops (teff, wheat and maize), horticulture crops (pepper, potato and onion), high-value crops (coffee and sesame), and livestock products (meat, cows' milk, poultry and honey).[34]

Integrated Agro-Industrial Parks (IAIPs) and their respective Agro-Commodity Procurement Zones (ACPZs) have been prioritised by the Ethiopian government as key mechanisms for accelerating the structural transformation and modernisation of the country's agriculture sector. Among other things, the development of IAIPs is intended to reduce rural poverty and create a more conducive environment for investment in agro-processing and allied sectors. Four initial IAIPs have been established (see Table 2), although the validity of the model is yet to be proven (FAO, 2020). Concerns have been raised that, in order for these IAIPs to function well, more efforts are required in crucial post-farm gate areas like value chain development, standards and food safety (ibid.)

Table 2 Status of Integrated Agro-Industrial Parks and ACPZs of October 2020

IAIP	Progress of IAIP construction	Identified investors	RTC construction	Current commodity demand
Bulbula (Central Eastern Oromia)	90% for construction Power to be connected by late 2020	4 initiated their settlement, 3 are operational out of 30 applications	1 finalised (Shashemene); 5 under construction (Meki, Wolenchiti, Dodola, Robe)	Operational: edible oil, coffee and honey Pipeline: vegetable and fruit, wheat, tomato, red meat, dairy, poultry
Bure (Southwest Amhara)	95% of constructions No connection to power grid	4 have settled, 3 are operational out of 16 applications	7 under construction (Amanuel, Finote Selam, Enjibara, Chagni, Dangila, Merawi)	Soya bean, oil seeds (soya bean included), maize, tomato: shed & processing plant under construction
Baeker (Western Tigray)	67% of constructions Temporary power supply of 5.5 MW	6 of 152 potential investors have submitted their settlement projects	1 constructed (Maikadera)	Sesame, sorghum, milk, meat, vegetable and fruits
Yirgalem (Eastern SNNP)	1st phase 100% of constructions achieved 2nd phase 85% Power supply 2 MW / 8 MW on process	7 have settled, 2 are operational out of 30 applications	6 constructed (illa, Yirgacheffe, Bensa, Daye)	Avocado, coffee, pineapple, honey, passion fruit, soybeans and spices

Source: MOA slideshow 2020 (unpublished).

State ownership of land. All land in Ethiopia is owned by the state, reflecting the country's Marxist heritage. In principle, any Ethiopian adult who wishes to practise agriculture for a living has the right to use rural land (Lavers, 2018). However, population growth has put pressure on this system. It has led to a fragmentation of landholdings, and increased tenure insecurity, in turn impeding productivity (small plot sizes make producing a marketable surplus challenging) and disincentivising investment in improved land management (Alemu & Berhanu, 2018; CIAT; BFS/USAID, 2017). Ethiopia's land tenure system also

[34] "In 2018, the ACCs in Amhara, Oromia, Tigray, and SNNPR led to a total 2.07 million hectares of agricultural production, 17 percent of the country's total cultivated land area (12.46 million hectares)" (Diriba & Man 2019).

restricts rural-rural migration in search of less densely populated agricultural areas (Schmidt & Thomas, 2018), while the inability to use land as collateral has exacerbated smallholders' lack of access to finance (CIAT; BFS/USAID, 2017). The government has conducted land registration to enhance tenure security and prevent the subdivision of landholdings into unviable plots, but there are now massive numbers of landless (young) people in rural areas who reached adulthood after the last land redistribution and have little hope of accessing land (Lavers, 2018). The government is also introducing improvements in land certification that will allow smallholders to use land certification to access credit. A new provision in Ethiopia's land rights law should help tackle gender inequality by specifying that land rights are held jointly by husbands and wives (IIED, 2019).

Land rights and usage. Ethnic federalism creates ambiguity regarding the land rights of non-indigenous minorities in Ethiopia's ethnically defined regions (Lavers, 2018). In practice, ethnic federalist principles (like customary tenure regimes) prioritise the rights of 'indigenous' inhabitants over ethnic minorities outside their 'home' region, in direct conflict with the principles of state ownership of land and the right of all adult citizens to use rural land (ibid.). Grievances over the prioritisation of land access for indigenous (regional) populations (and foreign investors) and over the delineation of ethno-regional borders have contributed to political unrest in Ethiopia in recent years (ibid.). In principle, the power to decide on land and land administration belongs to regional governments, but previously the federal government was engaged in the decision-making process for granting land to foreign and domestic investors. Currently, there seems to be a moratorium on the question: neither the federal nor the regional government are entertaining big land requests, with some exceptions in Tigray and Amhara regions.[35]

Foreign exchange shortages (and rents). Given Ethiopia's persistent trade deficit, the availability of foreign exchange is strictly regulated by Ethiopia's central bank, the National Bank of Ethiopia. Foreign exchange shortages explain why the Ethiopian government encourages exports of agricultural commodities (including 'high-value' cash crops like coffee and horticulture products) and the local production of staples that are currently imported in large quantities but which can be produced locally (e.g. wheat). Foreign exchange shortages also make it difficult for businesses to access (imported) inputs - a major issue for farmers and agribusinesses that are reliant on imports of seeds, machinery, fertiliser and other agrochemicals. Businesses that require significant imported inputs have to resort to exporting commodities like coffee or sesame in order to earn the necessary foreign exchange. Some traders make significant profits by buying and exporting agricultural commodities such as oilseeds, sometimes at a financial loss, with the purpose of earning foreign exchange to import goods that can be sold on the domestic market at high mark-ups.[36] Recently, the Ministry of Trade and Industry (MoTI) passed a new directive to address these rents. The new directive, which came into effect in October 2019, provides strict control measures on trading prices, product, quality, and administration of export sales contracts. Registration of export sales contracts is required for all export commodities traded at ECX. In addition, the directive introduced stringent control measures to tackle local market price distortions. Local traders could be penalised if they are caught exporting commodities below domestic price levels and defaulting on their export sales (Bickford, 2020).

Investment incentives and foreign investment regulations. The government provides incentives to attract foreign investment in commercial agriculture, particularly in the lowlands. Depending on the location of the investment, these can include concessionary rates for land, tax holidays and duty exemptions for imported machinery.[37] Investors can also make use of a one-stop-shop for business licences and accessing land. There

[35] Various interviews.

[36] The government has apparently introduced measures to prevent this from happening (various interviews).

[37] See: http://www.investethiopia.gov.et/index.php/investment-process/incentive-package.html.

are no local content or indigenisation requirements for investors, and Ethiopian law guarantees protection against unlawful expropriation and the right to remit funds out of Ethiopia (Shiferaw, 2019). However, foreign exchange shortages and strict regulation of foreign exchange (including in relation to repatriation of funds) potentially discourage foreign investment. Foreign investors must also meet minimum capital requirements[38] and are excluded from a number of activities.[39] Moreover, as evidenced by recent unrest in Oromia, there is significant political risk in investing in Ethiopia.[40] Past efforts to attract foreign investment have had mixed results. Large tracts of land were leased to investors in the sparsely populated, low-lying areas of the country, but many earmarked investments did not become fully operational or failed to deliver results. Notable successes, such as Dutch investments in horticulture and floriculture have contributed to export earnings, but have also been the target of unrest over land access. Investment Proclamation No. 1180 of 2020 obliges all investors to uphold environmental protection standards and social inclusion objectives, although it remains to be seen whether enforcement mechanisms will be put in place.[41]

Financial inclusion. Ethiopia's banking sector is closed to foreign investment and is one of the most tightly state-controlled in Africa. Ethiopian banks are relatively absent from the rural market and do not typically finance agriculture activities,[42] which are perceived as too risky. Access to finance is therefore a major challenge for agribusinesses and farmers, particularly smallholders (FOLU Coalition, 2020). Some large private investors in agriculture have received concessional loans from the Development Bank of Ethiopia in the past, but these were not made available to smaller operators.[43] Smallholders in rural areas rely on savings and credit cooperatives (SACCOs),[44] microfinance institutions (MFIs) or traders or informal lenders for finance, with private loans often incurring very high interest rates. However, financial products offered by 'risk averse' MFIs are not well tailored to the specific needs of Ethiopia's farmers, who typically lack credit histories or traditional forms of collateral.[45] MFIs, some of which have regional state governments and local NGOs as shareholders, also experience reach and liquidity problems, exacerbated by COVID-19-related defaults by borrowers. In the short term, farmers unions and cooperatives expect even greater difficulty in accessing credit (WUR, 2020). Shortages of cash among smallholders will likely lead to increased reliance on informal money lending operations (ibid.). Current government efforts to improve financial inclusion include legislation that will allow private actors to use moveable assets such as machinery, transport equipment and livestock as capital (IMF, 2020). The gradual liberalisation of the telecommunications and banking sectors offers space for innovations in mobile banking services, but it is too early to assess its impact.[46]

[38] As indicated in investment proclamation 1180/2020, to be allowed to invest, any foreign investor is required to allocate a minimum capital of USD 200 000 for a single investment project, while this minimum is lowered to USD 150 000 for joint investment with an Ethiopian entity.

[39] Areas exclusively reserved for domestic investors include export of raw coffee, chat, oil seeds, pulses, precious minerals, natural forestry products, hides and skins bought from the market, and live sheep, goats, camel, equines, and cattle not raised by the investor.

[40] The Ethiopian insurance company has recently started offering insurance against political risk.

[41] See: https://investmentpolicy.unctad.org/investment-laws/laws/318/ethiopia-investment-proclamation-no1180-2020.

[42] Less than 10 percent of banks' lending goes to the agriculture sector, with most of this going to exporters (FOLU Coalition, 2020). The majority of rural households in Ethiopia do not have access to or do not use financial products (ibid). About 35 percent of adults had a bank account in 2017 - the majority in urban areas. The gap between men and women is 12percentage points (Demirgüç-Kunt *et al.*, 2018 in FOLU, 2020).

[43] Some operators who received loans embezzled these funds instead of using them, almost causing the Development Bank to go bankrupt (various interviews).

[44] There were more than 18 000 SACCOs in Ethiopia as of 2016 (National Bank of Ethiopia 2017 in FOLU, 2020).

[45] Various interviews.

[46] Currently, the National Bank of Ethiopia (NBE) only allows locally owned non-financial institutions to offer mobile money services. Ethio Telecom would have to create a joint venture with a banking institution. Other innovations include a crop insurance index developed by an MFI together with a local insurance company (Koroma *et al.*, 2017). Risk-sharing facilities such as the one developed for coffee farmer cooperatives (developed by the International Finance Corporation in partnership with Ethiopia's Nib International Bank S.C) hold the potential to increase lending to producer organisations and individual farmers. The inflows of remittances of the Ethiopian diaspora is another source of finance that could be supported (FOLU, 2020). The NBE amended a regulation in mid-2020, allowing non-financial institutions to engage in mobile banking.

Regional trade integration. Ethiopia does not currently participate in any regional preferential trade arrangements, despite being a member of two of Africa's regional economic communities, the Common Market for Eastern and Southern Africa (COMESA) and the Intergovernmental Authority on Development (IGAD).[47] As a result, Ethiopia's regional exports do not get preferential access to regional markets. This may soon change, however, as Ethiopia has signed up to the African Continental Free Trade Area (AfCFTA), which aims to establish a free trade area spanning all African countries. Trading under the AfCFTA is expected to start in 2021.

State-business relations. This issue is relatively poorly documented, but reports point to a history of close proximity between business and government elites, linked to a high degree of statism and the Ethiopian 'developmental state' model (Berhane 2019). An example of this is that agricultural cooperatives have long been appendages of the ruling party's structure (APRA, 2018). The creation in the 1990s and the opaque functioning of regional endowment funds, still important business actors, are another example.[48] Accounts indicate that this proximity has often worked for development, keeping government policy in tune with producers' needs and ensuring significant state intervention to promote economic activity (Berhane 2019). Significant exceptions to this 'success story' may include the case of the Ethiopian Development Bank, which is in turmoil due to suspicions of favouritism in granting loans that turned out to be non-performing and to be a threat to the bank's viability (Tadesse, 2018, interviews). As the country is in the process of opening up and liberalising some sectors, many worry that it may lead to increased preferential treatment of well-connected actors and other forms of corruption (APRA, 2018).

(Lack of) value chain coordination. The performance, structure and coordination of Ethiopia's agricultural value chains differ from one value chain to another. Export cash crop value chains (e.g. coffee and sesame) tend to be more structured and coordinated. Staple crop and livestock value chains tend to be semi-structured or unstructured, and are characterised by a number of coordination challenges common across many of these value chains. These include: fragmented production (i.e. many small geographically dispersed producers); inconsistent supply (including due to side-selling); weak and informal market linkages (i.e. products consumed locally or sold to local traders and wholesalers); inadequate storage and processing facilities and a lack of effective aggregators, leading to post-harvest losses; lack of market information, leading to price volatility and excessive influence of brokers; and high transport costs (and regular transport disruptions).[49]

2.3.3. Food system actors

Small-scale producers. The largest group of actors in the Ethiopian food system are smallholder farmers and small-scale livestock keepers, who produce more than 90 percent of the country's agricultural output (Ayele *et al.*, 2019). Government policy prioritises small-scale producers as a driver of growth and a bastion of legitimacy, in a context where they have historically formed the bulk of armed contestation movements (Alemu & Berhanu 2018). The main avenue for policy engagement is via cooperatives (see below). However, according to Planel (2014), small-scale farmers have traditionally had very little say in policy formulation and limited means of expressing their own priorities and preferences against a backdrop of a strong state presence at the local level. This makes them unlikely to voice criticism about agricultural development programmes that they perceive as an extension of the government authorities (De Roo, 2020). According to

[47] Ethiopia has not joined the COMESA free trade area and IGAD has not yet established a free trade area.
[48] In particular, the Endowment Fund for the Rehabilitation of Tigray (EFFORT), established with the war chest of the regional armed movement before the overthrow of the Derg regime, is now an economic powerhouse controlled by regional elites. Reportedly, its worth is now in the range of USD 3 billion, and it provides employment for around 50 000 Ethiopians (Hailu, 2017).
[49] Various interviews. See also: https://mercycorpsagrifin.org/wp-content/uploads/2019/09/Mercy-Corps-Agrifin-Ethiopia-Select-Value-Chain-Analysis-2019.pdf.

Ayele *et al.*, (2019), smallholders are not benefiting from government incentives, and it would be beneficial to bridge smallholders and agribusinesses, encouraging the former to become the latter instead of treating them as two distinct categories.

Large commercial farms and processing companies. The role of large commercial farms in the Ethiopian food system remains relatively modest. Jobs generated by large commercial farms have been associated with low pay, stressful working conditions with minimal safety regulations, and lack of job security (Admassie *et al.*, 2016). Some regional endowment funds, presumably under the control of regional elites, are involved in food commodity exports and/or food processing. Other private actors such as foreign investors and the companies of Ethiopian-Saudi billionaire Al-Amoudi invested in large tracts of agricultural land alongside processing facilities.

Cooperatives. The cooperative movement in Ethiopia reflects the involvement of the state in rural development. Their effectiveness, especially in contributing to enhancing smallholders' capacity for agricultural commercialisation, is reportedly limited by their management capacity, incentives for membership and excessive local government intervention. Historically, cooperatives have been agents of the regime in power, for example by having an important role in facilitating access to inputs (mainly seeds and fertiliser) and credit (Alemu and Berhanu, 2018) with the Ethiopian Agricultural Businesses Corporation (EABC). Despite considerable investment in cooperatives, there has been little improvement in service provision.[50] Some bigger cooperatives are said to be 'untouchable' and not very responsive to their members. Wider producers' organisations, formal or informal, are key in contract farming (Holtland 2017).

Agricultural commodity traders in Ethiopia include local collectors, brokers, aggregators/wholesalers and exporters. State-owned enterprises play a dominant role in the import of major agricultural commodities and food items. The Ethiopian government buys wheat, edible oil and sugar through competitive bids and distributes them to the public. There are many private traders engaged in exporting agricultural commodities. However, illicit trade and local market price distortions are negatively affecting export trade performance.[51]

At the federal level, the **Ministry of Agriculture and Natural Resources** has overall responsibility for agricultural policies and strategies. There is a frequent reshuffling of directorates and agencies under the mandate of the Ministry. It is responsible for the implementation of agricultural policies, including extension services provision, green growth strategy and mainstreaming gender. It does so through a cascading system of delegation described above. Other relevant ministries involved in promoting agricultural commercialisation are the Ministry of Trade, the Ministry of Industry (responsible for Integrated Agro-Industrial Parks), and the Ministry of Public Enterprises. (Alemu & Berhanu, 2018). Reportedly, the Ministry of Agriculture is increasingly effective at multi-sector coordination, for instance of nutrition with the Ministry of Health (Bach *et al.*, 2020). Currently, the **Ethiopian Agricultural Business Corporation** (more details below) is the government agency responsible for the centralised procurement of fertiliser (using the regional architecture for disbursement) and seed multiplication (mostly wheat and maize).

The **Agricultural Transformation Agency (ATA)** operates like an 'independent' think tank and implementer, providing technical support to improve the livelihoods of farmers, of which it reports reaching 16.8 million across Ethiopia,[52] thereby implementing policy for which the impetus originates in

[50] Various interviews.

[51] A relatively new role in the Ethiopian food system is that of brokers that bring horticultural products from the regions to Addis and that invest backwards in the supply chain by renting land and labour from smallholders and selling the produce themselves. Benefits go mostly to these so-called 'hortipreneurs'.

[52] See: http://www.ata.gov.et/.

government.[53] It is independently funded, historically by the Bill & Melinda Gates Foundation in particular. The ATA's flagship work consists in supporting farmers and farmers' organisations to improve value chain development, via agricultural commercialisation clusters. Other ATA projects include work on inputs such as seeds and fertilisers, and an information system on soils. At the time of writing, the ATA is reportedly in the process of finalising its next five-year and ten-year strategies, which have been approved by the Ministry of Agriculture and Natural Resources and should be launched in the near future. An essential change through these strategies may be an increased focus on livestock, a high government priority, compared with the former relative priority granted to grains in the ATA's works.[54]

Ethiopian investment organs. Chaired by the Prime Minister, the **Investment Board** initiates policies pertaining to investment, including decisions regarding which sectors are open to domestic investors only and which also to foreign investors (some of them only provided it is done jointly with domestic investors). The **Ethiopian Investment Commission** (EIC) is an autonomous government agency accountable to the Prime Minister, and is responsible for creating a conducive and competitive investment climate and for investment promotion activities. All foreign investment goes through the EIC, although investors also engage with regional investment bodies, and the distribution of labour between the EIC and regional authorities is not entirely clear. For the time being, they coordinate via quarterly meetings. The EIC is currently working with donors and programmes including the International Trade Center (ITC), the MasterCard Foundation, and the Bill and Melinda Gates Foundation. It still plays a relatively limited role in agricultural matters, focusing on industrial parks and agro-processing. The EIC has adopted a food and beverage strategy (together with the ATA) and set up a dedicated directorate for agro-processing.[55]

Regional investment commissions and bureaus report to their respective regional executives. Their roles include identifying and advising on opportunities for investment, promoting investment activities in their respective regions, preparing investment guidelines and issuing investment licences. There is a high level of variation between the capabilities of regional investment commissions, and a degree of competition between them. Under the current regime, regional investment commissions have started setting up liaison offices in Addis to be more visible, and promoting investment in their regions. However, some regions are preoccupied with more burning issues than attracting investment.[56]

The Ethiopian Agricultural Businesses Corporation (EABC) was created in 2015 by merging five state-owned enterprises, including the Ethiopian Seed Enterprise, the Agricultural Equipment and Technical Services Share Company, the Agricultural Inputs Supply Enterprise, the Natural Gum Processing and Marketing Enterprise and the Agricultural Mechanization Service Enterprise. The corporation, with its nineteen branches and six sub-branches, has a significant role in the production, import and distribution of agricultural inputs such as fertiliser, agro-chemicals and seeds (mainly hybrid maize and wheat seeds). With decentralisation, regions have established their own public seed enterprises, e.g. the Oromia Seed Enterprise, the Amhara Seed Enterprise and the South Seed Enterprise.

Agricultural extension agents are important for promoting technologies, and providing access to knowledge and inputs. Ethiopia invested heavily in its extension services, reportedly now the largest in Africa (Berhane *et al.*, 2018), adopting a dedicated strategy in 2014. Contract farming schemes and value chain development

[53] There have been issues with this distribution of roles in the past, as the ATA was reportedly acting as an authority on its own and side lining the Ministry of Agriculture, but this appears to have been rectified over recent years (interviews and Diriba & Man, 2019).
[54] Various interviews.
[55] Various interviews.
[56] Various interviews.

projects work through government extension services, in most cases with model farmers and development groups. De Roo (2020) describes the relationship between local development agents and farmers in the following terms: "loyal farmers are often rewarded with new social, political or economic opportunities, causing a flow of upward social mobility among the rural population. On the other hand, farmers who are not able or willing to join government programmes are portrayed as disloyal dissenters". Other important actors in the extension system are the numerous farmer training centres (FTCs) and Agricultural Technical Vocational Education and Training (ATVET) colleges that train the agricultural extension agents (Alemu and Berhanu, 2018). Actors in and partners of Ethiopia's agricultural extension system coordinate via the Agricultural Development Partners' Linkage Advisory Council (ADPLAC).[57]

The Ethiopia Commodity Exchange (ECX) was established as a state-owned enterprise in 2007 to promote market-oriented agricultural production, including by small agricultural producers (FRDE, 2007). The ECX promotes the commercialisation of major agricultural commodities such as coffee, sesame seeds, kidney beans, mung beans, chickpeas, soybeans, wheat and maize,[58] by providing information about the underlying supply and demand conditions in the economy. The ECX informs the market and society about price movements and related issues on a regular basis and regulates the conduct of market actors, thereby enabling the commodity market system to contribute to the country's development (Getahun, 2010). Price tickers are placed at major marketplaces across Ethiopia displaying in real time the prices discovered at the central market in Addis Ababa.

Research institutions. The Ethiopian agricultural research system received relatively large amounts of attention and funding from the national government, compared with other African countries that drastically reduced their investments in the sector in the 1980s and 1990s. The Ethiopian Institute of Agricultural Research (EIAR) is the main federal public research institute. Regional research centres undertake agricultural research and extension services at the regional level, based on the different agro-ecological zones in Ethiopia. A National Agricultural Research Council (NARC), established in 2015, has a mandate to coordinate research at federal level. Despite investments, coordination remains weak, often failing to synergise and align research programmes (Alemu and Berhanu, 2018). Twenty-six universities have agriculture faculties. Other relevant research institutions include the Policy Studies Institute (PSI), which was established by merging two state think tanks, the Ethiopian Development Research Institute (EDRI) and the Policy Study and Research Center (PSRC), and the Ethiopian office of the International Food Policy Research Institute (IFPRI).

Development partners. A large share of Ethiopia's official development assistance targets food security and the agri-food sector. A coordination platform on agriculture, the Rural and Economic Development and Food Security (REDFS) Working Group, is co-chaired by development partners and government representatives, and meets regularly. It established a Multi-Donor Trust Fund in 2008. One of the main multi-donor comprehensive programmes is the Agricultural Growth Programme (AGP), which provides support for agricultural production and commercialisation in the Amhara, Oromia, SNNP and Tigray regions. Some observers worry that donor-funded value chain initiatives in Ethiopia do not do enough to strengthen local support and innovation systems (De Roo, 2020) and that simple metrics of impact lead to losing sight of complex dynamics on the ground (ibid.). Several development partners support the agricultural commercial clusters or work in partnership with the ATA.

[57] https://adplac-ethiopia.net/about-us/.

[58] A commodity exchange is a central marketplace where sellers and buyers meet to transact in an organised fashion. In its wider sense, a commodity exchange is any organized marketplace where trade is funnelled through a single, well-defined mechanism (Gabre-Madhin & Goggin, 2005).

Bilateral donors. The United States and the European Union are Ethiopia's two largest bilateral donors by grant disbursement. The **United States Agency for International Development's (USAID)** Ethiopia Country Development Cooperation Strategy 2019-2024 focuses on private sector investment, a diversified economy and increased employment opportunities in Ethiopia. The United States also supports Ethiopia through its Feed the Future partnership signed in 2019, through which it aims to support inclusive and sustainable agriculture-led economic growth, strengthen resilience among people and institutions and improve nutrition, especially among women and children.[59] The **European Union**'s development cooperation with Ethiopia is one of the largest in Africa and in the world – amounting to EUR 815 million for the period 2014-2020 – and targets food security and agriculture, health, and governance. In recent years, the EU has increased the focus in areas relating to job creation, industrial and agro-industrial parks, export and trade promotion and private sector development.[60]

Multilateral development partners. The **World Bank** supports efforts to increase the agricultural productivity and commercialisation of Ethiopian smallholders through the AGP. The **World Food Programme (WFP)** provides unconditional food and cash transfers to vulnerable Ethiopian families as part of its emergency response work and through its support to the Productive Safety Net Programme (PSNP). It also provides 4 million people with fortified food to treat malnutrition and works with the Ethiopian government on supply chain capacity-strengthening activities.[62] **The FAO** implements a portfolio of programmes and projects in Ethiopia to improve food security, nutrition and the management of natural resources, and has a comparative advantage in mobilising the Ethiopian government where the focus is on very specific technical interventions in line with FAO's mandate (FAO, 2020). The **United Nations Development Programme (UNDP)** provides Ethiopia with strategic support to build national capacity and enhance the country's development results in the areas of poverty reduction and economic growth and climate-resilient development. It has been the main recipient of funds from the Global Environment Facility (GEF) for Ethiopia. The World Bank, UNIDO and the United Nations Environment Programme (UNEP) have received GEF funds, in some cases for technical areas that lie within FAO's mandate, such as conservation farming (FAO 2020). The **International Fund for Agricultural Development (IFAD)** supports Ethiopia through loans and investment, especially in the areas of small-scale irrigation development, sustainable natural resource management, rural financial inclusion, community-driven development among pastoral groups, and knowledge exchange through partnerships with the private sector, research institutions and other developing countries.[63]

Figure 2 Ethiopia's main development partners

Top five development partners by their grant disbursement: (2016/17)	Top five development partners by their loan disbursment: (2016/17)
USAID (USD 247.3 million)	IDA (USD 1062.2 million)
WFP (USD 225.9 million)	China (USD 249.5 million)
DFID (USD 222.9 million)	ADB (USD 215.8 million)
UNICEF (USD 135.9 million)	IFAD (USD 50.8 million)
EU (USD 103.3 million)	OFID (USD 40.8 million)

Source: UNDP.

[60] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_19_6679.
[61] See: https://www.undp.org/content/dagethiopia/en/home/oda-to-ethiopia.html.
[62] See: https://www.wfp.org/countries/ethiopia.
[63] See: https://www.ifad.org/en/web/operations/country/id/ethiopia.

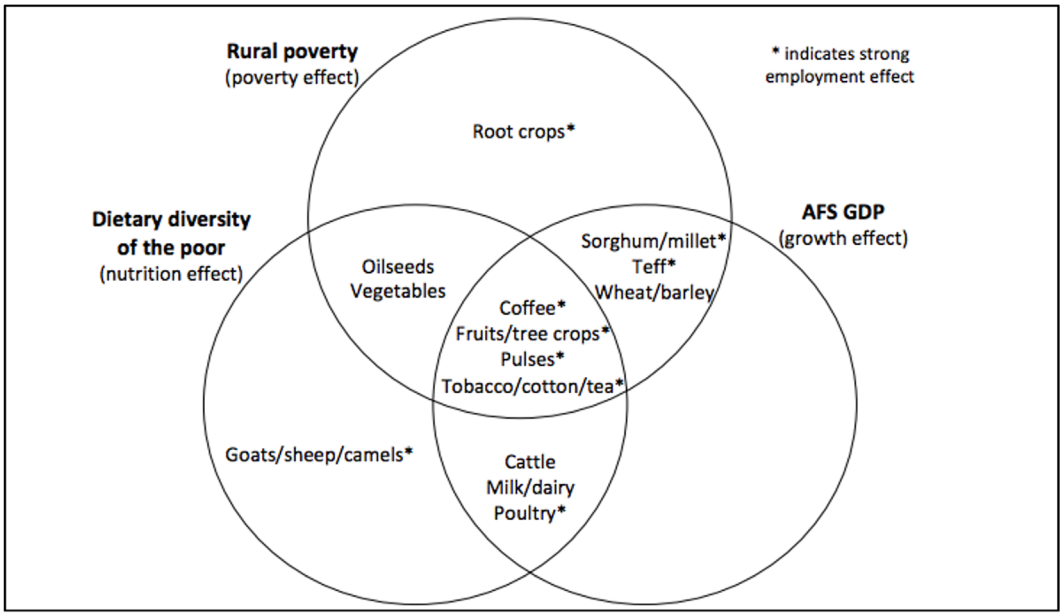
3. Promising agri-food value chains in Ethiopia

Given the drivers, outcomes and sustainability challenges identified above, which agri-food subsectors, value chains or commodities should initiatives like the AgrInvest-Food Systems Project prioritise for promoting and facilitating private investment for sustainable development impact in Ethiopia? We attempt to answer this question by identifying a shortlist of promising value chains in which private investment offers great potential for contributing to critical sustainable development objectives in Ethiopia, including reducing rural poverty and improving livelihoods, enhancing food security and improving diets and reducing negative environmental impacts and increasing resilience to climate change. We then dig deeper into these value chains - dairy, fruit and vegetables, and pulses - to identify specific entry points for facilitating private investment for sustainable development impact.

3.1. Prioritising specific value chains for sustainable impact

To formulate a shortlist of promising value chains, we built on similar exercises carried out by the International Food Policy Research Institute IFPRI and the Ethiopian Development Research Institute (EDRI) (Thurlow & Benfica, 2017) and by the Ethiopian Investment Commission (EIC) and the Agricultural Transformation Agency (ATA) (2019) in recent years. The IFPRI and EDRI authors assess agri-food value chains against their impact on rural poverty, dietary diversity of the rural poor, agri-food system (AFS) GDP growth and employment. They find that while no single value chain is most effective at achieving all these policy objectives, the coffee, fruit/tree crops, pulses and tobacco/cotton/tea value chains perform well in relation to all of them (see Figure 3). They find that the sorghum/millet, teff, and wheat/barley value chains reduce poverty and generate growth, but make diets narrower. The vegetable and oilseed value chains, on the other hand, help diversify diets and reduce rural poverty, but have more limited growth effects. The cattle, milk/dairy, and poultry value chains, meanwhile, promote growth and diversify diets, but are less beneficial in terms of raising poor households' consumption "either directly as a supplier of food or indirectly as a source of income" (Thurlow & Benfica, 2017).

Figure 3 Agri-food value chains in Ethiopia with strong poverty, nutrition and growth impact



Source: Benfica & Thurlow 2017.

They also find that certain value chains are much better at promoting particular outcomes. For example, the vegetables value chain is far more effective at diversifying diets than most other value chains. To account for trade-offs across different outcomes, the authors rank the value chains using different weightings in terms of their growth, poverty and nutrition impacts (see Table 3). Their analysis suggests that vegetables and fruits/tree crops should be prioritised, as they rank highly irrespective of how outcomes are weighted. Other food value chains that rank highly on multiple outcomes include oilseeds, milk/dairy and pulses.

Table 3 Rankings of agri-food value chains in Ethiopia under different weighting schemes

Rank	Equal weights	Poverty Bias	Nutrition Bias	Growth Bias
1	Oilseeds	Oilseeds	**Vegetables**	Cattle
2	Fruits/tree crops	Vegetables	**Fruits/tree crops**	Tobacco/cotton/tea
3	**Vegetables**	**Fruits/tree crops**	Oilseeds	**Fruits/tree crops**
4	**Tobacco/cotton/tea**	**Tobacco/cotton/tea**	Milk/dairy	Milk/dairy
5	Cattle	Pulses	Pulses	**Vegetables**
6	Milk/dairy	Milk/dairy	Tobacco/cotton/tea	Coffee
7	Pulses	Coffee	Cattle	Pulses
8	Coffee	Root crops	Coffee	Oilseeds
9	Poultry	Cattle	Poultry	Poultry
10	Goats/sheep/camels	Sorghum/millet	Goats/sheep/camels	Sorghum/millet

Source: RIAPA CGE Model and SAM.
Note: Rankings based on weighted sum of outcome indicators. Equal weighting is one-third each; biased weighting favors one indicator (one-half) at the expense of others (one-quarter each).

Source: Benfica & Thurlow 2017.

To develop the Ethiopian food and beverage processing industry and increase exports, the EIC and the ATA used a two-step approach to identify priority value chains for intervention. First, they assessed value chains on their potential to generate exports and/or substitute for imports, examining supply and demand potential and investor interest. According to this assessment, the most promising value chains are coffee, red meat, oilseeds and edible oil, fruit and fruit juice, dairy, barley and malt and wheat. The EIC and the ATA then analysed these value chains' impact on employment, on the incomes of smallholder farmers (SHFs) and on the environment and local community (see Table 4)

Table 3 EIC and ATA value chain prioritisation

	Export generation			Overlapping		Import substitution		
Main Criteria	Coffee processed	Red Meat processed	Poultry processed	Oil seeds, Edible oil	Fruit crops, Juice	Dairy processed	Barley, Malt	Wheat processed
Employment opportunity	✓	✓	✓	✓	✓	✓	✗	✓
SHFs impact	✓	✓	✓	✓	✓	✓	✗	✓
Impact on the environment and community	✓	✓	✓	✓	✓	✓	✓	✓

High ✓ *Medium* ✓ *Low* ✗ *Recommended for wave 1*

Source: EIC & ATA, 2019.

The IFPRI-EDRI and EIC-ATA exercises provide a good basis for prioritising value chains for intervention under the AgrInvest-Food Systems Project. Their assessments also align with the findings of our broader literature review - including of recent policy documents to assess the political traction[64] of specific value chains - and our interviews with Ethiopian food system experts. To guide them, we developed a methodological tool (see Box 1). This tool includes questions relating to the relevant criteria for determining which agri-food value chain to prioritise for promoting and facilitating private investment for sustainable development impact in Ethiopia under the AgrInvest-Food Systems Project. These criteria include the commercial potential of the value chain (and interest of investors), its relevance to economic, social and environmental sustainability, its political traction and the potential for interventions in the value chain to generate impact. Based on our literature review and interviews, and in line with the IFPRI-EDRI and EIC-ATA exercises, we identified dairy, fruit and vegetable and pulses value chains as the most promising for interventions under the AgrInvest-Food Systems Project. The rest of this section examines these value chains against the aforementioned criteria and identifies entry points for intervention under the AgrInvest-Food Systems Project.

Box 1: Criteria and guiding questions for prioritising value chain entry points into food systems

1. Commercial potential

✓ Are there opportunities for profitable investment by foreign and local investors in the value chain? And is there an existing or potential market for the commodity in question?

2. Relevance to sustainable and inclusive socio-economic development

✓ Does the value chain contribute to agricultural and economic growth?
✓ Does it contribute to exports or substitute for imports?
✓ Does investment in the value chain offer the potential to generate decent jobs and/or improve livelihoods and resilience, especially of potentially marginalised actors, including women, youth and smallholder farmers?
✓ What impact does the value chain have on gender equality? And on social cohesion and political stability?

3. Relevance to food security and nutrition

✓ Does production of the commodity contribute to improving household and/or national-level food security?
✓ Does it contribute to dietary diversification (e.g. with high protein or micronutrient value) and improved nutrition, especially for groups with the highest nutrition deficiencies (e.g. rural children)?

4. Relevance to environmental sustainability and climate resilience

✓ What is the environmental footprint of the value chain?
✓ What impact does the value chain have on biodiversity and the loss of ecosystem services (e.g. via overgrazing and use of agro-chemicals)?
✓ What impact does it have on soil erosion and land degradation (e.g. via deforestation to clear land for agriculture, and intensive land utilisation)?
✓ What impact does it have on water and air quality? And on greenhouse gas emissions?
✓ Could investment in the value chain improve resilience to climate change?

[64] This relates to the government's interest in promoting interventions in the value chain. The value chains prioritised by the EIC and the ATA demonstrate at least some degree of political traction. Other value chains identified in the previous government's agriculture plan (GTP II) could also be expected to still have some political traction. These include the maize, and horticulture (tomato, onion, banana, mango, and avocado) value chains as main priorities and the teff, haricot bean and apiculture value chains as additional priorities. In addition, the current government has been putting a lot of emphasis on developing the livestock subsector.

5. Political traction

- ✓ Is the value chain prioritised by policymakers and public authorities? And by civil society and/or development partners? Is such (lack of) prioritisation an opportunity or threat?
- ✓ Are external actors 'welcome' to engage in dynamics around/within the value chain?
- ✓ Are big players (elites) benefiting from the status quo? Are reforms/interventions likely to go against the vested interests of at least some connected players, or mobilise some political actors?
- ✓ Are there local or international public and/or private stakeholders who are/could be 'championing' interventions to promote private investment for more sustainable food systems? Do they coordinate?
- ✓ What is the scope (and local demand) for meaningful multi-stakeholder engagement around the value chain?

6. Potential pathway for change

- ✓ Is there sufficient coordination within the value chain? To what extent can improved coordination facilitate better outcomes?
- ✓ Is there a relative expert consensus (nationally? internationally?) on what interventions are needed to ensure the value chain better serves sustainability objectives?
- ✓ Are potential solutions politicised, with options discussed in the public sphere and the media? Have obstacles to implementing these solutions been identified? And are they well understood?
- ✓ How 'crowded' is the value chain in terms of interventions, including by external players? Are there opportunities to connect with initiatives and stakeholders that engage in similar interventions?
- ✓ Is there an 'entry point' to engage in the value chain and opportunity to bring added value beyond other (especially local) stakeholders?

3.2. Dairy value chain

3.2.1. Commercial potential

Ethiopia has seen a steady increase in demand for dairy products in recent years, due to population growth, high urbanisation rates and rising incomes. Average milk consumption in the country is estimated at around 20 litres per capita per year. Consumption in Addis Ababa is higher, at 40 litres, but this is still low compared with neighbouring countries, and much lower than the 200 litres recommended by the World Health Organisation (WHO) (ILRI, 2018, Makoni *et al.*, 2014). Annual overall dairy consumption increased by 31 percent between 2005 and 2016 (Minten *et al.*, 2020). Peri-urban and urban demand for milk and dairy products has been estimated to increase by between 37 percent and 148 percent, according to the analysis in the Government's 2015 Livestock Master Plan (FAO, 2019a).

Supply lags behind, which has pushed up prices and led to increased imports of powdered milk. Although the amount of milk produced has tripled in the last two decades - from around 1 billion litres per year in 2000 to more than 3.2 billion in 2015 (FAOSTAT) - yields per cow are still relatively low compared with yields in Kenya and Sudan. Processing capacity has increased rapidly in the last few years, mostly around the capital, with some sources mentioning a significant overcapacity (Minten *et al.*, 2018).

The prospects for investing in the dairy sector are positive, partly due to strong government backing (FAO, 2019a; ILRI, 2018; Ethiopian Embassy, 2018). The growing domestic market, with continued urbanisation trends and changing diets, shows more potential than regional export. Farmgate prices and feed costs are considerably higher than in the surrounding countries (Makoni

©FAO/AU/Yohannes Zirotti

et al., 2014). There is a lot of potential for private investments along the value chain, such as in manufactured feed and forage, artificial insemination and veterinary services, milk collection technology, storage and transportation (FAO, 2019a, Zijlstra et.al. 2015).

In the livestock sector as a whole, three subsectors were identified as having the most potential to contribute to the different national policy objectives (poverty reduction, improve food and nutrition security, contribute to GDP and foreign exchange and contribute to climate resilience): poultry, for chicken meat and eggs; dairy from cross-bred cattle; and red meat and milk from indigenous cattle, sheep, goats and camels (Shapiro *et al.*, 2017). Traditional smallholder production systems are dominant in all of the livestock subsectors (e.g. contributing 88 percent of the total cow milk production), but more specialised commercial production systems are being promoted. Interventions in the sector, for example in animal health or feeding, need to be tailored to the different farming and marketing systems, agro-ecological contexts and producers' ambitions and possibilities.

3.2.2. Relevance to sustainability objectives

The livestock sector, and the dairy value chain in particular, contributes both positively and negatively to a number of important sustainability objectives. From the point of view of food and nutrition security, animal-sourced foods play a key role in healthy diets. For poor households, dairy and eggs are the most affordable sources of animal-based protein, complementing starchy diets that are lacking micronutrients and protein. Small amounts of dairy products, in the form of fresh or sour milk, cheese or butter can already help prevent stunting and other forms of malnutrition. From a socio-economic standpoint, the livestock sector accounts for 40 percent of the country's agricultural gross domestic product, also providing organic fertiliser and traction. Ethiopia's national livestock herd provides all or part of the livelihoods of more than 11.3 million rural households (Shapiro *et al.*, 2017). Increasing milk yields and income through better marketing of dairy products can have a significant positive impact on rural and peri-urban households that are largely dependent on livestock farming. More sustainable outcomes in terms of economics and the welfare of households are possible by integrating livestock and crop production (Shapiro *et al.*, 2017). Furthermore, 85 percent of the tasks at the household level in the dairy value chain are conducted by women, suggesting that investments in the value chain could potentially have a significant impact on women's economic empowerment (FAO, 2019a).

The environmental pressure of livestock rearing, especially in the densely populated highlands, is leading to overgrazing, conversion of land for grazing and land degradation (FAO, 2019a). An increase in commercial livestock production systems will most likely have a negative impact on the overall greenhouse gas emissions of the sector. There are several ways to balance out these negative effects, for example by investing in better management of grazing lands, improved forage and availability of forage seeds, and promoting environmentally friendly use of cattle manure, for example integrating cow manure for increased soil fertility (ibid.). Strengthening the linkages with other systems holds potential for synergies, for example, optimising the usage of crop residue from pulses production[65] for livestock feed or optimising usage of manure from peri-urban dairy systems.

[65] See for example: https://www.slideshare.net/ILRI/n2africa-feed-postermar2016.

3.2.3. Political traction

Both the dairy and meat value chains are prioritised by policy makers and supported by development partners. The political traction of investments in the livestock sector is expected to increase even further, and will be reflected in the coming five-year strategy.[66] In 2015, a **Livestock Master Plan (LMP)** was developed based on an extensive livestock sector analysis. The Livestock Master Plan brings together investment interventions including a "**Cow Dairy Development Roadmap**" aimed at significantly increasing cow milk production (FAO, 2019a; ILRI, 2017). In practice, government interventions tend to favour interventions geared towards formalising the value chain, commercial production systems and production for export[67] (FAO, 2019a). This tendency runs the risk of compromising the positive impact that interventions in the livestock sector can have on poverty reduction, nutrition and gender equality.

3.2.4. Challenges, potential solutions, entry points and 'champions'

Challenges. At the production stage, where smallholders make up 98 percent of the producers, lack of access to inputs, services and markets is an obstacle to increasing production, productivity and profitability. The interface between research institutions and dairy producers, especially those in rural areas, is very weak (FAO 2019a). Due to a seasonal lack of animal feed and recurrent fasting periods in the Ethiopian Orthodox Church, large fluctuations occur in demand and supply of milk. Feed supply is a weak link in the Ethiopian dairy value chain; buying feed is expensive and many commercial farms lack sufficient land to produce feed on-farm (Zijlstra *et al.*, 2015). There is significant concentration and presumably overcapacity in processing. The four largest dairy processing firms supply three-quarters of all the pasteurized dairy products in the market. The cost of milk and dairy products in the formal channel is pushed up by a 15 percent value-added tax on dairy production (FAO, 2019a). Adoption of practices that lead to safer milk amongst producers in traditional and modern milk value chains alike is low (Minten *et al.*, 2020). There are a number of potentially conflicting development objectives for the sector, for example, the promotion of export of red meat, while also aiming to meet rapidly growing domestic demand. Dairy value chain development also potentially conflicts with developing a more climate-resilient green economy. Access to credit and financing is a major limiting factor (FAO 2019a), partly due to the perceived high risk of investments in the agricultural sector. There are some Dutch, New Zealand and US investments in the dairy and meat value chain.

Potential champions of efforts to promote sustainable investment. Apart from local authorities such as the Ministry of Livestock and Fisheries, the ATA and the Ethiopian Meat and Dairy Industry Development Institute (housed under the Ministry of Trade and Industry) the International Livestock Research Institute (ILRI), the United States Agency for International Development (USAID) and the SNV Netherlands Development Organisation are driving change in the dairy value chain. The Holeta Agricultural Research Centre is the national centre for dairy research, while for example in Central Eastern Oromia, the Melkasa Agricultural Research Centre and the Adami Tullu Research Centre play an important role in dairy and feed research.

Entry points. Initiatives promoting private investments in dairy value chains in Ethiopia are numerous. The integrated approach of the BRIDGE project (Building Rural Income through Inclusive Dairy Growth in Ethiopia), provides lessons in innovative and inclusive business models and farmers' organisation. The implementation of activities targeted towards three distinct market systems, (i) rural informal market systems, (ii) urban informal market systems and (iii) urban market systems, offers good examples of an inclusive and context-sensitive approach towards value chain development.

[66] Interview.
[67] Interview.

Dairy has been identified as a priority commodity for the Bulbula ACPZ and IAIP in Oromia. Considering the structural lack of feed supply in the country, there is scope for the development of business models for feed and fodder production by smallholders. This could be integrated with the production of pulses. Research shows that integrating crop residue of pulses production is beneficial for animal health and nutrition levels of milk.[68] Exploring the possibilities of quality seed production from (indigenous) grasses for feed and other sources of feed and forage could address the concerns raised regarding access to quality and affordable manufactured feed (FAO 2019a). Investments in fodder conservation, innovative fodder crops and grass varieties and water provision can contribute to optimising milk yields (Zijlstra *et al.*, 2015).

There is also scope for supporting existing large dairy cooperatives such as Ada'a Dairy Cooperative and the Lume Dairy Cooperative in Central Eastern Oromia to develop their savings and credit schemes and explore the potential of financial products specifically tailored for the livestock and dairy value chain, for example insurance policies for livestock. This could bridge the current gap between commercial banks and MFIs (FAO, 2019a) and strengthen the capacities of cooperatives 'to negotiate with the next steps of the value chain' (FAO, 2020).

The non-cow milk value chain is identified as one of the three high-potential areas in the livestock sector, with concrete potential for investment, for example in the Afar Region. In the Agro-Industry Investment Opportunities Directory, Dobi Agro-Industry is interested in attracting investments to further develop the raw camel milk business. The company already owns a dairy farm, with 1 500 camels and 300 milking cows (domestic breed). The total production of milk (both camel and cow milk) is about 1 500 litres per day. The company also produces feed (alfalfa, maize and hay) on its own farm and collects raw milk from local milk traders and pastoralists in the Afar Region (UNIDO, 2019). Efforts in the Afar region can be coupled with existing FAO initiatives in the region such as the Rural Women's Economic Empowerment (RWEE). This programme was implemented in Afar, but could benefit from a more contextualized approach (FAO, 2020). Taking a gender-responsive approach in dairy value chain development is critical because of the key contribution of women to dairy activities. A more balanced engagement of women and men could stimulate productivity and competitiveness (FAO, 2019a).

Cross-cutting to all dairy value chain investments and in line with taking a systemic approach to investments, efforts are necessary to: i) strengthen the linkages between the research system and producers, not only feeding insights on production and productivity enhancement, but also on insights on the importance of building on instead of criminalising informal food markets (Grace *et al.*, 2014; Vorley *et al.*, 2020); ii) develop the potential of investments in the production of traditional processing of dairy, for example very common and widely consumed products such as fermented sour milk, butter, ghee and cottage cheese (FAO, 2019a);[69] iii) carry out market studies on trends in local consumer demand, especially to fill the current gap in knowledge about the preferences of growing middle class and growing urban populations; and iv) raise awareness of the nutritional benefits of milk and dairy products consumption, potentially increasing consumer demand. A territorially embedded value chain coordination mechanism could create the space for inclusive dialogue to address the aforementioned bottlenecks and improve trust between local value chain actors (Zijlstra *et al.*, 2015). In the selection of the area to focus on, the project can build

[68] See: https://www.slideshare.net/ILRI/n2africa-feed-postermar2016.
[69] The AgrInvest-Food Systems Project could build on promising research into the commercial and nutritional potential of Zambia's traditional milk-based fermented drink, mabisi. See: https://knowledge4food.net/research-project/gcp1-zambian-traditional-fermented-foods/.

on the recent mapping study of 14 dairy clusters in Amhara, Oromia, SSNP and Tigray. The study identified the strengths and weaknesses of these dairy clusters based on (GIS) data collection at woreda (district) level and expert opinions on the biophysical and socio-economic indicators, (Ndambi *et al.*, 2018).

3.3. Fruit and vegetable value chains

3.3.1. Commercial potential

Many fruit and vegetable value chains share certain key characteristics. From a dietary perspective, increased consumption of both is necessary to improve nutrition and health outcomes. Fruit and vegetable value chains also share certain environmental challenges, especially relating to responsible agrochemical usage and irrigation. Other shared traits are the relative perishability of the produce and the high labour intensity of many fruit and vegetable crops. For these reasons, fruit and vegetable value chains are often grouped together in Ethiopian policy processes, for example in relation to the IAIPs.

Investments in fruit and vegetable value chains can benefit from the potential of the large and growing domestic market and the underutilised irrigation potential. Availability of cheap labour in this labour-intensive sector is also a key advantage (Gebru *et al.*, 2018). The Central Rift Valley and the eastern part of the country are the main production areas for commercial vegetable production (Hunde, 2017). Tomatoes, onions, cabbages, sweet peppers, leafy vegetables, beans and potatoes benefit from the favourable climate and the irrigation potential in the Central Rift Valley (Holtland, 2017). According to the Ethiopian Horticulture Producers Exports Association (EHPEA), this sector was the fourth largest contributor of export income for the country in the year 2017/18 with more than USD 300 million. The export of flowers contributes most of the share (nearly 80 percent), but vegetable, fruit, and herb exports are expanding.[70] The main export markets are Europe and the Middle East (FAO, 2019c). There is growing awareness that indigenous vegetables have high nutritional value, but they mostly remain under-supported and under-researched (Hunde, 2017). The larger-scale commercial production of tomatoes is mainly limited irrigation schemes. Production mainly targets local markets and export to, for example, Djibouti and Somalia (FAO, 2019c). The rising consumer demand globally for avocados - currently surpassing the five million tonnes per year, doubling over the past 15 years and with current consumer trends potentially doubling again until 2030 - provides ample opportunities for upcoming producer countries such as Ethiopia (ICRAF, 2018).

Fruits and vegetables have fetched increasingly high prices on the local market. Consumption of fruits and vegetables and relative expenditure on this food group is higher in urban areas than in rural areas. This is partly due to rural households producing for self-consumption, whereas urban consumers often need to rely on markets to buy fruits and vegetables, partly because demand outstrips supply (Minten *et al.*, 2018). With an increasing proportion of the Ethiopian population living in urban areas, these changing food preferences will most likely keep driving up demand. Rising food prices mean that producers and traders can make good profits, but high prices also jeopardise the accessibility of nutritious fruits and vegetables for poorer households (Gebru *et al.*, 2018). COVID-19 and the lockdown have negatively affected vegetable trade and consumption, while producers are seeing costs of inputs increase and farm gate prices decline (Tamru *et al.*, 2020).

[70] See: https://ehpea.org/sectoral-information/.

3.3.2. Relevance to sustainability objectives

SDG-compliant investments in the fruit and vegetable value chains in Ethiopia have the potential to positively contribute to several food system outcomes, especially relatingd to food and nutrition security. Levels of consumption of fruits and vegetables are low, resulting in insufficient levels of micronutrients such as vitamin A and zinc in Ethiopian diets (Bachewe *et al.*, 2019; Gebru *et al.*, 2018). This is partly due to local preferences and customs, but also to the rise in prices of fruits and vegetables compared with starchy staples in the last ten years (FAO *et al.*, 2020). Development of the horticultural value chain can contribute to lowering prices and availability, but efforts are also necessary to improve nutritional knowledge and the desirability of fruits and vegetables (IFPRI, 2019).

Horticultural production makes a substantial contribution to rural livelihoods, through the incomes generated by producers selling their produce, but also through the increased need for wage labour. This has spillover effects into the wider economy in creating non-farm employment, for example in small-scale trade and processing, but also by attracting migrant labourers, generating more economic activity at village level (Gebru *et al.*, 2018).

From an environmental perspective, sustainable investments in the fruit and vegetable chains can reduce post-harvest losses. Integration of fruit trees such as avocado and mango into integrated agroforestry systems, often in coffee production, can make these systems more resilient to climate change effects (Biazin *et al.*, 2018), while contributing to income diversification.

3.3.3. Political traction

Political traction is most likely in export-oriented vegetable and fruit value chains, for example towards initiatives involving agro-processing and initiatives promising youth employment. Foreign investment is promoted, for example by offering tax breaks, import duty exemptions, special loans by the Development Bank of Ethiopia, low land rental fees and subsidies for airfreight (Bitzer, 2019). According to the Ethiopian Horticulture Producers Exports Association (EHPEA), of the 126 investments in Ethiopia in the export of flowers, fruits, vegetables and herbs, farm ownership is made up of local investors (46), Direct Foreign Investors (76), joint venture partnerships (3) and the Development Bank of Ethiopia (1).[71] It would be interesting to see how this proportion is made up in the fruit and vegetable sector including farms that cater to the domestic market.

3.3.4. Challenges, potential solutions, entry points and 'champions'

Challenges. Constraints on the development of the fruit and vegetable value chains span across the whole value chain. On the supply-side, small-scale farmers face challenges in accessing affordable and quality inputs such as fertilisers, pesticides and quality seeds (in the case of annual crops). Farmers often lack knowledge of sound agronomic and soil amendment practices, while extension services have limited capacity and knowledge of horticultural crops (FAO, 2019d). These factors, combined with a high dependence on rain-fed agriculture, make it challenging for producers to deliver consistent high quality and quantity (Gebru *et al.*, 2018). Post-harvest losses at different stages of the value chain are significant. Government estimates stipulate that around thirty percent of fruits and vegetables are lost during transportation, storage and consumption (FAO, 2019c). Dealing with highly perishable produce, smallholders are constrained by a lack of infrastructure such as cold rooms. In addition, they are often poorly organized to coordinate production and marketing activities. Production and shipping costs are not competitive compared

[71] See: https://ehpea.org/overview-of-the-sectors-growth/ .

with surrounding countries, making it difficult to access EU mainstream markets, while high prices for fruits and vegetables on local markets make it difficult for processors to source from smallholders. The prices they fetch on the markets are often higher than the factory can pay to be profitable (Holtland, 2017).[72]

Although the improved income of vegetable producers has been shown to positively affect household food availability and access, it can also lead to lower food variety and diet diversity scores when local production systems focus too much on specialization. Lower agroecosystem diversity can reduce farm and landscape-level resilience (Gebru *et al.*, 2018). At community-level, not all households have sufficient productive resources (e.g., land size and access to irrigation) to fully benefit from inclusive business development such as contract farming schemes or outgrower schemes. Without taking account of local dynamics, such interventions risk continuing or deepening inequities in food security (Gebru *et al.*, 2019, De Roo, 2020).

Promotion of investments in the fruit and vegetable value chain can be an important component of nutrition-sensitive agriculture. Preferably, nutrition-sensitive agriculture activities extend beyond the promotion of homestead gardens and include decisions around what is grown on the fields, and what is consumed and sold. To make sure nutrition activities do not introduce more burdens for women, it is also necessary to target men and the community at large to increase the understanding of the importance of nutrition (FAO, 2020).

Herbicide and chemical fertiliser use in Ethiopia has increased significantly in the last decade, with potentially harmful effects for human health and the environment (Gebru *et al.*, 2018). Anecdotal evidence points to massive overuse of chemicals, especially in the domestic tomato value chain. Claims of other negative impacts of large-scale foreign investment in export-oriented horticultural value chains (mostly referring to the flower sector) include land dispossession, worker exploitation and insufficient wages. Initiatives to counter these allegations comprised the development of a Code of Practice by the sector in 2007 and adherence to other international standards. Contentious issues remain, since the sector also offers significant job opportunities for unskilled workers, in most cases young women (Bitzer, 2019).

Particular challenges for the development of the avocado value chain include insufficient market information and barriers to access high-standard global markets such as the European market. Logistical challenges like high dependence on the Djibouti port for access to sea freight, and the capacity and cost of air freight hinder Ethiopia's access to global avocado markets (ICRAF, 2018). For the supply-side of the tomato value chain, challenges relate to seasonality, high incidence of pests and diseases and lack of access to irrigation schemes. Lack of knowledge of water management often leads to overconsumption and maldistribution of available water resources (FAO, 2019d). Poor logistics and transportation and lack of adequate storage facilities contribute to high post-harvest losses (ibid.).

Solutions. Some of the efforts to remedy the challenges in fruit and vegetable value chains include initiatives to increase the affordable and timely access to a diversity of seeds. The Integrated Seed Sector Development Programme, for example, aims to improve the access to and use of quality seed by small-scale farmers of not only hybrid but also farmer-preferred varieties, promoting a diversity of seed systems in terms of formality.[73] The programme has also contributed to more

[72] Interview
[73] See: https://issdethiopia.org/.

systemic approaches regarding seed sector development, sensitising government officials to the need for integrating seed systems with different degrees of formalisations and regulatory control. The government, but also development partners and development banks, is increasingly interested in investing in farmer-led small-scale irrigation development, climate-smart agriculture, agricultural commercialization and green growth, areas that are highly relevant to the fruit and vegetable value chains (FAO, 2020). Building on the FAO Country Office experience in contributing to post-harvest management and loss reduction, studies on the causes of post-harvest loss in specific fruit and vegetable value chains could be updated, taking into account best practices and indigenous knowledge of post-harvest management (FAO, 2020). Support for farmers organisations, such as cooperatives, can also contribute significantly to enhancing the production, processing and marketing of a diversity of horticultural products (Gebru *et al*., 2018). Investing in the financial capacities as well as in the managerial capabilities of cooperatives can significantly enhance producers' position in the value chain and increase the inclusivity and sustainability over time of arrangements between large groups of small-scale producers and exporters, processors or other lead buyers (FAO, 2019d, Holtland, 2017).

Potential champions of efforts to promote sustainable investment. There are clear and sustained efforts by government agencies such the Ministry of Agriculture and the ATA to support investments in the fruit and vegetable subsectors. The Oromia Investment Commission and the Ethiopian Horticulture and Agriculture Investment Agency are specialised authorities relevant for horticultural development and investment promotion. Another important stakeholder is the Ethiopian Horticulture Producers Exports Association (EHPEA). The EHPEA is a member-based association promoting and lobbying the interests of its members. Current membership comprises 120 mostly export-oriented companies. The Dutch Embassy, through its support and funding of the EHPEA, aims to promote different responsible business activities, such as providing training to its members on topics including Integrated Pest Management (IPM) and gender equality (e.g. guaranteeing equal pay in member farms (Bitzer, 2019). The Dutch Embassy is also involved in the development of a cool-chain logistics corridor connecting Addis Ababa to the port of Djibouti via railroad.[74] The first refrigerated shipment of avocados was shipped from Djibouti to markets in Europe. Apart from unlocking the fresh produce export potential of Ethiopia, the combination of train and sea freight also matches well with the green logistics policies of European countries.

The SNV Netherlands Development Organisation is working together with the Ethiopian Ministry of Agriculture to develop a horticultural sector development plan and to design specialised horticulture extension services. The SNV has invested in their own field staff, i.e. recruiting fieldworkers to support extension services workers.[75] Haramaya University hosts the African Center of Excellence (ACE) in Climate-Smart Agriculture and Biodiversity Conservation. Specific to the avocado value chain, there are very few donor-funded projects - the USAID and MASHAV (Israeli's Agency for International Development Cooperation) are the main contributors to Phase IV of the Smallholder Horticulture Project (SHP), which supports small-scale producers to produce for the European market (ICRAF, 2018).

Entry points. There is potential to invest in the production and processing of perishable products like fruits and vegetables. There ia a strong opportunity for cooperatives to produce certified seed for potato and tomato, while investments in processing are strongly promoted by the government through the agro-processing plants. Avocado is worth singling out here, due to its favourable

[74] See https://www.hortidaily.com/article/9243456/first-fruit-export-by-train-from-ethiopia/.
[75] Interview.

characteristics in terms of nutrition and agronomy. The demand for avocado is largely domestic, with some export of fresh fruit to neighbouring countries. Avocado is selected as a leading commodity for the Yirgalem ACPZ in Eastern SNNP, where a processing plant for avocado is already functioning, contracting more than 30 000 farmers (FAO, 2019b).[76] Tomato is designated as an additional commodity in the investment plans for the Bulbula ACPZ in Oromia. The climate in Central Eastern Oromia, as well as the infrastructure and marketing conditions, is particularly beneficial for tomato production. Tomato production is mainly targeting domestic, urban markets such as Addis Ababa, Adama and Hawassa. Tomato prices are continually increasing, with processors currently operating under capacity due to an insufficient supply of raw materials (ibid.). An increased emphasis on the promotion of investments in environmentally friendly production practices for fresh vegetable and fruit production seems warranted. Especially in the tomato value chain, pesticide residues and water resource mismanagement are problematic. Investments can build on the potential of increased awareness and the visibility of food safety on the demand-side of the value chain.

In terms of building on the lessons of the previous experiences of the FAO Country Office in the fruit and vegetable value chain, they are offered by the German-funded Food Loss Reduction Project and the Swiss-funded Reducing Food Losses through Improved Post Harvest Management in Ethiopia project (both implemented by the FAO Country Office). The first produced several studies and manuals on loss reduction techniques in potato, tomato, mango and banana value chains, and provided training for development agents at different levels on the value addition of fruit and vegetables. The study commissioned by the Food Loss Reduction Project, on the causes of post-harvest loss, indigenous knowledge and best practices of post-harvest management in tomato, potato, mango and banana value chains, could be very useful for the AgrInvest-Food Systems Project to build on. Considering the fact that informal markets are the most important, and often only, source of fresh fruit and vegetables for consumers in low-income parts of the city, acknowledging the importance of informal traders, street vendors and other informal actors is paramount (Vorley *et al.*, 2020). Investing in a clear understanding of the needs and priorities of value chain stakeholders regarding formalisation will be relevant to ensure private investment is inclusive and sustainable over time. Additionally, an increased focus on the role of informal actors in the tomato value chain supplying the Bulbula IAIP in Oromia could contribute to addressing the evidence gap on the links between informality and the impact of the food system on the natural environment (ibid.).

Many contract farming and outgrower schemes for horticulture are not commercially viable despite investments from development partners and government authorities.[77] Holtland (2017) reviewed eight contract farming schemes in agri-food value chains in recent years in Ethiopia.[78] Cooperatives, informal groups and/or lead farmers moderated between the many farmers involved in the scheme and the firm. The review showed that how this interface works, is the most important variable for the success of the scheme and in most cases, farmers and firms did not invest enough in this interface. Building on these lessons, commercially viable business models could be developed for cooperatives and producers' organisations to provide these broker-like services.

[76] See https://www.tradinorganic.com/our-company/news/our-avocado-oil-factory-ethiopia-officially-open-n45/.
[77] Interview.
[78] The case studies involved seven development partners and one supported by the Ethiopian government. The cases involve a range of investors and Ethiopian smallholder farmers in different value chains including malt barley, chickpeas, green beans, and passion fruit.

3.4. Pulses value chains

3.4.1. Commercial potential

Ethiopia's climate and diverse agroecological zones are suitable for producing a wide variety of pulse crops, and as a result, the country is one of the world's biggest producers and exporters of pulses. It is the second largest producer of fava beans (broad beans)[79] and the sixth largest producer of chickpeas (USDA Foreign Agricultural Service, 2018). It iss also one of the top five exporters of fava beans and one of the top ten exporters of chickpeas, common beans and field peas (ibid.). Major markets for Ethiopia's pulses exports include Pakistan, Vietnam, Indonesia, the United Arab Emirates (UAE) and its neighbours, Kenya and Sudan.[80] Ethiopia's pulses exports have grown significantly in value, from USD 22 million in 2001 to USD 241 million in 2017, and represent the country's third biggest source of foreign exchange after coffee and oilseeds (ITC, 2019). Kidney beans are Ethiopia's biggest pulses export, followed by chickpeas.[81] However, only about 14 percent of local pulses production is exported, with the rest consumed locally, mostly on farms as food, feed or seed (USDA Foreign Agricultural Service, 2018).

Growing local demand driven by urbanisation, rising incomes and a shift to more nutrient-rich diets,[82] as well as steady international demand, have meant healthy prices, which have in turn stimulated increased production (with some year-to-year fluctuation due to weather factors). Pulse crops now account for about 12 percent of Ethiopia's crop production and occupy about 14 percent of Ethiopia's cropland, with production concentrated in the Amhara and Oromia regions (USDA Foreign Agricultural Service, 2018). Fava beans account for almost a third of production, followed by haricot beans (including red kidney beans and white pea beans) (18 percent), chickpeas (16 percent) and field peas (13 percent) (FDRE & ITC, 2019). As with other staple crops in Ethiopia, pulses production is dominated by smallholder farmers using "rain-fed and low input farming systems" (USDA Foreign Agricultural Service, 2018). Average yields are low compared with the most productive producers globally, ranging from 1.2-2.0 metric tonnes per hectare (ibid.). On-farm trials with use of improved inputs and advanced planting techniques suggest significant potential for productivity gains (ITC, 2019). Ethiopia also has a number of pulse processing factories (ibid.).

The potential of the pulses subsector in Ethiopia has not been fully exploited due to various challenges (see below), but strong local and international demand, scope for productivity gains and recent government efforts to promote foreign investment suggest potential for profitable investment in pulses in Ethiopia (ibid.). There are investment opportunities in primary production and in indirect production through contract farming. Particularly promising pulses include haricot beans (including both white pea beans and red kidney beans), chickpeas and mung beans. Production of white pea beans for export is booming in Central Eastern Oromia. These pulses present opportunities for private investment in input supply, aggregation and quality assurance (FAO, 2019b). Red kidney beans are produced for consumption in Southern Ethiopia, but are also increasingly exported to Kenya, with significant potential for increased production and exports.[83] Chickpeas are produced in Amhara for the domestic and export market, and offer significant opportunities in contract farming, and in exports of dried and shelled chickpeas (EIC & ATA, 2019). Mung beans, meanwhile, are an emerging crop in Ethiopia, are reported to be good for sprouting, and offer potential for export to Europe as organic mung beans (Lehr & Sertse, 2018).

[79] Also called horse beans or field beans.
[80] From ITC TradeMap data: https://www.trademap.org/.
[81] From ITC TradeMap data: https://www.trademap.org/.
[82] Population growth, urbanisation and income growth in Ethiopia are expected to increase consumption of processed pulse-based foods in the coming years (Getachew, 2019).
[83] Various interviews.

There are also promising opportunities for investment in value addition and processing, as the Ethiopian government aims to promote exports of processed pulses to regional markets, the United States and the United Kingdom and of processed pulse flours to the UAE and the European Union (FDRE & ITC, 2019). The Ethiopian government provides export incentives for processed agricultural exports, and has designated haricot beans as a priority ('additional') crop for processing at the Bulbula IAIP in Oromia. Beyond production and processing, investment in other segments of pulses value chains is welcomed in Ethiopia, including in input supply (seeds, fertilisers, pesticides, machinery and equipment), animal feed processing, vertically integrated trading (warehousing, transportation and risk management) and quality testing and certification (ibid.).

3.4.2. Relevance to sustainability objectives

Greater private investment in Ethiopia's pulses value chains can contribute to achieving economic, social and environmental sustainability objectives in the country. In addition to being an important source of foreign exchange for Ethiopia, pulses are an important source of livelihoods for smallholder farmers, around 9 million of whom are involved in pulses production, together accounting for 95 percent of Ethiopia's pulses production (ITC, 2019; Kebede, 2020). Pulses are generally more profitable than cereals, and further productivity gains could generate better economic returns for smallholders (ibid.). Pulses residues, meanwhile, are used as animal feed by farmers employing mixed crop-livestock farming. As the second most important component in the national diet after cereals, pulses are crucial for food security in Ethiopia (Henry, 2018). Most Ethiopians consume pulses regularly and overall consumption increases during Ethiopia's many religious fasting days. Pulses are also important for addressing malnutrition in Ethiopia, as they are an excellent source of many of the macro and micronutrients that Ethiopians do not consume enough of, including protein, calcium, iron and zinc (Bodnar *et al.*, 2019). They are also cheaper than other sources like meat and fish (ibid.). Imported pulses are also used for humanitarian food relief in Ethiopia.

Pulses also play an important role in sustainable land management. They contribute to preserving soil fertility by fixing atmospheric nitrogen, making farmland less vulnerable to droughts and climate change, and reducing soil and water erosion (ibid.). This impact of pulses also reduces farmers' need for mineral fertiliser (ibid.). Widely practiced in Ethiopia, intercropping (or rotating) pulses with cereals or other crops, like coffee,[84] contributes to improved soil fertility and higher yields. Pulses also have a very low water footprint compared with other high protein food sources and can be grown in poor soils where other crops cannot be cultivated (FDRE & ITC, 2019). Furthermore, pulses are useful for climate change adaptation, since they have "a broad genetic diversity from which climate-resilient varieties can be selected and/or bred" (ibid.).

3.4.3. Political traction

Until recently, government (and donor) investment in pulses research and focus on pulses production lagged behind that for cereals (FDRE & ITC, 2019). However, the Ethiopian government has come to recognise the potential of the pulses sector and is now seeking to attract foreign investment there to improve productivity and production, particularly for export (ITC, 2019). It has developed, with support from the International Trade Centre (ITC), the "Ethiopia National Pulses Strategy 2019-2024". This market-led Strategy aims to: improve productivity and quality through enhanced public and private support for research, input distribution, production, processing and export; improve export competitiveness by strengthening backward linkages and responding more effectively to market opportunities; and promote value addition (FDRE & ITC, 2109). The short-

[84] Intercropping of coffee with pulses, such as haricot beans, is common in parts of Ethiopia such as Eastern SNNPR (FAO, 2019b).

term goals of the Strategy focus on promoting cooperation and partnerships with foreign pulse organisations and introducing a national code of conduct for exporters. In the medium-to-long term, it seeks to promote value addition, incentivise investment and establish a traceability and certification system for pulses to enable organic farming (ibid.). The Strategy prioritises specific pulses: fava beans, white (pea bean) and red (kidney) haricot beans, chickpeas, field peas, lentils and mung beans. A national pulses public-private partnership platform is envisaged to support implementation of the Strategy.

Other signs of increased political attention on pulses include the government's decision to include additional pulses commodities in the ECX to stamp out 'illegal' trading in these products, strong government support for local pulses producers to attend international trade fairs in search of foreign markets and the inclusion of haricot beans as a priority commodity for Oromia's IAIP and ACPZ.[85]

3.4.4. Challenges, potential solutions, entry points and 'champions'

Challenges. Pulses value chains in Ethiopia are subject to a number of challenges. Limited use of inputs such as chemical fertilisers, organic inputs (e.g. rhizobium inoculants), high-yielding seeds and agricultural technologies, coupled with limited knowledge and use of modern agronomic practices and soil amendment practices, and poor extension services, lead to low on-farm productivity, low quality products and inconsistent supply (FDRE & ITC, 2019; Kebede, 2020). Value chains are also fragmented, with weak linkages between producers and processors and exporters, poor contract discipline, and a large number of ineffective intermediaries creating high transaction costs and a lack of transparency in markets (Kebede, 2020). Contract farming and vertical integration are relatively new and there has been "little investment from processors or exporters in production by farmers or in input supply chains by agro-processors" (Bodnar *et al.*, 2019). Access to credit and market information is also very limited. Despite some effective approaches by cooperatives, aggregation remains a challenge, as do high transport costs and inadequate storage facilities, which contribute to high levels of post-harvest losses and quality degradation (FDRE & ITC, 2019). Irrigation is also lacking. Public-private coordination and efforts to attract investment have been insufficient, while quality management infrastructure is lacking (ibid.). There is also limited consumer awareness about the nutritional benefits of pulses.

Solutions. Recent government efforts to give more policy attention to pulses are sensible. Over and above the efforts to boost production, productivity and processing, government efforts could focus on strengthening the regulation and quality control of inputs and on encouraging consumption of pulses for healthier diets, for example through school feeding schemes and government procurement (Bodnar *et al.*, 2019). Private investment in vertical integration and contract farming could liberalise supply of inputs (technologies, chemical fertilisers, pesticides and insecticides, improved seeds and financial services) extension, knowledge and advice (ibid.). Coordinated public-private collaboration and investment through a national pulses platform could also help to address the fragmentation of pulses value chains in Ethiopia. It could address challenges in market information, aggregation, transport infrastructure and the capabilities and market orientation of producer organisations. It could also inform and promote relevant research and innovation (ibid.).

[84] Various interviews.

Potential champions of efforts to promote sustainable investment. Potentially important partners and champions of efforts to facilitate investment in the pulses subsector include the public and quasi-public entities mentioned in previous sections, such as the ministries of agriculture, industry and trade, the ATA, the EABC, the ECX and the EIC. The Ethiopian Pulses, Oilseeds and Spices Processors-Exporters Association (EPOSPEA) is another important actor. It focuses on promoting exports of pulses and oilseeds from Ethiopia. An Ethiopian Pulse Council has also been proposed to focus on issues that the EPOSPEA does not address, such as production practices, value chain issues and processing (Lehr & Sertse, 2018). In addition to the EIAR and other local research institutes, the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), the International Institute for Tropical Agriculture (IITA) and the International Centre for Tropical Agriculture (CIAT) have been involved in many important projects in Ethiopia. Development partners have also played a prominent role in pulses in Ethiopia. For example, through the Supporting Indian Trade and Investment for Africa (SITA) project,[86] the ITC has assisted the Ethiopian Government in developing its National Pulses Strategy and has sought to build capacity for pulses exports in Ethiopia. The Bill and Melinda Gates Foundation (BMGF) has supported the Tropical Legumes Project,[87] while Canada's International Development Research Centre (IDRC) has supported the Scaling-up Pulse Innovations for Food and Nutrition Security (SPIFoNS) in Southern Ethiopia.[88]

Entry points. The activities of the actors mentioned above present a number of interesting entry points for efforts to facilitate private investment in pulses. For instance, the designation of haricot beans as a priority commodity in the ACPZ supplying the Bulbula IAIP in Oromia suggests great potential for facilitating investment in sustainable haricot bean production and processing for generating employment in this region. There may also be scope to build on the efforts of the SITA project to strengthen and improve the organization of pulses value chains in Ethiopia, making them more inclusive and profitable for smallholder producers, and for promoting exports, particularly to South Asia.

Various donor projects, such as the BMGF-funded N2Africa project on nitrogen fixation, offer lessons for facilitating investments in contract farming that promote more environmentally sustainable and climate resilient pulses farming. Similarly, the efforts of the SPIFoNS in Southern Ethiopia, and the CDAIS[89] in Northern Ethiopia, offer good examples of how to work with farmers and cooperative unions to better cluster producers, including women farmers, and to link them to buyers. Finally, the "commodity corridor approach" developed by the Pan-African Bean Research Alliance (PABRA) and the CIAT offers interesting potential to facilitate increased production for the regional trade of pulses from Ethiopia to neighbouring countries (Birachi *et al.*, 2016). In particular, the proposal of a 'bean corridor' from Southern Ethiopia to Kenya (via Moyale) to build on, structure and improve the sustainability impacts of existing trade in red kidney beans from Ethiopia to Kenya offers a lot of promise.

[86] SITA is a South–South trade and investment initiative that aims to improve the competitiveness of select value chains by providing partnerships with institutions and businesses from India. It is funded by the United Kingdom of Great Britain and Northern Ireland Department for International Development (DfID) and implemented by the ITC (DFRE & ITC, 2019).

[87] See: https://www.cgiar.org/news-events/news/12-years-of-tropical-legumes-25-million-smallholder-farmers-now-grow-improved-varieties/.

[88] See:https://www.idrc.ca/en/project/scaling-pulse-innovations-food-and-nutrition-security-southern-ethiopia-cifsrf-phase-2

[89] See: https://cdais.net/home/about-us/.

4. Conclusion

This study provides an analytical foundation for the implementation of the AgrInvest Project in Ethiopia. The project, which is being piloted in four African countries, seeks to promote private investments in agri-food value chains to contribute to more sustainable, inclusive and resilient local food systems. For investments to be impactful in terms of sustainable development, they need to account for local contextual realities, challenges and opportunities, and to be adapted to local dynamics regarding agricultural development and investment. To that end, this study has provided an analysis of the Ethiopian food system, highlighting key sustainability challenges as well as the major drivers of food system activities and outcomes in Ethiopia. It has also identified a number of agri-food value chains that present promising entry points for sustainable investment, opportunities which will be explored further through the AgrInvest project.

The analysis here demonstrates the importance of Ethiopia's food system for the country's sustainable development, especially as a source of livelihoods. It also shows how it is evolving from a traditional food system characterized by short and local value chains to a transitional food system wherein markets are more important for both producers and consumers. Diets in Ethiopia are also changing. Major drivers of this evolution include population growth, rising incomes and urbanization. Agricultural production has kept up with this rising and changing demand, largely through the expansion of cultivated land, but also through the intensification and modernization of agricultural production.

However, the Ethiopian food system faces a number of sustainability challenges. Agricultural production continues to put significant pressure on Ethiopia's natural environment, contributing to biodiversity loss that has reduced resilience to the effects of climate change. Rural poverty, food insecurity and malnutrition also remain high, with significant regional disparities. Youth underemployment is high on the political agenda, while gendered differences in access to knowledge, inputs and services are preventing women and girls from reaching their full potential.

The transformation of the agricultural sector plays a central role in Ethiopia's development strategy. Government policies are geared towards improving the productivity of smallholder farmers, and increasingly also in promoting commercial farming and agro-processing. Agricultural Commercialisation Clusters (ACCs) have been established in the four breadbasket regions of the country (Amhara, Oromia, SNNPR and Tigray) to boost the production and commercialisation of regionally identified priority commodities. Integrated Agro-Industrial Parks (IAIPs) and their respective Agro-Commodity Procurement Zones (ACPZs) are being set up to attract investment in agro-processing. The Agricultural Transformation Agency (ATA) and Ethiopia's investment institutions play a pivotal role in promoting agricultural commercialisation and attracting investment. Criticisms of the country's food-related policies include a lack of meaningful public participation in policymaking processes and varying degrees of policy inconsistency in terms of promoting both smallholder and large-scale commercial farming. A large share of Ethiopia's significant official development assistance targets food security and the agri-food sector.

The finance and investment climate in Ethiopia presents a complex picture. Although the government encourages foreign investment in agriculture and agri-food processing, past efforts to attract foreign investment have had mixed results. Foreign exchange restrictions present a challenge, as do perceptions of high political risk. Access to finance is problematic for agribusinesses and farmers, especially smallholders. The liberalisation of the telecommunications and banking sectors could offer space for financial services innovation, but it is too early to assess its impact.

In terms of specific opportunities for private investment to promote more sustainable food systems, the analysis has identified three sets of agri-food value chains that display significant potential: dairy value chains (especially milk, cheese and butter); fruit and vegetable value chains (especially avocado and tomato); and pulses value chains (especially red kidney beans and white pea beans, chickpeas and mung beans). By and large, investment in these value chains presents significant commercial potential to investors and have the potential to contribute to improved nutrition and to other socioeconomic and environmental sustainability objectives in Ethiopia (see Table 5 below). There is also significant political attention and traction around developing these value chains, and specific opportunities for investment that can deliver positive change.

References

Abebe, G. 2017. *Long-term climate data description in Ethiopia.* Data in Brief 14 (2017) 371–392.

Admassie, A., Berhanu, K. and Admasie, A. 2016. *Employment Creation in Agriculture and Agro industries in the Context of Political Economy and Settlements Analysis. Partnership for African Social and Governance Research Working Paper No. 016*, Nairobi, Kenya.

Alemu, D. and K. Berhanu. 2018. *The Political Economy of Agricultural Commercialisation in Ethiopia: Discourses, actors and structural impediments. APRA Working Paper 14, Future Agricultures Consortium.*

Asrat, D. and A. Anteneh. 2019. *The determinants of irrigation participation and its impact on the pastoralist and agro-pastoralists income in Ethiopia: A review study, Cogent Food & Agriculture, 5:1***.**

Ayele, S., G. Ayele, T. Nigussie and J. Thorpe. 2019. *Policy incentives and agribusiness investment in Ethiopia: benefit or deadweight? APRA Brief 20, Future Agricultures Consortium.*

Bach, A., Gregor, E., Sridhar, S., Fekadu, H., and Fawzi, W. 2020. *Multisectoral Integration of Nutrition, Health, and Agriculture: Implementation Lessons From Ethiopia. Food and Nutrition Bulletin, 037957211989509.* doi:10.1177/0379572119895097

Bachewe, F., G. Berhane, B. Minten and A. S. Taffesse. 2016. *Non-farm income and labor markets in rural Ethiopia.*

Bachewe, F. N. and B. Minten. 2019. *The rising costs of nutritious foods: The case of Ethiopia. Strategy Support Program - Working Paper 134. Addis Ababa and Washington, DC, Federal Democratic Republic of Ethiopia Policy Studies Institute and IFPRI.*

Belachew, T., C. Hadley, D. Lindstrom, A. Gebremariam, K. W. Michael, Y. Getachew, C. Lachat and P. Kolsteren. 2011. *Gender differences in food insecurity and morbidity among adolescents in southwest Ethiopia. Pediatrics, 127(2), e398–405.*

Benfica, R. and J. Thurlow. 2017. *Identifying priority value-chains in Ethiopia. International Food Policy Research Institute (IFPRI) Ethiopia and Ethiopian Development Research Institute (EDRI) Strategy Support Program Working Paper 110.*

Berhane, S. 2019. *'Developmental State Under the Radar' Ethiopian Business Review, 28 September 2019.*

Guush, B., Catherine, R., Gashaw, T.A. and Thomas, W.A., 2018. *The state of agricultural extension services in Ethiopia and their contribution to agricultural productivity. IFPRI-EDRI, (118).*

Berhanu Lakew, T. and H. Azadi. 2020. *Financial Inclusion in Ethiopia: Is It on the Right Track? InThurlowt. J. Financial Stud. 2020, 8, 28.*

Biazin, B., Haileslassie, A., Zewdie, T., Mekasha, Y., Gebremedhin, B., Fekadu, A. and Shewage, T. 2018. *Smallholders' avocado production systems and tree productivity in the southern highlands of Ethiopia. Agroforestry Systems 92(1):127–137.*

Birachi, E., I. Macharia, D. Karanja, M. Ugen, C. Ruraduma, A. Musoni, W. Magdalena, K. Kilango, S. Kweka, K. Muimui, J. C. Rubyogo and R. Buruchara. 2016. *A Commodity Corridor Approach to Regional Pulse Trade: A Case of Bean Corridors in Eastern and Southern Africa. Presentation to the Pan-African Grain Legume and World Cowpea Conference.*

Birke, W. and Zawide, F., 2019. *Transforming Research Results in Food Safety to Community Actions: A Call for Action to Advance Food Safety in Ethiopia. Environment and Ecology Research, 7, pp.153-170.*

Bitzer, V. 2019 *Evaluation of Dutch IRBC policy. Ethiopia Report (KIT).*

Bizzotto Molina, Paulina, Cecilia D'Alessandro, Koen Dekeyser and Marta Marson. *"Sustainable food systems through diversification and indigenous vegetables." ECDPM paper, March 2020***.**

Bodnar, F., E. Wolde-meskel, and K. Giller. 2019. *Policy recommendations for the legume sector in Ethiopia. N2Africa report no 123.*

CIAT; BFS/USAID. 2017. *Climate-Smart Agriculture in Ethiopia CSA Country Profiles for Africa Series. International Center for Tropical Agriculture (CIAT); Bureau for Food Security, United States Agency for International Development (BFS/USAID), Washington, D.C.*

Cochrane, L. and D. D. Legault. 2020. *The Rush for Land and Agricultural Investment in Ethiopia: What We Know and What We Are Missing. Land 9(5): 167 (1-13).*

Daley, B. 2015. *Environmental Issues in Ethiopia and Links to the Ethiopian Economy.*

Debela, S. 2018. Inve*stment opportunities in agro-processing.*

Dekeyser, K., F. Rampa, C. D'Alessandro and P. Bizzotto Molina. *The food systems approach in practice: Our guide for sustainable transformation. ECDPM Discussion Paper No. 278.*

De Roo, N. 2020. The soc*io-political dimensions of agricultural technology promotion in Ethiopia. PhD thesis, Wageningen University, Wageningen, the Netherlands.*

Diriba, G. and Man, C. 2019. Build*ing a Big Tent for Agricultural Transformation in Ethiopia. CSIS Report.*

Ethiopian Investment Commission (EIC) & Ethiopian Agricultural Transformation Agency (ATA). 2019. *Food and Beverages Processing and Auxiliary Industry Strategy. Presentation 9 December, 2019.*

FAO. 2015. *Ethiopia: Irrigation Market Brief.*

FAO. 2019a. *Strategic analysis and intervention plan for cow milk and dairy products in the Agro-Commodities Procurement Zone of the pilot Integrated Agro-Industrial Park in Central-Eastern Oromia, Ethiopia. Rome, FAO.*

FAO. 2019b. *Investment plans for Agro-commodity Procurement Zones (ACPZs) in Ethiopia Volume 1: Main Report. Rome.*

FAO. 2019c. *Reducing postharvest losses of vegetables and fruits for improved food availability. Postharvest Extension Bulletin. Issue January-March 2019. Addis Ababa, FAO.*

FAO. 2019d. *Strategic analysis and intervention plan for fresh and industrial tomato in the Agro-Commodities Procurement Zone of the pilot Integrated Agro-Industrial Park in Central-Eastern Oromia, Ethiopia Addis Ababa, FAO.*

FAO. 2020. E*valuation of FAO's country programme in Ethiopia 2014-2019. Country Programme Evaluation Series, 10/2020. Rome.*

FAO, IFAD, UNICEF, WFP and WHO. 2020. *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets. Rome, FAO.*

Federal Democratic Republic of Ethiopia (FDRE). 2011. *Ethiopia's Climate-Resilient Green Economy: Green economy strategy.*

Federal Democratic Republic of Ethiopia (FDRE) and International Trade Centre (ITC). 2019. *Ethiopia National Pulses Strategy 2019-2024.*

Fikadu, Z. 2020. *Pesticides use, practice and its effect on honeybee in Ethiopia: a review. Int J Trop Insect Sci (2020).*

Food and Land Use (FOLU) Coalition. 2020. *Action Agenda for a New Food and Land Use Economy in Ethiopia.*

Gabre-Madhin, E. Z. and I. Goggin. 2005. *Does Ethiopia Need a Commodity Exchange? An Integrated Approach to Market Development. EDRI-ESSP Policy Working Paper No. 4.*

Gebrehiwot, T. and Castilla, C. 2018. Do safety net transfers improve diets and reduce undernutrition? Evidence from rural Ethiopia.

Gebru, M., R. Remans, I. Brouwer, K. Baye, M. B. Melesse, N. Covic, F. Habtamu, A. H. Abay, T. Hailu, K. Hirvonen, T. Kassaye, G. Kennedy, C. Lachat, F. Lemma, J. McDermott, B. Minten, T. Moges, F. Reta, E. Tadesse, T. Taye, U. Truebswasser, and M. Vandenberg. 2018. *Food Systems for Healthier Diets in Ethiopia: Toward a Research Agenda. IFPRI Discussion Paper 01720, April 2018.*

Gedamu, Y. 2018. *How Ethiopia's history of ethnic rivalry is destabilizing its reform gains.*

Getachew, A. 2020. *'Ethiopia: 10th regional gov't goes official' Anadolu Agency, 18 June 2020.*

Getachew, T. 2019. *'Pulse Crops Production Opportunities, Challenges and Its Value Chain in Ethiopia: A Review Article,' in Journal of Environment and Earth Science, Vol. 9, No.1.*

Getahun, S. 2010. *'Revisiting Company Law with the Advent of Ethiopia Commodity Exchange (ECX): An Overview' Mizan Law Review (St. Mary's University College, Addis Ababa), March 2010, Vol.4, No.1, pp.102-141.*

Giziew, A., Negatu, W., Wale, E., and Ayele, G. 2014. *Constraints of vegetable value chains in Ethiopia: A gender perspective. International Journal of Advanced Research in Management and Social Sciences, 3, 44–71.*

Hailu, B. 2017. *'Inside the Controversial EFFORT' Addis Standard, 16 January 2017.*

Hajjar, R. A. N. Ayana, R. Rutt, O.Hinde, C. Liao, S. Keene, S. Bandiaky-Badji and A. Agrawal. 2020 *Capital, labor, and gender: the consequences of large-scale land transactions on household labor allocation, The Journal of Peasant Studies, 47:3, 566-588.*

Henry, C. 2018. *Scaling-up Pulse Innovations for Food and Nutrition Security in Southern Ethiopia (SPIFoNS): Final Technical Report.*

Hirvonen, K. 2016. *"Rural-urban differences in children's dietary diversity in Ethiopia: a Poisson decomposition analysis." Economics Letters 147: 12-15.*

Holtland, G. (ed.). 2017. *Contract farming in Ethiopia: Concept and practice. Arnhem, The Netherlands: AgriProFocus.*

Hunde, N. F. 2017. *Opportunity, Problems and Production Status of Vegetables in Ethiopia: A Review. J. Plant Sci. Res. 2017, 4, 172.*

ICCO Terrafina Microfinance. n.d. *Presentation An overview to the state of affairs in micro-finance in Ethiopia.*

ICRAF. 2018. E*thiopia's potential role in the global avocado market.*

IFPRI, 2019. *Lack of dietary diversity in Ethiopia is tied to limited access to a variety of foods and affordability, new research finds.*

ILRI. 2018. *ILRI Corporate Report 2016–2017. Nairobi, Kenya: International Livestock Research Institute.*

International Monetary Fund (IMF). 2020. *The Federal Democratic Republic of Ethiopia. IMF Country Report No. 20/29.*

International Trade Centre (ITC). 2019. *Pulses Sector Investment Profile: Ethiopia.*

Kebede, E. 2020. *'Grain legumes production and productivity in Ethiopian smallholder agricultural system, contribution to livelihoods and the way forward,' in Cogent Food & Agriculture, 6:1.*

Koroma, S., Bizzotto Molina, P., Woolfrey, S., Rampa, F., and You, N. 2016. *Promoting regional trade in pulses in the Horn of Africa. Accra: FAO.*

Lavers, T. 2018. *Responding to land-based conflict in Ethiopia: The land rights of ethnic minorities* **under federalism, African Affairs, Volume 117, Issue 468, July 2018, Pages 462–484.**

Lehr, H. and Sertse, Y. 2018. *Value Chain Analysis of Pulses and Oilseeds from Ethiopia.*

Makoni, N.; Mwai, R.; Redda, T.; Zijpp, A.J. van der; Lee, J. van der. 2014. *White Gold: Opportunities for Dairy Sector Development Collaboration in East Africa. Wageningen, Centre for Development Innovation, Wageningen UR (University & Research centre). CDI report CDI-14-006.*

Ministry of Foreign Affairs of the Netherlands (MFA). 2018. *Climate Change Profile: Ethiopia.*

Ministry of Foreign Affairs of the Netherlands (MFA). 2019. *Multi-Annual Country Strategy 2019 t/m 2022 Ethiopia.*

Ministry of Mines of the Federal Democratic Republic of Ethiopia & The World Bank Group (Ministry of Mines & WBG). 2014. *Strategic Assessment of the Ethiopian Mineral Sector: Final Report.*

Minten, B., D. Mekdim, F. Bachewe and S. Tamru. 2018. *Evolving food systems in Ethiopia: Past, present and future.*

Minten, B., Habte, Y., Baye, K. and Tamru, S. 2020. *Food safety, modernization, and food prices-Evidence from milk in Ethiopia.*

Molla K. and Woldeyes F. 2019, *"Pathway to sustainable Land-Use and Food Systems in Ethiopia by 2050" In: FABLE 2019, Pathways to Sustainable Land-Use and Food Systems, 2019 Report of the FABLE Consortium, Laxenburg and Paris: International Institute for Applied Systems Analysis (IIASA) and Sustainable Development Solutions Network (SDSN), pp. 166-179.*

Mulugeta G. B. 2020 *Ethiopia's political crisis plays out in the regions. Why it's a federal problem The Conversation August 27, 2020.*

Ndambi, A., J. Zijlstra, M. van Eupen,T. Berhanu, T. Ceccarelli and A. Vernooij. 2018. *Mapping and assessing high potential areas to increase milk production in Ethiopia, Wageningen Livestock Research, Report number 1128*

Planel, S. 2014. *A view of a bureaucratic developmental state: local governance and agricultural extension in rural Ethiopia. Journal of Eastern African Studies, 8(3), 420–437. doi:10.1080 /17531055.2014.922745.*

Posthumus, H., B. de Steenhuijsen-Pieters, J. Dengerink, and S. Vellema. 2018. *Food systems: From concept to practice and vice versa. (Wageningen Economic Research memorandum). Wageningen Economic Research.*

Posthumus, H., B. de Steenhuijsen-Pieters, J. Dengerink and S. Vellema. 2018. *The Food Systems Decision-Support Tool Application in the case of Ethiopia.*

Schmidt, E. and T. S. Thomas. 2018. *Cropland expansion in Ethiopia: Economic and climatic considerations for highland agriculture.*

Shapiro, B.I., Gebru, G., Desta, S., Negassa, A., Nigussie, K., Aboset G. and Mechale. H. 2017. *Ethiopia livestock sector analysis. ILRI Project Report. Nairobi, Kenya- International Livestock Research Institute (ILRI).*

Shewadeg, B. 2019. *Ethnic Conflict under Ethnic Federalism: A Critical Appraisal.*

Shiferaw, G. 2019. *Foreign investment and forex regulation in Ethiopia.*

Tadesse, F. 2018. *'Police Probes Former DBE Heads' Addis Fortune, 2 June 2018.*

Tamru, S., Minten, B., Alemu, D. and Bachewe, F. 2017. *The Rapid Expansion of Herbicide Use in Smallholder Agriculture in Ethiopia: Patterns, Drivers, and Implications.*

Tamru, S., Hirvonen, K., and Minten, B. 2020. *Impacts of the COVID-19 crisis on vegetable value chains in Ethiopia. (IFPRI).*

Teklu, B. M. 2016. *Environmental risk assessment of pesticides in Ethiopia: A case of surface water systems.*

Tigabu D. G. and M. F. Gebeyehu. 2020. *Enhancement of Employment and Income Opportunities for Rural Youth in Ethiopia: A Review of Four Large Youth Employment Initiatives. FARA Research Report 5(4): PP 35.*

Tigabu D. G. and M. F. Gebeyehu. 2020. *Enhancing youth employment opportunities in rural economies in Ethiopia. FARA Research Report 5(3) PP 39.*

United Nations Industrial Development Organization (UNIDO). 2019. *Agro-Industry Investment Opportunities Directory Ethiopia.*

United Nations Development Programme (UNDP). 2019. *Human Development Report 2019. Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century.*

UN Women, UNDP and UNEP. 2018. *The Cost of the Gender Gap in Agricultural Productivity: Five African Countries. New York.*

USAID. 2011. *Climate Change and Conflict in Pastoralist Regions of Ethiopia: Mounting Challenges, Emerging Responses. CMM Discussion Paper No. 4.*

USDA Foreign Agricultural Service. 2018. *Ethiopia Pulse Crops Market Update.*

van Berkum, S., J. Dengerink and R. Ruben. 2018. The food systems approach: sustainable solutions for a sufficient supply of healthy food.

Vandercaseteleen, J., Minten, B. and Tamru, S. 2019. *Cities, value chains, and dairy production in Ethiopia (IFPRI).*

Vorley, B., Guarín, A. and Nicolini, G. 2020. *Sustainable diets in the informal economy. (IIED and HIVOS)*

Wageningen University and Research (WUR). 2020. *Rapid Country Assessment: Ethiopia.*

Yigzaw, G. S. and E. B. Abitew. 2019. 'Causes and impacts of internal displacement in Ethiopia', African Journal of Social Work, Vol. 9, No. 2.

Yigzaw, G. S. *"Ethiopia: History of the Implementation of Environmental Impact Assessment Proclamation No. 299/2002." Environmental Policy and Law Preprint (2020): 1-7.*

Zijlstra, J. et al., 2015, *Business Opportunities Report Dairy #2 in the series written for the "Ethiopian Netherlands business event 5–6 November 2015, Rijswijk, The Netherlands*

Annex 1: Summary of findings in relation to promising agri-food value chains in Ethiopia

Value chain	Commercial potential	Relevance to sustainability objectives			Political traction	Pathway for change
		Socio-economic	Nutrition	Environmental		
Dairy Milk, cheese and butter	Increasing demand in domestic markets, particularly in urban centres, and room for further consumption growth; supply gaps; potential for improved yields; potential for investment along the value chain	Contribute to agricultural GDP and improving rural and peri-urban livelihoods; potential impact on women's economic empowerment given the prominent role of women in the value chain	Beneficial for improving food security and addressing malnutrition and its impacts (e.g. stunting), as milk, cheese and butter are affordable sources of protein and important micronutrients	Negative impacts include overgrazing, land conversion and land degradation, as well as increased contribution to GHGs; Opportunities to address these through e.g. better grazing practices, improved forage and adoption of integrated farming systems and climate-smart practices	Strong government backing for the sector/value chain; Livestock Master Plan and Cow Dairy Development Roadmap	Capitalising on opportunities in Bulbula ACPZ and IAIP (where dairy has been prioritised); develop business models for feed and fodder production by smallholders (and promote intercropping with pulses); develop financial products tailored to large cooperatives; develop camel milk value chain in Afar; invest in traditional dairy processing
Fruit and vegetable Avocado, tomato	Strong and growing local demand, especially in urban centres; high prices on local market and export potential (avocado); underutilised irrigation potential, abundant cheap labour	Contribute to agricultural GDP and create employment (e.g. in processing) for unskilled workers, including young women	Increased consumption of fruits and vegetables can help address lack of dietary diversity in Ethiopia	Potential for reduction of post-harvest losses; integration of avocado in agroforestry systems; potentially harmful impact on human and environmental health of misuse and overuse of agricultural chemicals	Processing of horticulture products for export strongly encouraged by government	Promoting sustainable production of tomatoes in Bulbula ACPZ (Oromia) and avocados in the Yirgalem ACPZ in Eastern SNNP; investments that address post-harvest losses; commercially viable business models for cooperatives and producers' organisations to provide relevant services for producers
Pulses haricot beans (red kidney beans and white pea beans), chickpeas, mung beans	Investment opportunities in production (especially for export), contract farming, input supply, processing, vertically integrated trading and quality testing and certification	Opportunity for improved smallholder earnings; foreign exchange earnings used for humanitarian food relief	Crucial for food security and addressing malnutrition; affordable source of essential nutrients and micronutrients; used for humanitarian food relief	Important role in sustainable land management and improving soil fertility; reduce soil and water erosion; low water footprint; improve climate resilience	The National Pulses Strategy increased government focus on attracting investment for production and processing (especially for export)	Exploit ACPZ and IAIP opportunities for haricot beans in Oromia; build on SITA work to structure value chains and promote exports to South Asia; promote more environmentally sustainable practices through contract farming; promote bean corridor from Southern Ethiopia to Kenya

AgrInvest-Food Systems Project

Political economy analysis of the Ethiopian food system

Key political economy factors and promising value chains to improve food system sustainability

ISBN 978-92-5-133943-5

CB3255EN/1/02.21