



AGRICULTURE DIALOGUE

Case Study

Ethiopia's Agricultural Development Policy Challenges



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CABRI Agriculture Dialogue

Case Study

Ethiopia's Agricultural Development
Policy Challenges



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Acronyms and abbreviations

ADLI	Agricultural Development Led Industrialisation
AEZs	agro-ecology zones
ATVETs	Agricultural Technical and Vocational Education and Training colleges
CABRI	Collaborative Africa Budget Reform Initiative
CSA	Central Statistical Agency
DAs	development agents
ECX	Ethiopia Commodity Exchange
EEA/EEPRI	Ethiopian Economic Association/Ethiopian Economic Policy Research Institute
EHPEA	Ethiopian Horticulture Producers and Exporters Association
EIA	Ethiopian Investment Agency
EU	European Union
FDI	Foreign Direct Investment
FTCs	Farmer Training Centres
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
IFPRI	International Food Policy Research Institute
MoARD	Ministry of Agriculture and Rural Development
MoFED	Ministry of Finance and Economic Development
MVs	modern varieties
NAEIP	National Agricultural Extension Intervention Programme
NBE	National Bank of Ethiopia
PADETES	Participatory Demonstration, Extension and Technical Education System
PANE	Poverty Action Network of Civil Society Organisations in Ethiopia
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PRSP	Poverty Reduction Strategy Paper
SDPRP	Sustainable Development and Poverty Reduction Programme
SG2000	Sasakawa Global 2000 Programme
SNNPR	Southern Nations, Nationalities and Peoples' Region
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNCTAD	United Nations Conference on Trade and Development



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1. Introduction

1.1 Background

This case study paper has been prepared to provide a contextual understanding of the policy challenges faced in promoting growth in the Ethiopian agricultural sector, with particular emphasis on the post-1991 period following government change. The paper assesses the policy directions pursued by the government, the position of the agriculture sector in the country's development priorities and the support given to stimulate growth in agriculture. As regards the current agricultural policy, the review attempts to assess major policy issues, which are the focus of high-level policy debate related to the role of agriculture in the overall economic development of the country, as well as sector-specific development strategy. Two policy issues assessed in the paper are expected to be addressed at the dialogue:

1. Should the lead sector for economic development be agriculture or industry, given that Ethiopia is a non oil-dependent developing country?
2. Should more priority be given to smallholder farms or private commercial farms, given the context of the agriculture sector of Ethiopia?

It is hoped that the paper will inform the dialogue participants, enhance debates on the issues addressed, and draw relevant lessons from the Ethiopian experience and that the country experiences shared during the debates will generate feedback useful in the design of future agricultural policies.

1.2 The agricultural sector of Ethiopia

As an agrarian country, Ethiopia's economy is mainly based on the agriculture sector, which plays an important role in the national economy and the livelihood system of the country. The sector is the main source of livelihood and income, employing over 85% of the population and accounting for 45–50% of the national Gross Domestic Product (GDP). It generates foreign exchange earnings and is the main source of raw materials for agro-industries.

The mixed crop and livestock semi-subsistence farming of smallholder agriculture and the pastoral livestock system are the dominant sub-sectors, accounting for 83–95% of all cultivated land and agricultural production, while the commercial farming sub-sector has been limited owing to the socialist policy of the previous regime, which retarded its growth. The smallholder mixed-farming system is dominant in the highlands and medium-altitude zones of the country, whereas pastoral livestock production is concentrated in the warmer lowlands. Pastoral and agro-pastoral systems are the main livelihood for the population in the entire Afar and Somali regional state, the Borana zone of Oromia and also areas in the Southern Nations, Nationalities, and Peoples' Region (SNNPR) bordering Kenya.

Smallholder farming is largely characterised by a subsistence-oriented production system, low levels of modern inputs, low productivity and heavy dependence on rainfall. As the production system is mostly subsistence, the smallholder has an insignificant share in the total market supply of agricultural products. Given the limited integration of the sector into the market, the structural bottleneck restricts the level of improved input use. The low productivity level inherent in the system constrains surplus production in the smallholder sector. Smallholder agriculture is vulnerable to the vagaries of nature, particularly unpredictable rainfall and recurrent drought. While the agriculture sector is the backbone of the economy, it is also a source of vulnerability, especially for the smallholder sector. The country has been able to develop only a small percentage of the potentially irrigable land.



Owing to the low-intensity production methods, which are the fundamental cause of low productivity, the market share of smallholder producers is very limited and results in insignificant saving and investment. Thus, smallholder producers are predominantly caught in the poverty trap as a consequence of the lack of capital investment required for the intensification of production. Low productivity is exacerbated by crop cultivation practices that extract soil nutrients without supplementing with external inputs, inappropriate natural resource management, the degradation of agricultural land and the depletion of soil nutrients and removal of topsoil by erosion. Population pressure, particularly in the highland agricultural zones, leads to declining farm holdings and land fragmentation and increases smallholder poverty and vulnerability.

In spite of the numerous national policies and development strategies pursued by the country over the past several years, improvements achieved in increasing the level of production and productivity of the smallholder sector have been insignificant. Crop yields and productivity did not increase despite extension programmes that have attempted to expand the use of modern agricultural input technologies like chemical fertilisers, improved seed, herbicides, pesticides and new or improved agronomic practices. Despite the major reform measures, including market and trade liberalisation, economic policy and a development strategy giving agriculture the lead role, the growth of the agricultural sector remains a major policy challenge for the current government. In the past decade, the growth problems of the agricultural sector, in particular the smallholder sub-sector, has been a major subject in development policy debates, receiving attention from both local and foreign agricultural experts and other professionals.

2. Agricultural intensification vs. industrialisation

2.1 Government strategies

Ethiopia's development strategy has been founded on Agricultural Development Led Industrialisation (ADLI) since its introduction in 1993. ADLI guides government policies regarding both overall economic development and agricultural development. ADLI sees the agriculture sector as the prime focus of development policy, since agriculture is the backbone of the economy and accounts for about 45% of GDP and over 80% of exports and of employment.

The Poverty Reduction Strategy Paper (PRSP) articulates the country's strategies for reducing poverty in line with the Millennium Development Goals. Ethiopia prepared an Interim PRSP in November 2000. The full PRSP for 2002 to 2004 was called the Sustainable Development and Poverty Reduction Programme (SDPRP). The SDPRP includes an 'overriding and intentional' focus on agriculture, as the sector is the source of livelihood for 85% of the population and for the large majority of the poor (MoFED 2002). Agriculture is also believed to be a potential source of surpluses to fuel the growth of other sectors, including industry. The SDPRP aims to:

- Enhance the productive capacity of smallholder farmers;
- Promote crop diversification;
- Shift to a market-based system;
- Increase the coverage of rural water supply; and
- Support household food security and emergency response.

Specific agricultural measures include:

- Menu-based extension packages, building on the Participatory Demonstration, Extension and Technical Education System (PADETES), which was started in 1993;
- Expanding the coverage of micro-financing institutions;
- Improved training for extension and vocational training;



- Improved use of and markets for agricultural inputs (especially fertiliser and seeds);
- Supporting autonomous cooperatives in marketing and farmer networks;
- Exploring the possibility of an agricultural products exchange market; and
- Agricultural research, water harvesting and small-scale irrigation.

The Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) followed the SDRP and covered 2005/2006–2009/2010 (MoFED 2006). PASDEP maintained the emphasis on the eradication of poverty, also stressing governance and decentralisation. PASDEP consisted of eight pillars:

1. Commercialisation of agriculture and promotion of more rapid non-farm private sector growth;
2. Geographical differentiation;
3. Population;
4. Gender;
5. Infrastructure;
6. Risk management and vulnerability;
7. Social services; and
8. Employment.

PASDEP contained a new emphasis on the commercialisation of agriculture and strong private sector growth (Amdissa Teshome 2006). This included a shift to higher-value crops, including niche high-value export crops and a focus on selected high-potential areas. It also included support for large-scale commercial agriculture where feasible, and better integration of farmers with local and global markets. PASDEP recognised the challenges of combining this new focus with support for pro-poor subsistence farming and also included support for improving the yields of basic food grains through intensified extension, demonstration and small-scale irrigation, complemented by veterinary services, a productive safety net, off-farm income generation and environmental protection. The main instrument for delivering agricultural growth in PASDEP was the PADETES programme, which was further intensified.

The importance of agriculture, and of the commercialisation of smallholder agriculture, has been generally supported in Ethiopia. It is sometimes argued that industry has higher multiplier effects than agriculture, but most research in Ethiopia suggests the opposite (Mellor 1995, cited in Byerlee et al. 2007; World Bank 2008; Dercon & Zeitlin 2009). This is supported by some recent global research which reviews the evidence on factor productivity, the distribution of natural resources and public intervention in farm incentives (Lipton 2005). The main criticisms of PASDEP have focused on the level of consultation both with local people and the private sector (PANE 2008; Amdissa Teshome 2006) and on whether it is appropriate to remove the restriction on smallholder sale of land rights.

The focus on commercialisation saw the introduction of the Ethiopia Commodity Exchange (ECX) under PASDEP in 2008. This was the first such exchange in Africa and is a unique partnership of market actors, the members of the exchange and the government of Ethiopia¹. The ECX is an example of a national multi-commodity exchange that provides a low-cost, secure marketplace and services to benefit primarily agricultural market stakeholders. It connects all actors – from farmers to exporters – to market information system, linking rural sites and remote electronic trading.

1 <http://www.ecx.com.et/CompanyProfile>.



The Growth and Transformation Plan (GTP) followed PASDEP and applies to the five-year period 2010/2011–2014/2015 (MoFED 2010). The overriding development agenda of the GTP is to end poverty by sustaining the rapid and broad-based growth path witnessed during the past several years. The GTP has seven pillars:

1. Faster and equitable economic growth;
2. Maintaining agriculture as a major source of economic growth;
3. Creating favourable conditions for the industry;
4. Infrastructure;
5. Social development;
6. Governance; and
7. Empowerment for women and youth.

The GTP continues to emphasise the importance of agriculture, focusing on the intensification of marketable farm products for both domestic and export markets by small as well as large farmers. The emphasis remains on high-value crops, high-potential areas, commercialisation and large-scale commercial agriculture, where it is feasible. There is also continued emphasis on water resource management and irrigation, especially at small scales. The government recognises that past plans have not achieved expected levels of agricultural growth and intends to build on new initiatives, including the Agriculture Growth Programme and the Agricultural Transformation Agency. Through these initiatives, the GTP is expected to include more mechanisms to facilitate feedback and innovation. It is not yet clear whether this will lead to significant changes towards a more participatory and demand-driven extension system. The GTP has been criticised by some for continuing to place unrealistic expectations on the extent to which smallholder agriculture can lead broader economic development.

2.2 Patterns in public expenditure

A high share of the country's public expenditure is allocated to pro-poor and development-oriented sectors, including agriculture and food security. The share of pro-poor spending has increased from 42.8% in 2001/2002 to about 60% in 2007/2008 (Table 1). The average pro-poor expenditure was approximately 54% of total public expenditure over the period.

Table 1: Trends of total public spending on pro-poor sector

Sector	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006	2006 /2007	2007 /2008	Average
Education	14.2	16.1	20.4	19.7	21.8	23.7	19.2	19.3
Health	5.9	4.9	4.3	4.8	4.6	6.6	7.2	5.5
Agriculture and food security	9.2	8.1	13.4	16.3	16.8	12.5	11.8	12.6
Roads	10.7	9.9	9.6	11.3	12.5	14.1	15.4	11.9
Water and sanitation	2.8	2.9	2.0	4.5	4.4	6.0	6.6	4.2
Total	42.8	41.9	49.7	56.6	60.1	62.9	60.2	53.5

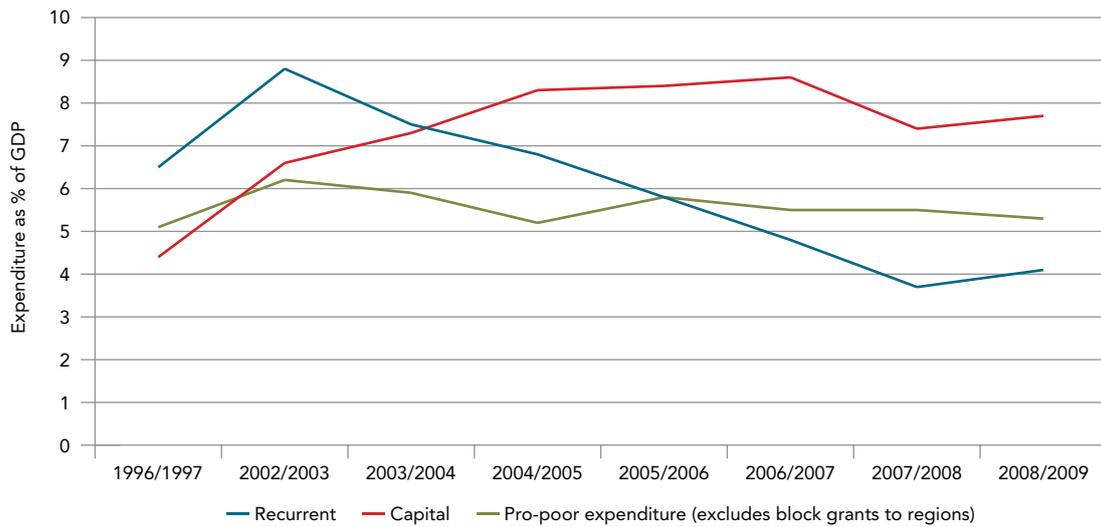
Note: Fiscal years 2001/2002–2007/2008 have been used in order to relate the spending and growth in the sector.
Source: Ministry of Finance and Economic Development (MoFED 2010).

After education, the share of agriculture and food security is the largest in the total pro-poor expenditure, accounting for 12.6% of the expenditure. Nevertheless, food security sector spending takes a large share of the expenditure allocated for the agriculture sector. The expenditure figures clearly show the Ethiopian government's policy emphasis on agriculture and pro-poor spending, in line with the poverty reduction strategy.



Moreover, the priority given to the development-oriented sector can be observed from the growth trend in the share of capital and recurrent budget (Figure 1). While capital expenditure increased annually, the share of recurrent expenditure declined significantly during 2002/2003–2007/2008.

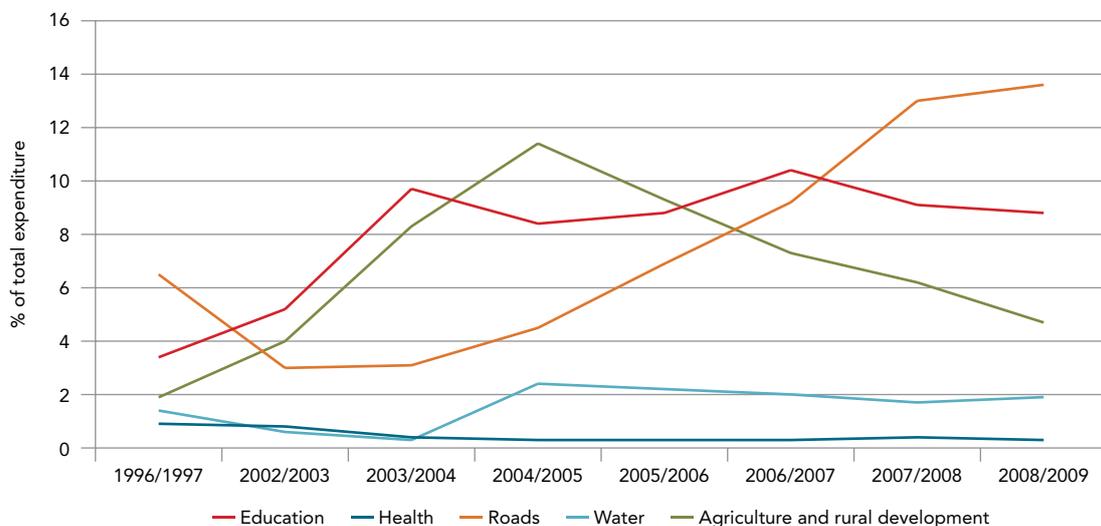
Figure 1: Comparison of recurrent, capital and pro-poor expenditure (% of GDP at current price)



Source: Own computation based on MoFED (2010) data.

Following the scaling up of the PADETES programme around 1996/1997, the total expenditure allocated to the agricultural sector increased significantly between 1996/1997 and 2004/2005. After 2004/2005, the expenditure share of agriculture and rural development showed a sharp decline with a significant decrease in each of the following years (Figure 2). However, these expenditure patterns do not include the cost to the government of the incentives introduced to stimulate private investment in commercial agriculture, including, in particular reductions in taxes and duties. No analysis has yet been done on the total value of these incentives.

Figure 2: Trends in the growth of pro-poor expenditure (% of total government expenditure)



Source: Own computation based on MoFED (2010) data.



The present analysis of spending patterns shows that the emphasis placed on agriculture has been reflected in improved budget allocation. However, it is less easy to see the implications of more recent policy developments and, in particular, to determine whether the broader range of objectives in the GTP has been reflected in changes in public expenditure.

2.3 Achieving balance between agriculture and industry

The arguments for and against ADLI are summarised in Table 2. The current balance of support to agriculture and industry in Ethiopia is the result of an evolution of strategies, based partly on political commitments and partly on the emerging experience with the success of past support. Agriculture has always been central to economic strategy and remains the sector that is expected to make the greatest contribution to poverty reduction. However, there has been some frustration at the performance of public support for agriculture and, combined with renewed optimism about industrial development in Africa, this has led to some increase in interest in industrial policy.

Table 2: Arguments for and against Agricultural Development Led Industrialisation (ADLI)

For	Against
Economic base, main livelihood and income source for rural poor	Argument based on the account of historical Industrial Revolution in western Europe
Comparative advantage (labour and land) to increase productivity, surplus production, income growth, support for economic growth	Too small and fragmented holdings; low labour productivity and subsistence production hinder growth
The change of context and lack of conditions that justify historical industrial growth	Low demand for agricultural products owing to small size of urban population
No alternative domestic sources of finance (natural gas, oil or precious metals) so that agriculture is the only sector to generate the capital needed to support economic growth	Smallholder/subsistence dominance of farming constrains surplus production and hence cannot have linkage effect on industrial/economic growth

2.3.1 Supporting policy evolution with analysis

This evolution of strategies has taken place without any comprehensive economic analysis looking at the relative contribution of different sectors to economic growth. In some countries, the policy debate has been informed by studies that consider the distributional and multiplier effects of growth in different sectors. Where these studies have been done, they often show that growth based on agriculture makes a stronger contribution than industrial growth to both overall economic development and poverty reduction, because agriculture has greater multiplier effects and the benefits from agricultural growth are shared more equally. Policy analysis of this sort would provide insight into the extent to which these conclusions apply in Ethiopia.

One of the key elements of the argument to increase support for industrial development is the perception that support for agriculture has not been as effective as hoped. This assessment appears to have emerged from a range of observations and from disappointments in the field. Because policy for industrial support is more recent, the track record of experience is not so well established and it is not clear yet whether public support for industry would experience challenges of a similar scale or nature to those experienced in the agricultural sector.

There is not, as yet, an effective national monitoring and evaluation system to provide systematic evidence about the variations and trends in the effectiveness of public expenditure in support of either agriculture or industry. Reforms to introduce results-based budgeting will help this emerge, but, in the short term, an increase in the range and quality of one-off evaluation studies would help to provide evidence.



3. Smallholder agriculture vs. large commercial farms

3.1 Smallholder agriculture

The Ethiopian smallholder sector is very different from those in many other African countries, both in its history and its evolution. While the colonial legacy characterises smallholders in most African countries, the smallholder sector in Ethiopia is the product of a predominantly traditional production system of the imperial era. A high percentage of smallholders did not have their own land but cultivated the land owned by landlords and local chiefs in an extremely exploitative system of feudal serfdom. This situation continued until the 1975 land reform proclamation that provided the legal basis for the distribution of usufruct rights to a large number of rural families who had been working under exploitative tenancy contracts for a small group of landlords. However, the proclamation prohibited the lease of land or the hiring of labour and restricted the maximum landholding size per individual to 10 hectares. Farmers were not allowed to transfer their usufruct rights by sale, mortgage or lease, and bequeathing of allocated usufruct rights was limited to primary family members (spouse and children) upon death of the rights holder. In addition to these restrictions, the advance of compelled collectivisation and hence discrimination against individual farmers' access to extension services and input supply further constrained the growth of production and productivity in the smallholder sector. The centrally planned command system of production, measures to control markets and prices, as well as quota imposition for the delivery of grain to the parastatal Agricultural Marketing Corporation, discriminated against smallholder sector growth. The Derg² system further impoverished smallholder farmers and the sector remained a predominantly subsistent and backward production system with the persistence of its low level of modern input use and low productivity.

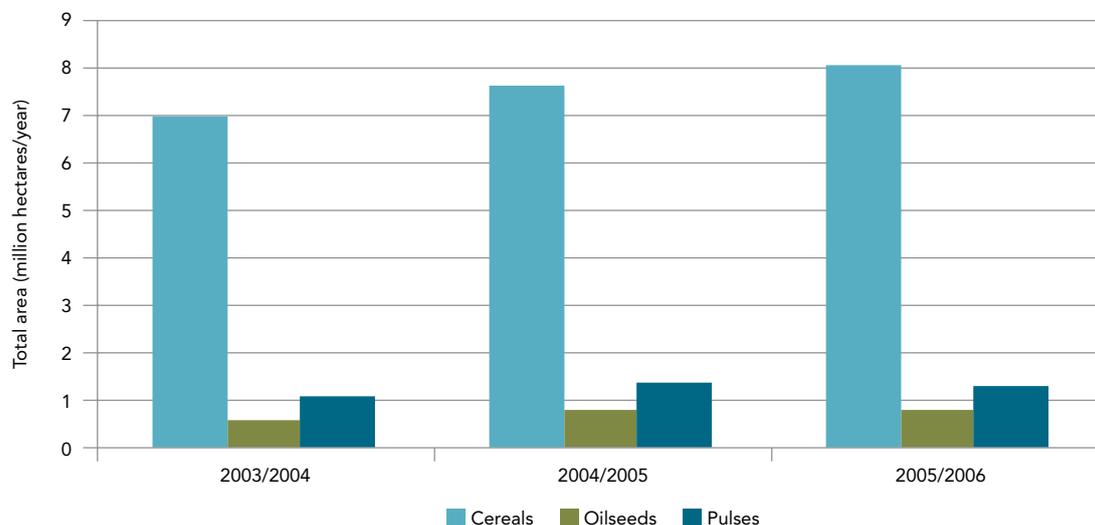
Even though the country inherited smallholder farmers who are amongst the poorest and most vulnerable, it is well acknowledged that the reforms and liberalisation measures taken have had some impact on the production of smallholder sector during the past two decades. At present, the share of smallholders in the total agricultural landholding is estimated at about 83% (Salami, Kamara & Brixiova 2010) of the total cultivated area, although this varies with season and rainfall. Generally, the cultivated area is smaller during the short (*belg*) season, while a larger area is cultivated in the main *meher* season. The total land area cultivated by smallholder farmers has increased by about one million hectares from 2003/2004 to 2005/2006 (Figure 3).

The smallholder sector is the major source of food grain, raw materials for industry, and primary export commodities such as oilseeds and pulses. From 2003/2004 to 2005/2006, smallholder farm production of major agricultural crops showed a significant increase (Figure 4). Cereal production increased by over 260 000 tons, while the increase in the production of oilseeds and pulses was 17 000 and 24 000 tons, respectively.

2 The Coordinating Committee of the Armed Forces, Police and Territorial Army, which ruled Ethiopia from 1974 to 1987.

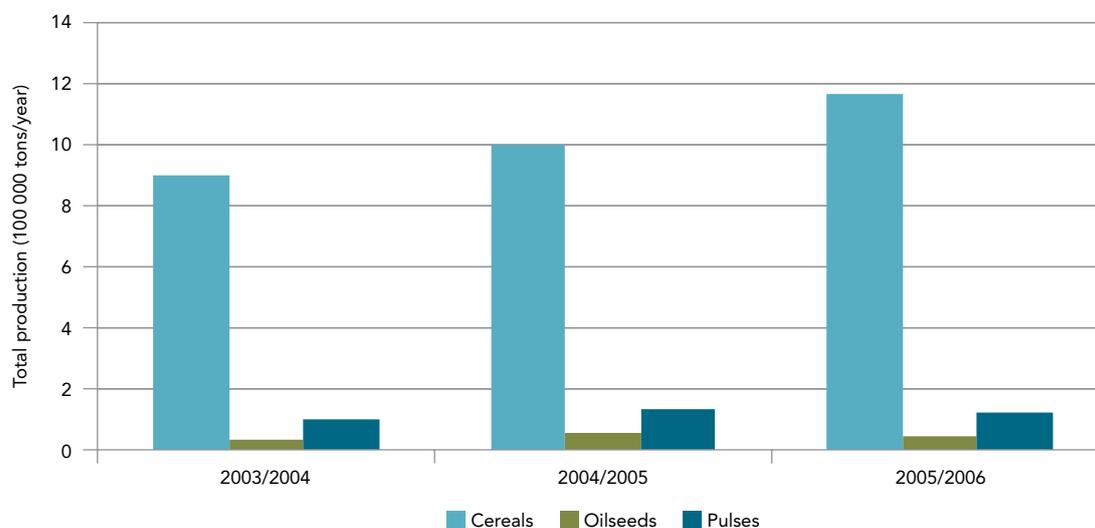


Figure 3: Cultivated land area of major crops produced by smallholders, main (meher) season, 2003/2004–2005/2006



Source: Own computation based on Central Statistical Agency (CSA 2006, 2012) data.

Figure 4: Total production of major crops produced by smallholders, main (Meher) season, 2003/2004–2005/2006



Source: Own computation based on CSA (2006, 2012) data.

3.1.1 Government support to smallholders

Agriculture is the strategic sector that has been given a leading role in the country's economic growth and poverty reduction agenda in the SDPRP; smallholder farming has been the priority of government policy in the agricultural sector. In the PASDEP strategy, the focus was on enhancing the productive capacity of smallholder farmers, promoting diversification, shifting to a market-based system, ensuring food security at the household level, strengthening emergency response and reducing vulnerability. In order to realise the development goals of ADLI – primarily increasing of agricultural productivity and aggregate production – the Ethiopian government introduced an agricultural extension programme, known as the Participatory Agricultural Demonstration, Extension, Technical and Education System (PADETES).



The transition to the Ethiopian People's Revolutionary Democratic Front era of smallholder agricultural development began with a pilot extension system in 1993. At first, the pilot programme focussed on maize and wheat demonstration trials involving 160 farmers (Kassahun Birhanu 2012). In 1994, following the establishment of additional teff and sorghum demonstration sites, the total number of participating farmers increased ten-fold (Berhanu Adinew et al. 2006). The scheme's success resulted in a bumper harvest in 1995 and prompted the government to adopt the package approach in its agricultural extension as a national intervention strategy. Based on the results of the pilot project, the growth strategy for the intensification of staple food production in the smallholder sector was to give high emphasis to extension and credit through a programme that stimulated the use of modern inputs, particularly seeds and fertiliser, as well as credit and better management practices (Byerlee et al. 2007). In 1994/1995, PADETES was established and started the package approach on a large-scale demonstration programme.

The main extension package types promoted by PADETES are:

- *Regular extension packages* for cereal crops which are mostly seed and fertiliser;
- *Minimum packages* emphasising management of natural resources and traditional crops; and
- *Household packages* providing farm households with a menu of technology (water harvesting, dairy, apiculture and horticultural production).

At first, the focus of PADETES was demonstration and training on the use of improved crop technology packages through the provision of seed, fertiliser and credit. The extension method involves mass media and groups, as well as providing extension services to farmers through farm and home visits. The minimum package extension services are delivered to groups through group leaders. Technology demonstrations are carried out on farmers' fields and the transfer of technology from farmer to farmer is facilitated by organising field days. Group leaders representing farmer groups attend the field days to demonstrate improved technology packages; in turn, the group leaders facilitate the delivery of the extension message to their members. Social and religious gatherings are also used to transmit extension messages (Berhanu Gebremedhin, Hoekstra & Azage Tegegn 2005).

In its early stage (1995–1999), PADETES was characterised by the following:

- Top down approach;
- Blanket recommendation of inputs (fertiliser, seed, etc.) for all agro-ecologies, irrespective of the apparent heterogeneity of physical and socio-economic features across the country;
- Lack of flexibility to fit technological packages to local contexts and knowledge of farmers;
- Supply-driven and predetermined (centralised) programme, not based on adequate consultation and feedback on the relevance of packages to farmers' priorities, which impeded participation; and
- Neglect of indigenous knowledge and resources.

Taking into account these limitations, and based on evaluations of past experiences, some adjustments have been attempted by the government over time. From the production side it was observed that it was necessary to prepare and implement the agricultural development packages to be tailored to and compatible with different agro-ecology zones (AEZs) (Berhanu Adinew 2006). These adjustments include the following:



- Strategies of identifying potential commodities for cash crops;
- Domestic and export market studies;
- Promoting farmers' marketing cooperatives and unions;
- Facilitating domestic output markets including local purchase by donors of grain for use in food aid; and
- Training programmes for middle-level agricultural extension workers to provide extension and training services at the community level.

Whereas the initial focus of PADETES was on food crops, the extension system later developed redefined packages to fit the conditions of the different AEZs and the types of crops grown. In response to evaluation findings and feedback, modified packages that specifically targeted the following products were developed:

- High-value crops (spices, oilseeds, vegetables);
- Livestock (dairy, poultry, beekeeping, fattening);
- Natural resources (forestry, soil and water conservation); and
- Coffee.

A major improvement in the modified PADETES is its use of more appropriate recommendations and agro-ecology specific technology packages that suit different crops and a variety of AEZs, including the moisture-reliant highlands, moisture-stressed lowlands, and pastoral and coffee zones.

In line with its strategy of intensification through extension, the government increased agricultural expenditure to develop the capacity of PADETES to deliver extension services rapidly by:

- Building manpower capacity, particularly the number of extension field workers (development agents);
- Increasing input supply; and
- Constructing required facilities.

As a result, the field extension service now has a strong foundation of Farmer Training Centres (FTCs) and trained development agents (DAs) already in place in the field. Roughly 8 500 FTCs have been created throughout Ethiopia and trained DAs increased from 2 500 in 1995 to 63 000 in 2005, with a reported 45 000 staffed on location (Davis, Swanson & Amudavi 2009). *Woreda* (district) and regional offices are adequately staffed. DAs and *woreda* staff have strong technical skills and are generally trained as specialists. There are pockets of entrepreneurship and innovation in specific FTCs and *woredas* (Davis et al. 2009). The DA-to-farmer ratio has risen from 1:5 000 to 1:800 (Kassahun Birhanu 2012). Thus, over a 10-year period, the programme reached about 40% of the roughly 10 million farm households in Ethiopia. The programme also succeeded in boosting input use, increasing the use of improved seed by 50% and that of fertiliser by 30% from 1995 to 2005 (Byerlee et al. 2006, cited in Byerlee et al. 2007).

In 2004, the government embarked on a further expansion of the extension system. It was based on the creation of Agricultural, Technical and Vocational Education and Training colleges (ATVETs) to train a new cadre of extension workers, and the establishment of FTCs as the focal point of extension support in every *kebele* (local administrative unit) in the country. According to Spielman et al. (2010, cited in Kassahun Birhanu 2012), between 2004 and 2009 FTCs received an annual public investment amounting to US\$50 million – almost 2% of the agricultural GDP. According to Roseboom (1997, cited in Kassahun Birhanu 2012), the investment earmarked for the programme far exceeds the estimates for other developing countries.



3.1.2 *Growth and efficiency of agricultural spending*

The PADETES programme contributed to the expanded use of fertiliser and improved seed. Despite the huge investment in PADETES, the actual levels of adoption, yield and productivity increase were lower than expected. Cognizant of this, PADETES has been evaluated at the request of the government, including a study by the International Food Policy Research Institute (IFPRI 2010). Given the low returns to the increased expenditure during 1996/1997–2003/2004, it appears that the government reduced the expenditure as a result of these evaluations.

Improved seed

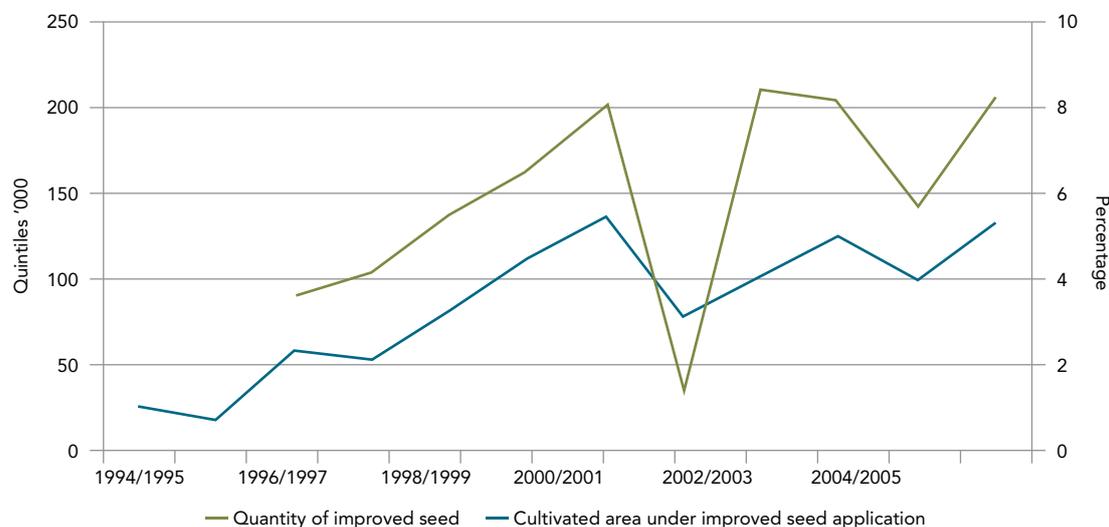
Despite the aggressive push to increase the rate of adoption of improved varieties, the programme's reach has been somewhat limited (Byerlee et al. 2007). Official estimates from the Central Statistical Agency (CSA 2006) show that farmer use of improved seed in 2005 remains at only 3–5%, while the total quantity of improved seed supplied nationally increased during the PADETES period. This suggests that while some farmers are using improved seed intensively, most still rely primarily on saved seed and farmer-to-farmer exchanges. CSA estimates also show that during the PADETES period, the area planted with improved seed grew slowly, comprising just 4% of the total area for wheat, 16% for maize, and 1% for both pulses and sorghum in 2005 (CSA 2006). Similarly, CSA data show that the use of improved farm inputs in Ethiopia, particularly that of improved seed, is still low.³ Considering the major cereal crops, cultivated land planted with improved seed has not yet exceeded 6% of the total area cultivated with cereals (Figure 5). For crops like sorghum, it is even less than 0.5% of the cultivated land.

However, whilst PADETES has not achieved a revolution in the use of seed, there does seem to be a strong correlation between the quantity of seed supplied and the area cultivated with improved seeds. Over the period 1996/1997–2005/2006, the increase in supply of improved seed amounted to about 10 000 tons, whilst the increase in area cultivated under improved seed was about 3% of the total area, or about 450 000 hectares. This suggests a seed application rate of 22 kg/hectare for those fields using improved seed, which further suggests that the area cultivated with improved seed is rather larger than would be expected, given the availability of improved seed.

³ The 2001/2002 CSA sample enumeration data indicate that out of the total 8.72 million hectares of land cultivated for different grain crops, only 2.9% was covered by improved seeds, while about 38.6% of the land was fertilised. The percentage of farmers using chemical fertiliser in 2001/2002 was 34%. Only 8.04% of the land was treated with pesticides, while 1.75% of the land was irrigated (CSA 2003). In general, the use of improved inputs and management practices is very low.



Figure 5: Quantity of improved seed supplied and land cultivated under improved seed application, for cereals only, 1994/1995–2004/2005



Note: Cultivated land under improved seed application is measured on the right-hand scale. Figures are based primarily on Ethiopian Seed Enterprise data reported to the CSA.
Source: Byerlee et al. (2007).

Fertiliser use

Despite the removal of fertiliser subsidies in 1997/1998, chemical fertiliser use increased significantly between 1995 and 2005 (Endale Kefyalew 2010). However, estimates of actual fertiliser use and the official import figure differ considerably. According to official estimates, total annual imports of chemical fertiliser increased from 246 722 tons in 1995 to 375 717 tons in 2006 (MoARD 2007/2008). This is an increase of more than 50% over the ten-year period. Nevertheless, on the basis of the actual fertiliser use of farmers, the estimated total growth during the same period was about 29% – an increase from 250 000 tons (21 kg/hectare) in 1995 to 323 000 tons (32 kg/hectare) in 2004/2005. Compared to the 1995 level, the 2004/2005 annual fertiliser consumption of Ethiopia shows a net increase of about 73 000 tons (Figure 6). The growth of total fertiliser consumption was positive and more rapid than the average for sub-Saharan Africa over the same period, and the average use of fertiliser per hectare was almost double the average for sub-Saharan Africa (Byerlee et al. 2006, cited in Byerlee et al. 2007; Crawford et al. 2006, cited in Byerlee et al. 2007).

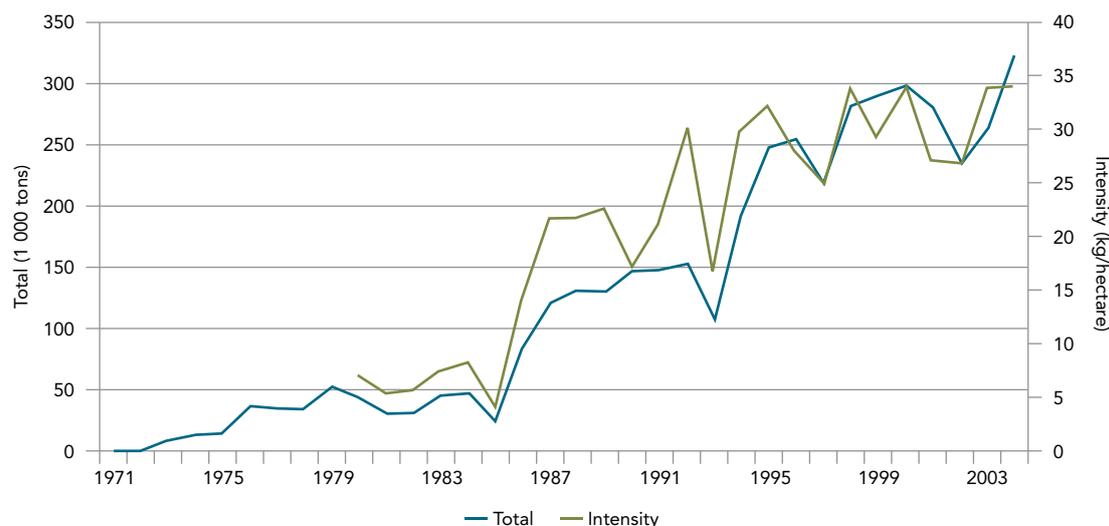
However, growth in fertiliser consumption per hectare increased only marginally during the late 1990s and the beginning of the past decade. Teff and wheat receive more chemical fertilisers than other crops, with applications to 40–60% of land on average (EEA/EEPRI 2005). Despite the huge demonstration programmes, only 37% of farmers were using inorganic fertilisers, and application rates remained at 16 kg/hectare of nutrients (about 33 kg/hectare of commercial fertiliser) or lower (Byerlee et al. 2006, cited in Byerlee et al. 2007). Over time, the farms used below the optimal level of seed-fertiliser technology packages. Whilst the growth in fertiliser use is disappointing in relative terms, the large number of farmers in Ethiopia means that the increase is significant in absolute terms.

An important factor for the slow growth in fertiliser use and the low rate of application is the decline in its profitability. Between 1992 and 1997 the value cost ratio for teff, maize and wheat declined by 55%, 67% and 48%, respectively (Mulat Demeke et al. 1998). The main reason for the declining profitability was the rising fertiliser prices relative to low output prices. Fertiliser prices have increased sharply because of devaluation, removal of subsidies, and



imperfectly competitive fertiliser markets following liberalisation of the fertiliser sector. This was coupled with abundant harvests and pressure on farmers to pay off input credit, which forced them to market their output immediately after harvest, causing excess supply and resulting in a sharp fall of producer prices. More study is needed on the effects of increasing world food prices on changes in food prices in Ethiopia and the implications of this for the profitability of fertiliser use in the country.

Figure 6: Total fertiliser consumption, 1971–2003



Source: Byerlee et al. (2007).

PADETES-led cereal intensification programmes appropriately concentrated on the moisture-reliant highlands, which are the surplus-producing areas of the country. Estimates indicate that more than 60% of the Ethiopian population live here (Chamberlin & Pender 2006, cited in Byerlee et al. 2007). Between 1995 and 1997, the PADETES trials focussed on cereals – specifically wheat, maize and teff with trials equally divided among the three crops (Mulat Demeke et al. 1998). In 1999 alone, about 3.6 million farmers received extension services through the PADETES demonstration programme. By 2000, almost 4 million households (about 40% of the farming population) had received extension services, mostly through the food crop technology packages (World Bank 2008). Compared to 32 000 households covered in 1995, the target number of farming households to be covered by the Extension Package Programme was expected to increase from 4 million (2000/2001) to 6 million by the end of the programme period (Alemayehu Geda & Dawit Birhanu 2011a, 2011b). A vast increase in the number of farm households receiving extension services has been achieved. This indicates the potential for the adoption of seed-fertiliser technologies that could more than double cereal yields (Table 3) and would be more profitable to farmers in moisture-reliant areas (Byerlee et al. 2006, cited in Byerlee et al. 2007).

The strong push for intensification has resulted in increased use of improved inputs, particularly fertiliser, and the rate of increase has been higher than the African average. However, the figures for Ethiopia are still low when compared to those in other countries that have successfully intensified cereal production in the past, particularly in Asia (Table 4). Moreover, the impacts of the intensification push on productivity are not readily discernible in aggregate production data.

Despite the low rate of fertiliser and improved seeds used, there was a considerable increase in total production of grain crops. Compared to the 1995/1996 level, grain production increased by 17 million tons in 2003/2004 (EEA/EEPRI 2005). In the 2003/2004 cropping



season, total grain production almost doubled from its level during the late 1980s. The major factor for this increase is the expansion of cultivated area. Between 1989/1990 and 2003/2004, yield grew by 18.3% and area cultivated by 51.3%. It is the combined effect of these two factors that resulted in an increase of 74% in total grain production during the reference period. Extensive farming therefore outweighed intensification.

Table 3: Yields in on-farm field trials vs. farmers' yields, 2000–2004 (tons/hectare)

Crop	NAEIP (1995–1999)		SG2000 (1993–1999)		Farm yields
	Improved	Traditional	Improved	Traditional	
Maize	4.73	1.57	4.60	1.57	1.82
Wheat	2.93	1.17	2.31	0.95	1.31
Sorghum	2.79	1.12	2.08	0.92	1.21
Teff	1.43	0.85	1.62	0.64	0.82
Barley	2.15	1.00	–	–	1.05

Note: NAEIP – National Agricultural Extension Intervention Programme; SG2000 – Sasakawa Global 2000 programme.
Source: Byerlee et al. (2006, cited in Byerlee et al. 2007).

Table 4: Comparison of modern varieties (MVs) and fertiliser use among different countries and regions, 1997–2002

	Area under wheat MVs (% of area) ^a			Area under maize MVs (% of area) ^b			Fertiliser usage (kg/hectare of arable and permanent cropland)		
	1997	2002	2006	1997	1999	2006	1997	1999	2002
Ethiopia	51	65	–	5	15	20	13	16	14
Eastern/Southern Africa	66	87	–	46	72	47	13	13	15
Western/Central Africa	99	–	–	38	–	–	2	3	3
South Asia	92	94	96	48	46	70	99	110	101
China	79	96	95	99	91	–	263	251	257

^a Proportion of total wheat cultivation area cultivated with improved (semi-dwarf) wheat varieties.

^b Proportion of total maize cultivation area cultivated with improved maize hybrids or improved openly pollinated varieties.
Source: Byerlee et al. (2007).

Total production has not been high enough to attain the level of per capita production of two decades previously. For instance, the 2003/2004 per capita production is 40 kg lower than the 1979/1980 level. According to the Ethiopian Economic Association/Ethiopian Economic Policy Research Institute Annual Report (EEA/EEPRI 2005), the decline in per capita production can be attributed mainly to the high rate of population growth. While production increased by 59.4% during the past two and a half decades, the population grew by 97.4%, almost doubling during the same period. Moreover, taking 1989/1990 as a benchmark, the index of per capita grain production has declined from its level of 124 in 1995/1996 to 115 in 2003/2004, despite the increase in the total volume of grain production. This analysis also indicates that production increased by 74% between 1989/1990 and 2003/2004, while the population grew by 50.6%, implying a positive net balance in production growth (EEA/EEPRI 2005). However, the per capita grain production of the 1960s⁴ and the late 1970s is still higher than the 2003/2004 level by 70 kg and 30 kg, respectively. As a consequence of the decline in per capita production, the real GDP of agriculture has declined significantly over the past 40 years.

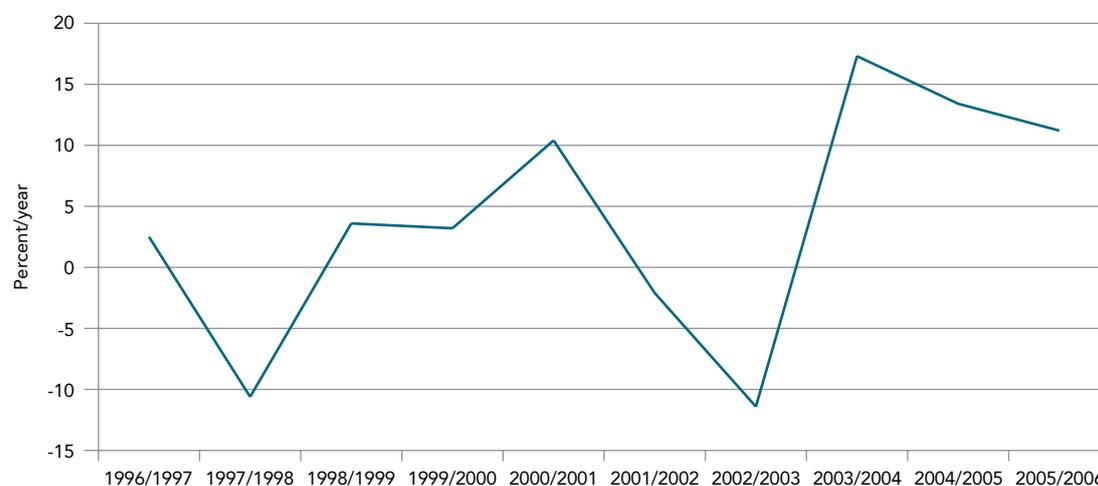
The sharp fall in real GDP from 1983 to 1986 was due to the devastating 1984/1985 drought that hit the entire country, resulting in widespread famine and loss of human life. A significant

4 Per capita food production was 240 kg in 1960/1961 and 242 kg in 1969/1970 (Ezra 1997, cited in the Annual Report of EEA 1999/2000).



increase in real GDP was achieved after 1995 as a result of reforms and agricultural growth through the expansion of cultivated area. But agricultural GDP declined during the latter part of the 1990s and the first part of the past decade, with large annual fluctuations seen in both production and prices. Consequently, from 1996 to 2005, per capita agricultural GDP and per capita grain production were volatile, while their averages showed almost no change over time (Figure 7). The estimated growth rate of per capita agricultural GDP during this period was 0.48%, while that of per capita grain production was 1.38%.⁵ Yet at the same time, consumer prices for food staples increased in real terms. In the early years of PADETES, Ethiopia did not experience the agricultural growth and improved food security expected from the policies implemented by the government of Ethiopia. However, the very strong growth since 2003/2004 suggests that some impact may be taking place.

Figure 7: Agricultural sector growth rate (1996/1997–2005/2006)



Source: Computed based on Byerlee et al. (2007) and MoFED (2006) data.

Despite the efforts to create favourable policies, government support and the lead role given to agriculture, the relatively low productivity of agriculture prevented a rapid and sustainable growth path for the Ethiopian economy, at least until 2003/2004. According to Byerlee et al. (2007), the country's efforts to promote the growth of the smallholder agriculture sector are faced with two major challenges:

1. Relatively weak market institutions and infrastructure fail to guide production, particularly with respect to staple food (Alemu, de Groote & Bacha 2006, cited in Byerlee et al. 2007; Gabre-Madhin 2001, cited in Byerlee et al. 2007). This is often viewed as a key factor in the failure of market liberalisation policies to improve agricultural performance in many sub-Saharan Africa countries (Kydd & Dorward 2004, cited in Byerlee et al. 2007; Dorward et al. 2004, cited in Byerlee et al. 2007).
2. Unpredictable weather and recurrent droughts cause high variability in annual production. The year-to-year fluctuation in the amount of rainfall and its erratic distribution is the underlying cause for the high variability in agricultural growth rates. Thus, high growth rates are achieved in a normal season but will be offset by a sharp fall in yield and total production in drought years.

The persistence of food insecurity in Ethiopia can be attributed to the stagnation of productivity and hence the failure of agricultural growth to move at least parallel with the average annual

⁵ Estimates of growth rates for per capita agricultural GDP and per capita grain production vary by source.



population growth rate. As a result of this imbalance, the country has faced annual food deficits and has had to resort to humanitarian aid to fill the food supply gap. In addition, a significant percentage of the GDP is allocated for food imports every year.

3.1.3 *Strengths and weaknesses*

Ethiopia's economic growth strategy, smallholder agriculture and the extension system have been the subject of numerous studies by both national and international agricultural experts and other professionals. Taking these assessments into account, the most critical issues regarding the sector and the extension service approach, its design, implementation and effectiveness, as well as the overall effect of the programme on smallholder sector growth, are summarised here using a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

Strengths

- Policy emphasis on the potential poverty-alleviating agricultural sector;
- Government commitment to promoting growth by allocating a considerably larger capital budget and agricultural spending;
- Availability of fertiliser and to some extent improved seeds to farmers through government support, including the provision of input credit;
- Developed human resource capacity, particularly the large number of DAs trained;
- Physical and institutional capacity built in ATVETs for the training of new extension workers;
- Focal point of extension services established through a large number of FTCs; and
- Infrastructural development (road, power, etc.), which could stimulate agricultural growth and commercialisation through strengthening market linkage for input supply and output sales.

Weaknesses

- Top-down approach, bureaucratic resistance to attitude change, a general lack of respect for traditional methods and knowledge, and inadequate understanding of genuine participatory extension planning and the failure to appreciate farmers' knowledge, perceptions and priorities;
- Blanket recommendation of technology packages (fertiliser, seed, etc.) irrespective of the differences in agro-ecologies and heterogeneous physical and socio-economic features;
- Lack of economic rationale (marginal productivity, cost-benefit and value for money) and inadequate consideration of local context, risk and farmers knowledge;
- Supply-driven 'transfer-of-technology' paradigm, extension and technology promotion;
- Weak research-extension linkage in technology generation, verification through on-farm testing and selection of technologies adaptable to different farm systems;
- Inadequate decentralisation of extension planning to *wereda* (district) level in order to ensure the active involvement of DAs;
- Negative attitudes of farmers towards DA involvement in non-extension activities such as credit collection and input distribution;
- Extension workers' lack of practical experience and limited knowledge of holistic approaches that consider the farm as a system that integrates the socio-economic and physical environment and influences households' production and marketing decision-making;
- Lack of adequate farmer participation in identification and priority-setting of agricultural production problems to ensure extension planning is based on the farmers' problem priorities;



- Limited role and participation of the private sector in input supply, distribution and retailing, as well as output marketing, hindering smallholder commercialisation to some extent; and
- Lack of appropriate monitoring and evaluation system, with failure to monitor and carry out timely reviews of implementation progress to take corrective measures, as well as evaluation of lessons learned to use in future project design.

Opportunities

- Physical facilities and training institutions built;
- Developed human resource capacity, particularly a large number of trained DAs;
- At ATVET level, a strong technical curriculum, and some pockets of innovation and practical training, including linkages to markets and farmers;
- Considerable knowledge, lessons learned and experience gathered so far through the piloting and implementation of diverse extension programmes and approaches; and
- Local-level community institutions (*kebele*) and farmers' organisations like cooperatives and unions could facilitate input delivery for the provision of extension services and the supply of outputs to market, bridging the missing link due to the weak role of the private sector.

Threats

- High risk associated with unfavourable weather, unpredictable and highly variable rainfall and incidence of crop failure and could lead to increased expenditure on food security and welfare programmes and decreased expenditure on agricultural growth programmes;
- The risk of bad harvests undermines farmers' ability to repay loans and is a disincentive for the use of modern inputs such as fertiliser, seed and chemicals;
- Population growth and small plots constrain yield and per capita productivity growth;
- Increased prices of imported inputs coupled with volatility of farm product prices in the domestic market could affect the profitability and adoption of inputs;
- High staff turnover, especially in more remote areas and *woredas*, where hardship and inadequate incentives and compensation make it difficult to retain field staff; and
- The multiplicity of programmes and projects driven by government, donors and others exceeds the capacity of *woreda* staff to carry out the required tasks effectively, particularly so for front line DAs, on whom the implementation of programmes ultimately rests.

3.2 Large commercial farms

3.2.1 Private commercial agriculture before 1991

The development of modern commercial farms in Ethiopia goes back to the imperial era of the 1950s and 1960s when Western donors had an influence on policy formulation and objectives for the country's development (Dessalegn Rahmato 2004). Its importance was not based on national priorities but on the idea of investment in large-scale enterprises for the purpose of modernisation and prosperity. As the development thinking of the time was based on ideas developed in Western countries, priority settings were frequently not relevant to the country's situation (Dessalegn Rahmato 2004). In addition to the idea of agricultural modernisation borrowed from Western donors, the regime also received technical assistance and financial resources from outside sources. As a result, starting with large-scale mechanisation and export promotion, numerous large-scale commercial farms were established during the 1950s and 1960s. Although modern commercial farms were established in most regions and



zones of the country, they were concentrated more in the Eastern Shewa, many localities of Arsi, a vast area in present-day Afar, especially along the Awash River and the Addis–Djibouti railway, and the wheat belts of the Bale and Arsi zones in the Oromia region. A considerable number of farms were also developed in the SNNPR, Amhara and other regions. The establishment of the Development Bank of Ethiopia (previous known as the Agricultural and Industrial Bank) stimulated the rapid development and expansion of modern private commercial farms in Ethiopia.

In the aftermath of the 1974 revolution, the Derg regime adopted socialism as its economic and political system and reshaped agricultural development policy along the principles and practices of socialism. The Derg nationalised all private commercial farms, which became state property. In line with the centrally planned economy, the farms were consolidated and brought under a centralised management with the formation of a ministry known as the Ministry of State Farms. While the ministry was the central and high-level decision-making body, regional and sector-specific enterprises and corporations were established as intermediate management and coordination organs for the administration and close supervision of production on farms. Owing to the large farm size, vast geographic areas covered and numerous sectors of engagement, as well as the thousands of workers employed, the share of agricultural spending was much higher compared to the smallholder sector. Moreover, an enormous amount of the national budget was allocated to establish and develop new large-scale state farms and parastatal enterprises to undertake the production and supply of agricultural products (especially cereals) to the army and urban consumers. These parastatal enterprises dominated large-scale agriculture in Ethiopia. In addition, the policy prohibited the establishment of private commercial farms and the growth of entrepreneurship in the agricultural sector diminished until the ousting of the Derg in 1991.

3.2.2 Private commercial farm sector policy and growth after 1991

After the change of government in 1991, the new government took reform measures and introduced new economic policy guidelines for the development of the agricultural sector and the national economy at large. The government adopted a free-market economic policy, liberalised markets and prices, removed restrictions on the movement of grain and created a more enabling environment for the participation of private entrepreneurs in business and investment. A new investment code and incentive systems stimulated the growth and expansion of private investment. During the 1990s, the agriculture sector was primarily the focus of domestic investors, while the flow of Foreign Direct Investment (FDI) was not significant. Along with the growth of newly established private commercial farms, the government started the privatisation of parastatal and state owned enterprises inherited from the Derg regime. Consequent to these measures and the expansion of private farms, commercial agriculture growth has been stimulated starting from the last decade. This was also the time when the flow of FDI into the agricultural sector showed rapid growth.

The Ethiopian Investment Agency (EIA) and regional Investment Offices are institutions mandated to license and legalise private investment. The EIA is responsible for granting investment licences to foreign investors, whereas the regional Investment Offices license domestic investors in their respective regions. Starting in the early 2000s, the procedure of investment licensing has become more efficient through instituting a one-stop service for all permits and legalisation, including the allocation of land. In 2011, for example, the government announced that a total of 3 million hectares of land was ready for private investors interested in engaging in agriculture. The elimination of bureaucratic hurdles and the shorter time taken to acquire investment licences have made Ethiopia one of the top African countries to attract foreign investors. According to the Monitor Group (2013), Ethiopia outperforms her global and sub-Saharan African peers in a number of fields, including legislation, administrative burdens and legitimacy of entrepreneurship.



There are three distinct types of farms in the present-day large-scale private farm sector:

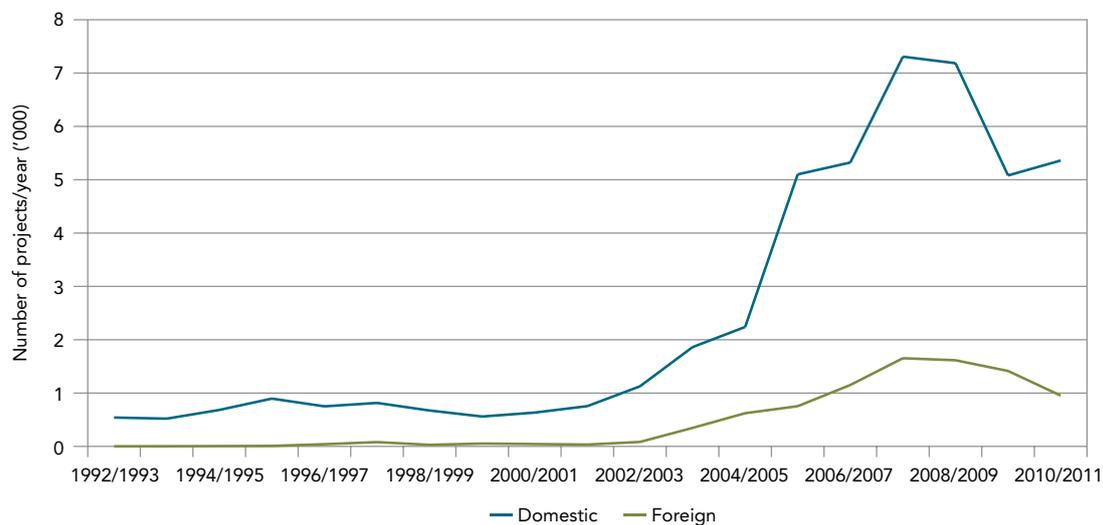
- A significant number of state farms that have been privatised and transferred to the private sector;
- State farms that are still operating as parastatal or state enterprises; and
- Newly established private farms, which have been growing in number over the last two decades.

Owing to the lack of recorded data for the farms in these categories, figures on their share of total land area and annual production are not available. However, considering that the smallholder sector landholding share is about 83%, the total landholding of the large-scale private farm sector can be assumed to be approximately 10%.

3.2.3 Domestic investment in the agriculture sector

During the 1992/1993–2010/2011 period, the EIA and the regional Investment Offices licensed 56 421 investment projects with an aggregate capital of Birr 1.1 trillion (about US\$600 billion). Of these projects, 47 420 (84.1%) were domestic, 8 896 (15.7%) foreign and 105 (0.2%) were investments undertaken by state or parastatal enterprises. In terms of capital, 39.4% was attributed to domestic investors. In 2010/2011 alone, 6 322 investment projects with a combined capital of Birr 249.5 billion (US\$16.1 billion) were approved, a record high since 1992/1993. In terms of the total number of projects approved, domestic investment by far exceeds foreign investment. The rate of growth in the total number of projects approved was more significant after 2003/2004, with a sharp rise between 2005/2006 and 2009/2010 (Figure 8).

Figure 8: Total number of investment projects approved (1992/1993–2010/2011)



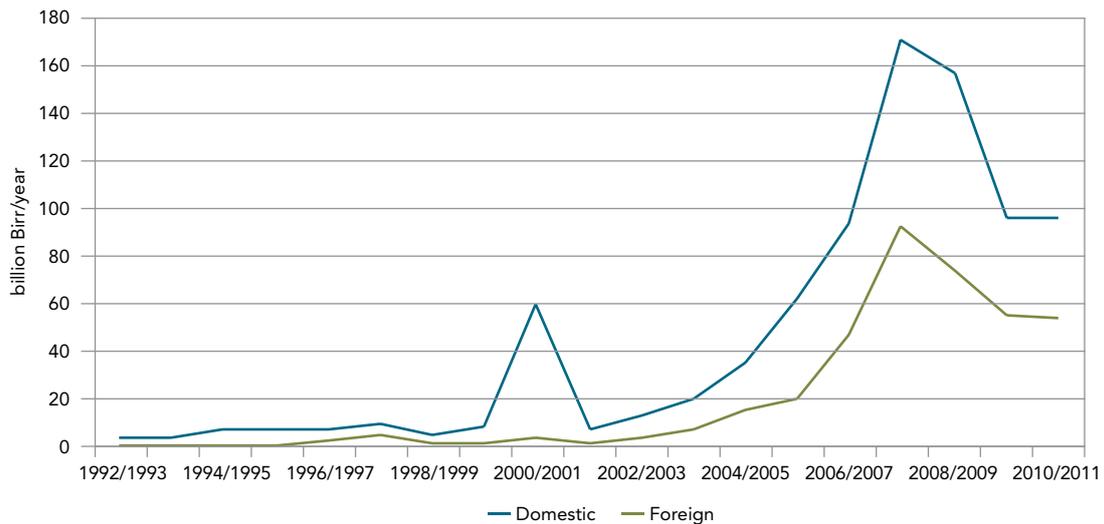
Source: Own computation based on National Bank of Ethiopia (NBE) Annual Report 2010/2011 (NBE 2012).

The total investment capital of approved projects shows a similar trend (Figure 9). There was a sharp increase in total investment capital from 2003/2004 to 2008/2009, which coincided with the global financial crisis. The high level in 2007/2008 supports the argument that the 2008 crisis was a major driver of FDI inflows into developing countries, especially in Africa. This is discussed in more detail under the heading 'Foreign investment in agriculture and its impacts' below.



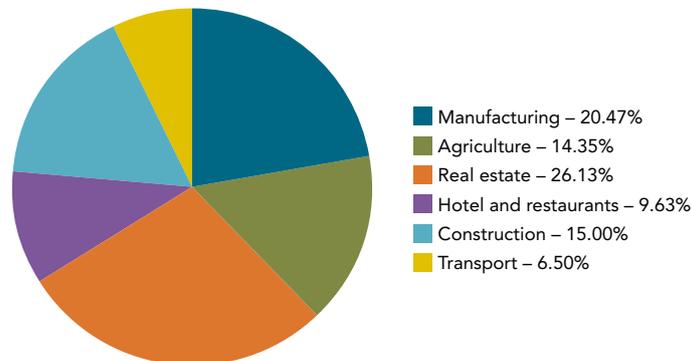
Analysis of 2010 data for approved investment projects indicates that real estate investment is the leading sector, followed by manufacturing. Agricultural investment takes the third place with 15% of investment projects (Figure 10).

Figure 9: Total capital of domestic and foreign investment projects approved (1992/1993–2010/2011)



Source: Own computation based on NBE Annual Report 2010/2011 (NBE 2012).

Figure 10: Distribution of major investment projects by sector in 2010/2011 (% of total)

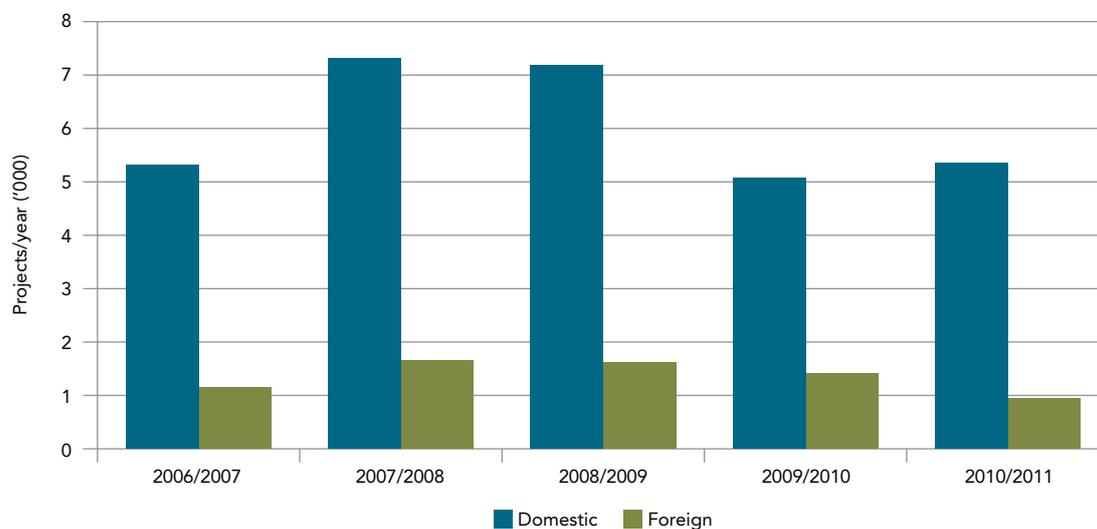


Source: NBE Annual Report 2010/2011 (NBE 2012).

However, both domestic and foreign private agricultural investment showed a significant decline in 2009/2010 compared to the highest level of growth achieved in 2007/2008 and 2008/2009 (Figures 11 & 12). The total investment capital flow decreased from Birr 58.35 billion in 2008/2009 to Birr 35.58 billion in 2009/2010. The differences between the amounts of capital invested by foreign and domestic investors (Figure 12) indicate the lack of resources mobilised by domestic investors, despite their having the lion's share of approved projects (Figure 11). This may reflect both the lack of resources and uncertainty about the long-term viability of agricultural investment.

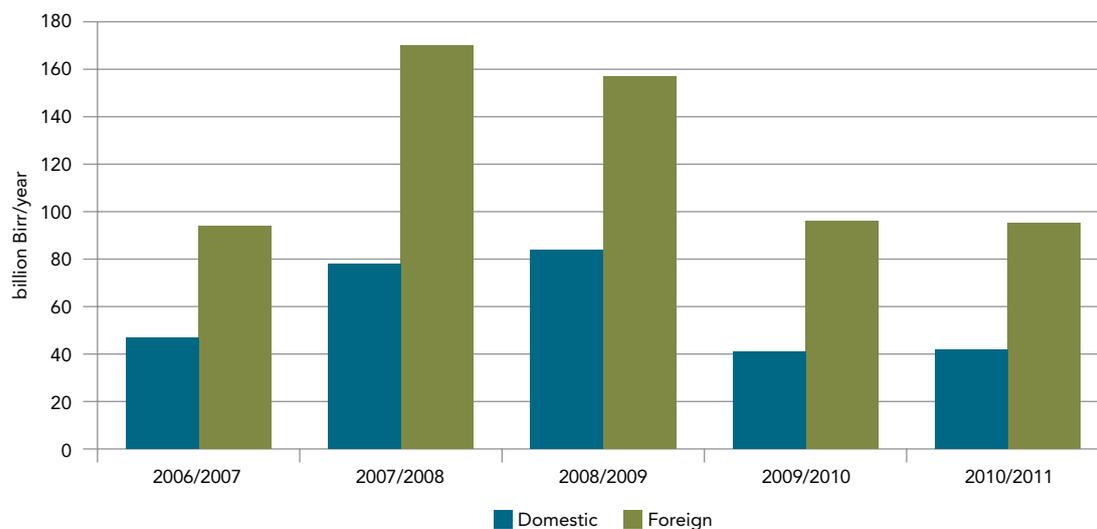


Figure 11: Total number of agricultural sector projects approved (2006/2007–2010/2011)



Source: Own computation based on data from NBE Annual Report 2010/2011 (NBE 2012).

Figure 12: Total agricultural investment capital of approved projects (2006/2007–2010/2011)



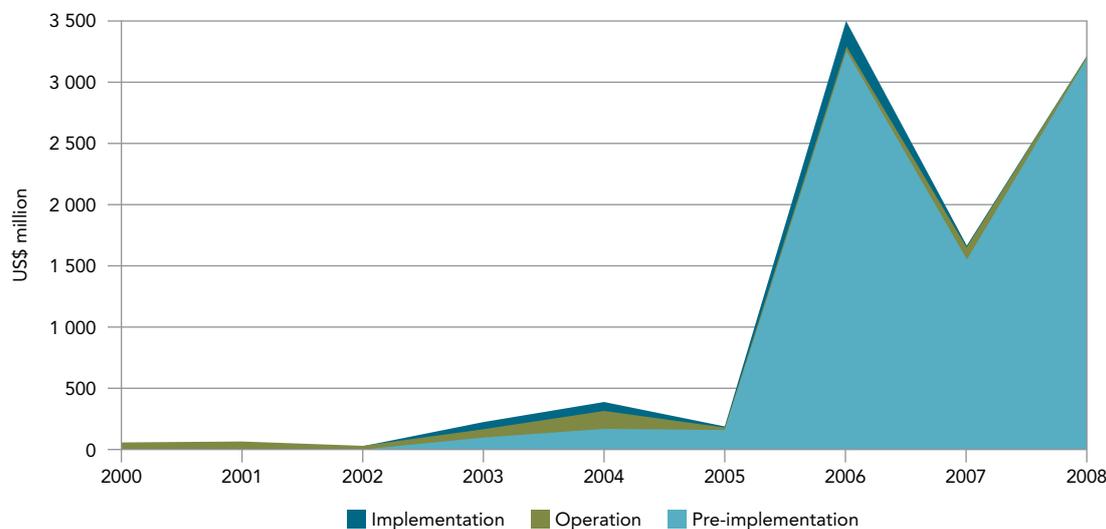
Source: Own computation based on data from NBE Annual Report 2010/2011 (NBE 2012).

3.2.4 Foreign investment in agriculture and its impacts

The inflow of FDI has been growing, particularly from the start of this century. Total FDI inflows into Ethiopia have increased continuously from US\$135 million in 2000 to US\$545 million in 2004. From 2004 to 2007, the yearly FDI inflows varied between US\$545 million and US\$265 million (UNCTAD 2008, cited in Weissleder 2009). FDI inflows in the agriculture sector also increased during this period, accounting for 32% of total Ethiopian FDI inflows. According to the United Nations Conference on Trade and Development (UNCTAD 2008, cited in Weissleder 2009), total FDI inflows remained constant after 2005. This is, however, inconsistent with data from the Federal Investment Bureau of Ethiopia, which indicate that FDI inflows into the agricultural sector increased after 2005 (Figure 13). The inconsistency is due to the UNCTAD database not considering pre-implementation investments, although these account for 90% of the agricultural FDI inflows during this period. Up to 2005, the level of FDI inflows was below US\$500 million each year.



Figure 13: Foreign direct investment (FDI) inflows into the agricultural sector



Source: Weissleder (2009), based on data from the Federal Investment Bureau of Ethiopia.

Since 2005, investment increased dramatically, with total FDI inflows reaching about US\$3.5 billion per year. The increase appears mainly through pre-implementation investments, which include land that can be leased for 20–45 years. This sort of investment has increased by 600% compared to the trend prior to 2005. According to Weissleder (2009), there are three main reasons for this significant change in FDI:

- Depreciation of the Ethiopian Birr compared with the currencies of investor countries;
- Grabbing of natural resources to secure the food demand in the investor countries, especially against the background of rising world food prices; and
- The investment climate of Ethiopia.

To explore the pre- and post-2005 FDI inflows further, it is important to consider the main investor countries and the goals of their investment. Table 5 lists the main investor countries and percentages of their total annual investment during 2000–2008. Only the major investor countries are listed in the table; it should be noted that there are many investors from other countries that are not included in the list.

Table 5: The main foreign investors and the percentage share of total investment (2000–2008)

Main investors	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average
EU	27	7	5	12	18	21	12	53	16	21
India	–	–	32	2	13	9	71	3	13	32
Israel	3	16	–	6	24	29	4	11	5	7
Saudi Arabia	47	77	59	5	3	4	0.2	3	4	3
USA	–	–	4	44	29	20	11	17	5	12
Other	23	–	–	31	13	17	2	13	57	25
Total investment (US\$ million)	43.5	56.1	19.5	223.8	381	180.6	3491	1640	3214	9250

Note: Main investors in the different years are shown in bold.

Source: Weissleder (2009), based on data from the Federal Investment Bureau of Ethiopia.

Table 5 shows that five countries invested heavily between 2000 and 2005, but that the structure changed slightly over time, with the total investments divided between investors



from four main countries or regions – the European Union (EU), India, Israel and the USA. Although Saudi Arabia had the highest share between 2000 and 2002, since then its investment expressed as a percentage has decreased significantly, compared to the relative increase of investment by the investors from other countries. Thus, despite the increase in absolute terms, Saudi Arabia's percentage share of investment stabilised at a low level.

Cereals, coffee, oilseeds, *chat* (a stimulant), meat and cut flowers (floriculture) are the main sub-sectors targeted by the investing countries. The main investors and the sub-sector of their agricultural investment focus changed considerably after 2005, as shown by the figures for 2000–2005 and 2006–2008 (Table 6).

Table 6: Main investors and the main agricultural sectors

	2000–2005	2006–2008
EU	Flori/horticulture US\$99 million (68%)	Meat production US\$607 million (39%) Biofuel US\$492 million (31%) Flori/horticulture US\$242 million (15%)
India	Flori/horticulture US\$66 million (91%)	Sugar US\$2 037 million (80%)
Israel	Flori/horticulture US\$192 million (82%)	Flori/horticulture US\$178 million (45%) Biofuel US\$ 98 million (25%) Vegetables US\$60 million (15%)
Saudi Arabia	Meat production US\$45 million (45%) Flori/horticulture US\$31 million (32%)	Meat production US\$66 million (42%) Biofuel US\$30 million (19%)
USA	Food production US\$66 million (28%) Biofuel US\$65 million (28%) Flori/horticulture US\$35 million (15%)	Flori/horticulture US\$217 million (30%) Meat production US\$159 million (22%)

Note: The food production sector is defined as the processing industry in the agricultural sector. Compared to this the meat production sector includes only the raising and slaughtering of animals such as cattle, pigs, etc.

Source: Weissleder (2009), based on Federal Investment Bureau of Ethiopia (2009).

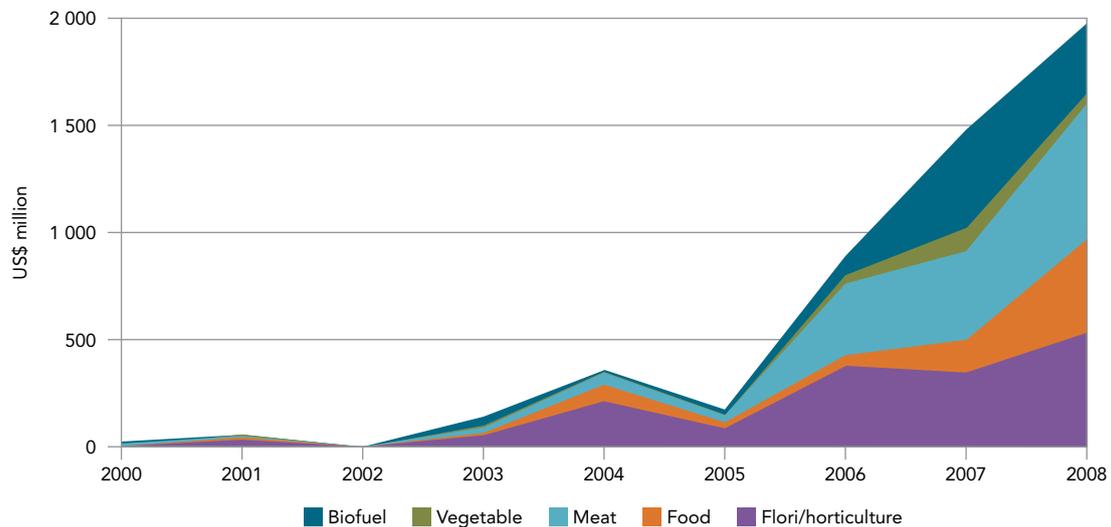
The floriculture/horticulture sector was the main focus of investment flows between 2000 and 2005. Investors from the EU, India and Israel provided more than 60% of the total FDI inflows in this sector, although it is also important for Saudi Arabia and the USA. In recent years, investment in floriculture/horticulture has shown dramatic growth, to the point of surpassing most African nations with operations established long before those in Ethiopia. The contribution of floriculture/horticulture to foreign exchange earned increased from US\$300 000 in 2001 to US\$104 million in 2006. The Ethiopian floriculture industry has become the second-largest flower exporter in Africa (after Kenya) and fourth-largest in the world (EHPEA 2013). The export value earned by the country is expected to rise to US\$550 million by 2016 (EHPEA 2013). The annual foreign exchange expected from floriculture in the current fiscal year is estimated at around US\$200 million; there is a high probability for a significant growth in exports and the value of foreign exchange earnings (EHPEA 2013). In addition to foreign exchange generated, the sector has also created employment opportunities for a large number of previously unemployed people, particularly women.



As the investment is capital intensive, floriculture projects established so far have been developed on a relatively small total land area – about 1 500 hectares during 2010. There are two major issues in this sector: negative environmental impacts and workers' health and safety. Balancing the benefits of floriculture sector growth while ensuring environmental protection, as well as maintaining health and safety standards through the enactment and execution of appropriate rules and legislative guidelines is a policy challenge.

The other major development in FDI is the large-scale commercial farm sector. Foreign investors in this sector are mostly from India and Saudi Arabia, as are companies from the USA, the EU and, very recently, China. While FDI in floriculture/horticulture remained stable in absolute terms after 2005, investments in meat production and biofuel increased significantly between 2006 and 2008 (Table 7). This change in priority is apparent in Figure 14, which shows the total FDI inflows for the different sub-sectors without considering the origin.

Figure 14: Foreign direct investment (FDI) inflows into the main sub-sectors, 2000–2008



Source: Weissleder (2009), based on data from the Federal Investment Bureau of Ethiopia.

Investment in food, meat and biofuel production increased significantly from 2006. Considering that the agricultural sub-sectors chosen for investment are primarily export-orientated, it is appropriate to assume that the major drivers of FDI in Ethiopia are food security and secure financial returns, rather than the traditional motives of efficiency and market-seeking (Weissleder 2009). In the case of meat production, for example, Saudi Arabia is the main investor; its main reason is to meet domestic demand through the meat production undertaken by Saudi companies operating in Ethiopia.



3.2.5 *Strengths and weaknesses*

The policy of agricultural commercialisation through the expansion of large-scale private farms is faced with pro and counter arguments and opinions. Some advocate for constitutional reform to give smallholders full authority, including the sale of their plots, to facilitate the expansion of large-scale private farms. On the other hand, the government's prohibition of smallholders' right to sell their land is intended to prevent eviction (i.e. to act as a safety net), as smallholders' livelihoods are based on these holdings.

The strengths and weaknesses of large-scale private farms to agricultural growth are summarised below.

Strengths

- Increased availability of food grain in the domestic market as a result of agricultural investment (mainly by domestic investors);
- Increased revenue generated for the economy;
- Employment generation;
- Foreign currency earned through the export of commodities produced by private farms; and
- Linkage effects, leading to the establishment of agro-industries as sources of raw materials (e.g. the growth of flour mills with links to wheat farms).

Weaknesses

- Floriculture sector growth has had a negative impact on the environment through the disposal of chemicals harmful to vegetation, soil, livestock and people. This has affected workers' health and safety. There are no laws or legislative guidelines to protect workers or the environment;
- Critics of FDI inflow in agriculture argue that the motive of land grab is the main driver of cereal and biofuel crop production for export to investors' home countries;
- There is a limited role for inducing growth through increasing domestic supply, consumption and commercial export that could have linkage effects on the domestic market and the economy at large;
- Foreign agricultural investments expand at the expense of displacing people from their holdings and have negative impacts on their environment;
- FDI inflows in commercial farms have little or no long-term impact through technology transfer, spill-over effects, the diffusion of new ideas and agricultural knowledge, or the commercialisation of smallholders through partnership with local farmers (e. g. out-growers); and
- Loose or no linkage between foreign and domestic investors despite the need for a joint venture involving domestic investors, thereby developing domestic capacity to sustainably improve the production and export of agricultural commodities.



3.3 Evaluating smallholder intensification and commercial farm growth

Table 7 summarises the arguments for and against smallholder and large commercial farming.

Table 7: Arguments in favour of and against smallholder and large commercial farming	
For	Against
Smallholder intensification	
Limited role of private farms to support growth and food security.	Insignificant structural transformation of the sector to date.
Intensive use of improved inputs and technologies by small farms will enhance rapid economic growth.	Fragmented and small plots of land hinder intensification and growth.
Can achieve food security and reduce dependence on aid.	Low growth efficacy and low value for money of expenditure in this sector.
Commercialisation and growth of high-value crops will increase household income and export revenue to finance industrial growth.	Privatise fragmented smallholdings (allow sale of land) to enable private farm growth to free excess labour from agriculture.
	Industrial growth absorbs excess labour from agriculture.
Private commercial farm growth, including domestic and foreign investment	
Increased supply and availability of food grain in the domestic market (domestic investors).	Motive of land grab is the main driver.
Spill-over effect on smallholders facilitates technology transfer.	Emphasis on cereal and biofuel crops for export to investor countries.
Creates employment.	Not the traditional motive of efficiency and market and hence limited role of inducing growth.
Contributes to foreign exchange and generates revenue.	Lack of will to involve domestic investors in joint ventures.
Links domestic and foreign markets and enhances commercialisation.	Limited linkage effect due to the lack of partnership with farmers as out-growers.
Linkage effect on agro-industrial growth.	

It seems clear that Ethiopia pursues a policy that promotes both smallholder agriculture growth and the development of large commercial farming. There has been ample experience with public support for smallholder agriculture, notably through PADETES, but less experience with the performance of support for large commercial farming, except in the case of state-owned enterprises.

It is important that the government establishes strong systems for monitoring the performance of support for both smallholders and large farms and that the basis for objective evaluation is agreed upon in advance. Conventional forms of cost-benefit analysis do not provide enough information on some of the more complex issues associated with poverty and vulnerability. They do, however, provide an important starting point. The minimum evidence required for this type of analysis includes the following:

- The cost of support, including the cost of delivering services and the loss of revenue arising from any tax incentives offered to investors in commercial farms;
- The impact of the programmes on the production of crops and livestock;
- The implications of changes in the margins enjoyed by farmers, input suppliers and those involved in marketing produce;
- The implications of changes in production for prices and for pressures on the exchange rate and the effect of this on consumers, possibly measured in terms of consumer surplus;
- Any implications of changes in production patterns for the seasonality of production and of labour demands and any particular aspects of seasonal vulnerability; and



- Any implications of new activity for changes (good or bad) in vulnerability to climate change and, especially, increased unreliability of rainfall.

4. Further dialogue issues

This case study of Ethiopian public expenditure on agriculture raises a number of more detailed questions that would help to address the two main dialogue issues:

- What evidence would be required to judge whether an increase of US\$1 million in agricultural GDP is more valuable to Ethiopia than an increase of US\$1 million in industrial GDP?
- Is it true that more people benefit from US\$1 million of growth in smallholder agriculture than in US\$1 million of growth in commercial agriculture?
- The existing analysis of the impact of PADETES suggests that the impact is small in percentage terms, but is the evidence strong enough to show whether small percentage changes are large in absolute terms and sufficient to justify PADETES?
- What forms of monitoring should have been included in PADETES to make it easier to judge the performance of the programme and how should this have been organised to ensure that project managers took account of the evidence to revise the programme?
- In particular, is a rigorous cost-benefit analysis the right starting point for evaluating the relative performance of public support for smallholder and large commercial farms?



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