ECONOMIC AND SECTOR WORK

AGRIBUSINESS INDICATORS:

Ethiopia

APRIL 2012

THE WORLD BANK

REPORT NUMBER 68237-ET

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Cover photo: Farmers sorting tomatoes in Ethiopia. Stephan Bachenheimer/ World Bank.

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Acknowledgements

This report was prepared by James Mbata of the ARD Department of the World Bank. It benefited from many people too numerous to be named individually. A number of people must be acknowledged because of their special contributions at specific stages of the study and during the preparation of the final report.

Firstly, I would want to thank the team of Achim Fock, Teklu Tesfaye and Haileyesus Adamtei at the Country Management Unit (CMU) Addis Ababa, Ethiopian, for the interest and enthusiasm they showed in the study. Their assistance at the various stages of the study has been highly appreciated.

Secondly, I would also wish to thank the local consultant for this study, Setotaw Ferede, for his collaboration and cooperation throughout the period of data collection and the final write-up of the study. His willingness to validate the information as often as was deemed necessary helped very much to enhance the quality of the information in the report.

I am grateful to the numerous stakeholders across the broad spectrum of the agribusiness industry who agreed to be interviewed and willingly shared information with us in a very candid manner. I would also like to thank the peer reviewers and all those individuals that the research team consulted at various stages of the study.

Finally, I join the ABI team, under the guidance of our Task Team Leader-Grahame Beaumont Richard Dixie- in thanking the Bill and Melinda Gates Foundation for funding the study.

Executive Summary

Because agriculture is the economic backbone of most countries in Sub-Saharan Africa, including Ethiopia, any meaningful sustainable development program in the continent must therefore be anchored in the sector. The concept for this study on agribusiness indicators was based on the vital role that agribusiness plays in agricultural development. The study focuses on agribusiness indicators (ABI) to identify and isolate the determining factors that lead private investors and other stakeholders to participate in agribusiness and to engage in discourse regarding its development. A more thorough empirical understanding of these determinants in turn can usefully inform the types of policy reforms that can promote agribusiness in Africa.

In Ethiopia, the ABI team focused on the following success factors: a) access to critical factors of production of certified hybrid seeds, fertilizer, and mechanical input; b) enabling environment in terms of access of credit and transportation; and c) government expenditures on agriculture, and trade and regulatory policies that currently influence the agribusiness environment. The factors and indicators that the research team has included in this study are not exhaustive but rather are intended to serve as a pilot that could be scaled up to include more variables and countries.

The findings of the study revealed the dominant role of the government in the seed and fertilizer markets. In the seed sub-sector, perennial shortages of both basic and certified seeds have greatly limited agricultural productivity in Ethiopia. With less that 5 percent of the total land area planted with improved certified seed, Ethiopia is well behind its peer countries, such as Zimbabwe, Zambia and Kenya, where commercial maize seed use exceeds 70 percent of total maize seeds. Ethiopia's Ministry of Agriculture (MoA) continues to intervene in the production, marketing, and distribution of certified seeds. Although there are about 34 registered private seed companies in the country, their total share of the certified seed market is only about 12 percent.

The main actors in the fertilizer input market are the Agricultural Input Supply Enterprise, which has a monopoly to import fertilizers, and the Cooperative Unions, which are the primary wholesale and retail outlets for farmers in the country. Private sector dealers and retailers appear to be generally absent in the fertilizer market. Although the intensity of fertilizer use is on the increase, rates still remain low at 17 kg of nutrients and 29 kg per hectare compared to 200 kg per ha that is generally recommended as optimal for crop production in the country. Foreign exchange constraints continue to be a limiting factor to the liberalization in the market for this input.

The mechanized input market in Ethiopia can be described as competitive with no government direct involvement in the import and distribution of tractors, and the free entry and exit of firms from the market. There was no apparent collusion among the importers and suppliers of tractors, who instead are in stiff competition with one another. Although tractors are exempt from import duties, most prospective buyers are unable to capitalize on this savings because of the six month time limit that tractors can be bought tax free once in the port of Djibouti. The result is that tractors remain very expensive and scarce, with high rental costs and long queuing periods. This also has the tendency of delaying land preparation and other farm activities.

Access to finance from commercial banks and the availability of good road transport were also investigated as enablers of private sector involvement in the agribusiness industry. In Ethiopia, commercial banks account for more than 60 percent of the loans and credit to businesses, and therefore play a pivotal role in leveraging agribusiness. The findings of this study however suggest that commercial banks in Ethiopia remain reluctant to provide credit services to agribusinesses, and smallholder agribusinesses in particular. The proportion of the total loan portfolio of commercial banks that is

directed to agriculture increased only marginally, from 8 percent a decade ago to 9.6 percent in 2010. Yet contrary to expectations, loans to the agriculture sector performed as well as loans to the other core sectors of the economy. Collection rates for outstanding loans from the agriculture sector were no different from sectors like industry and international and domestic trade sectors.

Other major players in agricultural finance in Ethiopia are micro finance institutions (MFIs) and rural saving and credit cooperatives (RUSACCOs). MFIs are very active in extending loans to small-scale producers, with an average loan size of about US$170 extended to rural households. Despite their strong growth and presence in rural areas, MFIs provide less than 7 percent of the total national loan portfolio, with government-owned MFIs playing the major role. In addition to the commercial banks and MFIs, the cooperative societies are also key grassroots organizations that play very important roles in providing credit and loans to small-scale producers. An estimated 5,900 RUSACCOs provide financial services for agricultural production and marketing, and account for about 0.1 percent of the total credit in the economy yet this source is very important for those small-scale farmers who have no other source of securing finance.

Access to good and reliable road transport continues to militate against agricultural transformation in Ethiopia. Most of the expansion in the country's network of roads has focused on highways in urban areas. Roads in rural areas, where most agricultural production takes place, remain in very poor condition. The cost of transportation is therefore much higher on rural routes than on urban routes and international corridors. Access to rural roads is measured by the Rural Access Index. While Ethiopia's Index of 27 percent is higher than the 21.7 percent average for all low income countries, only 53 percent of the country's rural roads are classified as being in good condition, compared to a 57.6 percent average for low income countries generally. (In Ghana for instance, 74 percent of rural roads are in good condition.) Prohibitive taxes on new trucks and spare parts continue to retard the replacement and maintenance of old fleets. As a result, most trucks in the country are not in good condition.

In the area of public policy, significant progress has been seen in government programs and institutions that encourage private sector agribusiness development. The government of Ethiopia has surpassed the 10 percent budget allocation to the agriculture sector as mandated by the African Head of State and government within the CAADP framework. It has also established the Agricultural Investment Support Directorate (AISD) to facilitate the process of land acquisition and the provision of information for domestic and foreign investors interested in doing business in agriculture in the country.

The establishment of the Ethiopia Commodity Exchange (ECX) has led to a number of positive developments, even though its current trading business is limited to few 'mandated' commodities. The ECX has accelerated the flow of timely market information, and greatly reduced delays in payments to coffee farmers. ECX also has the Warehouse Receipt Financing program that links farmers to commercial banks. When fully developed, the program should enable farmers who lack immovable collateral to access loans. Above all the newly created Agricultural Transformation Agency (ATA) has been designed to address systemic bottlenecks in the agriculture sector by supporting and leveraging the capability of the MOA and other stakeholders. The ATA should be well-placed to facilitate coordination in priority areas, avoiding unnecessary duplications in effort, ensuring that milestones are well-articulated and that objectives are achieved.

Civil society and advocacy groups have few if any opportunities to engage with government in public-private partnerships. Fora such as roundtables in which public sector and private sector representatives can convene to discuss the issues and policies that affect agribusiness development are also lacking. And despite recent progress with the establishment of the ECX and ATA, direct government intervention persists with seed "crash" and ad-hoc policies and price control mechanisms that distort the seed sub-

sector. Policy change and more effective institutions will be needed to establish an enabling environment in which private Ethiopian agribusinesses can thrive.

Table 0: Matrix of Agribusiness Indicators and Findings for Ethiopia-2010

Agriculture Productivity Measures		**Indicator Findings**
Certified Seed Use	Existence and implementation of regional & national seed laws & regulations	Rating = 2 (on 0-5 scale)
	% staple crop area planted to certified seed	18.4% (maize),0 8% (teff), 4.2% wheat (0.3) sorghum (0.6)
	% of total area planted to certified seeds	4.7
	Sales of imported seed as % total sales of certified seed.	Maize: 0.1 (2010)
	Time required for registration, testing & obtaining approval for imported seed	1-2 years
	% of foundation seed provided by government organizations	95%
	Number of private seed companies operating in the countries	34
	% of certified seed multiplied by private firms & farms vs. government entities	12 (Pioneer Hi-bred accounted for 8.3% of this amount)
	Seed to Grain Price Ratio (Profitability and Risk prospects in certified seed business)	7.1
	Ease of private sector participation in the seed market (Scale: 0-5)	Rating = 1.5
Fertilizer Use	Average total fertilizer consumption (2006-2010)	390,855 MT/yr.
	Fertilizer application rates/intensity of use (kg/ha)	17 kg/ha of nutrients or 29kg/ha of chemical fertilizer
	% of fertilized area	40 (2010)
	% of farmers using fertilizer	35 % (2010)
	CIF price Djibouti (current Prices) of MT of fertilizer	Urea-US$ 610.50; DAP US$ 471.20
	Average cost of transportation and handling to main agricultural zones	US$ 70 per MT
	Average price paid by farmers for 50 kg bag of NPK and Urea in main agricultural production zones	DAP: ETB 608 (US$38); Urea: ETB 491 (US$30.7)
	CIF price as % of price paid by farmers	78% (2010)
	% of farmers reporting delay in planting as a result of late arrival of fertilizers	40%
	Value Cost Ratio (Value of one unit of output to cost of one unit of fertilizer to produce that output)	2.57 (All main crops); 2.31 (maize only)-2010
	Nutrient/Output price Ratio {Pn/Po) for wheat	2.1 (Maize); 2.0 (Wheat)
	Fertilizer Subsidy (% of retail cost)	0%
	Tariffs and taxes on fertilizer	0%
	Ease of private sector participation in the fertilizer market (Scale: 0-5)	Rating = 0 (All fertilizers are imported by AISE and distributed through the cooperatives).
	Agro-input dealers density (Agro dealers/1000 farmers)	0.53

Agriculture Productivity Measures		Indicator Findings
Mechanization	Total number of tractors in the country	5090
	Total # of tractors per 100 sq km of arable land	4.0
	Estimated Total Horse Power (HP) for tractors in the country	52,0905 HP
	Estimated Av. HP per 100 sq Km	412
	Cost of plowing one hectare of land Cost of disc harrowing one hectare of Land	ETB 1300 ($US81.25) ETB 650 (40.63)
	Number of tractors imported by the private sector as a % of the total number of tractors imported into the country	100%. Govt .is not involved in tractor import.
	Average cost of buying a medium range HP tractor(90-120HP)	ETB 900,000 (US52,200)
	Useful life of tractors	Avg. of 8 years at an estimated average number of engine hours of about 1,500-2,000 due to the dearth of tractors.
	Tariff on tractors	0% if buyers has import exemption papers otherwise 10% import duty + 15% VAT,
	Tariffs and Taxes on tractor spare parts	10-15%
	Ease of private sector participation in the agricultural machinery market (Scale: 0-5)	Rating = 5.0; GoE does not import tractors
Supporting Service Measures		
% Agriculture Finance	% of commercial bank lending to agriculture	9.6%. (2010); 11.6% (2009) 8.0% (2008).
	Commercial bank average nominal interest rates on deposits	5%
	Avg. lending rates by commercial Banks for loans to agriculture	11%; Interest rate spread in 2010 was about 6%.
	% of nonperforming loans (w/in agriculture sector)	Commercial Bank of Ethiopia 0.2; Oromia Cooperative Bank 6.0%; Development Bank of Ethiopia 12.8%
	Bank Branches per 100,000 rural adult population	0.8
	% of rural HHs receiving credit for agriculture	1% (based on figures from FBOs and cooperative unions
	% of rural HHs with bank accounts	1% (A requirement for obtaining credits and loans by most Banks)
	Financial Inclusion-Percent of adults accessing credit	14%
	Existence of a warehouse receipt system (Y/N; Scale: 0-5)	Yes; Rating=3.0 (Already in place and working in collaboration with banks to extend credit to farmers)
	Existence of a law on leasing (and extent of use of leasing)	Yes; Capital Goods Leasing Business Proclamation No. 103/1998).
	Existence of Credit Reference Bureau	No; presently there is no functional credit reference bureau, although one was scheduled for launching on August 12, 2011. Rating=0

Agriculture Productivity Measures		Indicator Findings
	Presence of a collateral registry	No; in Ethiopia, there is no collateral registry in operation that is unified geographically and by asset type, as well as indexed by the grantor's name of security of right.
Transport	Freight from Primary to secondary market	ETB 7.58 (US$0.47) per km/mt
	Freight from Secondary Market to terminal market	ETB 3.89 (US$0.24) per km/mt
	Inland freight from Addis Ababa to major cities	ETB 1.66 (US$0.10) per km/mt
	Freight in the international corridor (Djibouti to major cities)	ETB 0.84 (US$0.05) per km/mt
	Overall freight Average*	ETB 3.49 (US$0.22)
	Time required to register a truck for hauling agric. products (days)	7 days
	Ease of entry into trucking of foodstuffs (Scale: 0-5)	Rating = 4.0
	Opinion of traders and truckers on the competitiveness of trucking services (Scale: 0-5)	Rating = 3.5
	Quality of trade and transport related infrastructure (e.g. ports, railroads, roads, IT)—LPI	LPI = 2.41 out of 5
	Rural Access Index: % rural population within two kilometers of a road	RAI = 27% (2010)
	Percent of road network in good condition	56.0% (2010)
	Area more than 5km from all weather roads (%)	64.0% (2010)
	Road density/1000 population in Km	0.58 (2010)
Policy and Institutional Measures		
Private Sector Perception of Policy Environment & Advocacy Role	Private sector perception of agribusiness enabling environment (0-5 scale)	Rating = 2.5
	Policy Consistency: 0-5 scale as perceived by foreign and domestic investors; fear of (frequent, unexpected or arbitrary) changes in policy, regulations, and rules affecting business operations, profitability.	Rating = 2.0
	Private sector advocacy group for agribusiness: existence & effectiveness	Rating = 1.3
Govt. Commitment to Agriculture	CAADP framework stipulates that at least 10 % of annual government budget should be allocated to the agric.	9.8% (2010); 13.0% (2009); 11.7% (2008); Overall average in the 13 year period is 13%
Trade and marketing Policies Indicators	1. The main trade policies that currently influence producers' share of FOB prices of the main export commodity, coffee, are the buying and selling (auction) policies by the newly established Ethiopian Commodity Exchange (ECX). As a proxy, we use producers' share of the FOB price to quantify the effect of this policy.	The national average for the producers' share of the FOB price was 58% after the establishment of ECX as against 59% before ECX, implying that ECX is yet to make significant impact. Since it started operation in May, 2008
	2. Proportion of staple crops (wheat and maize) production passing through formal marketing channels as a proxy for favorable marketing policies.	30% of maize production; 80 % for wheat based on the fact that wheat is a major staple processed into pasta in Ethiopian

*= Overall average is obtained by simple average

Acronyms

ABI	Agribusiness Indicators
AISE	Agricultural Input Supply Enterprise
AISCO	Agricultural Input Supply Cooperation
ATA	Agricultural Transformation Agency
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Program
CIF	Cost, Insurance and Freight
CMU	Country Management Unit
DB	Doing Business
DBE	Development Bank of Ethiopia
EIAR	Ethiopian Institute of Agricultural Research
ESE	Ethiopian Seed Enterprise
ETA	Ethiopian Transport Authority
ETB	Ethiopian Birr
ERA	Ethiopian Roads Authority
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FOB	Free on Board
GDP	Gross Domestic Product
GoE	Government of Ethiopia
HLI	Higher Learning Institution
IFPRI	International Food Policy Research Institute
IFAD	International Fund for Agricultural Development
IFC	International Finance Cooperation
IMF	International Monetary Fund
ISTA	International Seed Testing Association
MoA	Ministry of Agriculture
NBE	National Bank of Ethiopia
NEPAD	New Partnership for Africa's Development
NGO	Non Governmental Organization
OCBE	Oromia Cooperative Bank of Ethiopia

OECD	Organization for Economic Co-operation and Development
OPV	Open-pollinated varieties
PASEDEP	Plan for Accelerated and Sustained Development to end Poverty
RARI	Regional Agricultural Research Institute
RSE	Regional Seed Enterprise
RUSACCOs	Rural Savings and Credit Cooperative
SSA	Sub-Saharan Africa
SNNPR	Southern Nations, Nationalities and Peoples Region
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
UNECA	United Nations Economic Commission for Africa
USAID	United States Agency for International Development
USD	United States Dollar
WB	World Bank
WRF	Warehouse Receipt Financing

1. Introduction

1.1 Rationale and Contextual Framework for Agribusiness Indicators in Sub Saharan Africa

The importance of agriculture in the economies of Sub-Saharan African countries cannot be over emphasized. Agriculture accounts for about 65 per cent of the continent's employment and 75 per cent of its domestic trade. Any significant progress in reducing hunger and poverty on the continent will rely heavily on the development and transformation of the agriculture sector. Transforming agriculture from a largely subsistence enterprise to a profit–making agribusiness commercial venture is a prerequisite and the driving force for accelerated development and sustainable economic growth in Africa.

An extensive body of empirical evidence now supports the direct correlation between agribusiness development and economic growth and sustainability (OECD 2008; FAO 2010b; UNIDO 2011). Long-term economic growth and sustainability can only be achieved through increased investment in the agriculture sector. Increasing investment through public-private partnership is largely responsible for most increases in employment and improvements in living standards, including those of the poor (World Bank, 2004; UNDP, 2004). The critical role of the private sector in bringing about economic growth has therefore become a major focus of bilateral and multilateral development assistance by donors like the World Bank. Since 2005 the Bank has placed increasing emphasis on the characteristics of investment climates that encourage economic growth and provide for an enabling business environment. Positive investment climates generally require sound policies and public institutions with sufficient capacity to effectively administer the regulations that are the products of those policies. The enabling business environment attracts both domestic and foreign investments in developing countries, and the increased volume of investment fosters competitiveness. The sector benefits from the comparative advantages of the different investors, and this tends to improve the entire range of activities along agricultural value chains, including production, processing, and marketing. Productivity and value addition increase, often attracting still more investment. The expansion and intensification of physical and marketing infrastructure enables upstream and downstream actors to forge forward and backward linkages within the value chain. This entrepreneurial activity results in substantial job creation and income generation for those employed by firms active along the chain.

Over time, this process can shift smallholder production from subsistence to market oriented agriculture, and promote economies of scale within commercial agriculture. Agribusiness indicators are used to identify the success factors that are instrumental in making agribusinesses a driver of agricultural and rural development in Africa. They provide common reference points with which to compare performance across countries, and can be used to guide policy-oriented dialogue between public officials, international development practitioners, private investors, and other stakeholders.

While firm-level success in commercial agribusiness is dependent on internal factors, external factors also play a very significant role in shaping prospective profit streams, growth paths, and sustainability. Among these external factors which are associated with an enabling business environment are political and economic stability, and appropriate macro-economic and agricultural policies and regulations which are consistent and not subject to frequent change. Respect for contracts and the rule of law and the availability of market information play an important role. The targeted provision of support services such as extension, essential public infrastructure, and the availability of technologies that are appropriate for the local environment are important as well. Storage and warehousing facilities and

equipment are important to both suppliers and buyers. And as local economies develop, ancillary services such as financial, legal and accounting services become increasingly significant.

For Africa's agricultural exports, the lack of structural transformation carries a high opportunity cost. The steady increase in the production of traditional exports such as coffee, cotton, cocoa, tobacco, tea, and sugar has not translated into a higher value of exports. This represents an unfortunate contrast to the substantial recent increases in the value of agricultural exports from East and Southeast Asia and Latin America, reflecting a move towards high-value exports achieved through investment in agricultural markets and trade (OECD 2008). The development of a dynamic private agro-industrial sector will both add value to primary products and move Africa away from trade in primary commodities to higher–value, processed and semi processed products. This will raise the competitiveness of the continent in agricultural trade both in domestic markets as well as in the international market.

Private sector development is a priority of the World Bank and other development agencies in part because of the potential of large flows of foreign direct investment (FDI) to provide investment capital that is not yet available in the domestic economies of many developing countries. And it is not just investment capital, but technology and knowledge that spills over to domestic firms, improves their efficiency, and raises their production possibility frontiers (Javorick 2004; 2008). The resulting increase in their competitiveness and productivity can make them an important source or "engine" of economic growth.

The current series of studies on agribusiness indicators in Sub-Saharan Africa, including this volume on Ethiopian agribusiness, is designed to help identify and isolate the key success factors that can encourage and then leverage private sector participation in Africa's agriculture. The series is intended to be useful to the Africa Union's New Partnership for Africa's Development (NEPAD), and the Comprehensive Africa Agricultural Development Program (CAADP) in particular, which is concerned with promoting investment in the agriculture and agro based industries (African Union and NEPAD, 2004; UNIDO et al. 2010). The use of the indicators will enable analysts to observe agriculture sector performance over time and to draw comparisons between developments in the different pilot countries.

1.2. Overview of Ethiopian Agricultural Sector

Agriculture is the economic backbone of Ethiopia. An estimated 85 percent of the population is engaged in agricultural production and over 80 percent of the country's foreign exchange earnings are derived directly or indirectly from the sector. The sector accounts for about 45 percent of the GDP and more than 80 percent of the country's exports. Crop agriculture accounts for 29 per cent of GDP, followed by livestock at 12 percent and forestry at 4 percent. The country has unique and diverse ecological zones and is capable of producing a wide range of agricultural products. The primary agricultural products in the country include cereals, pulses, oil seeds, coffee, tea and livestock (MoA, 2011).

According to the overall progress report on the Plan for Accelerated and Sustained Development to End Poverty PASDEP (PASDEP)[1] the Ethiopian economy experienced double-digit growth of between 11.5 percent and 12.6 percent during the (2005/06-2009/10).plan period. The growth rate in the agriculture sector was similar. The current development Plan-Growth and Transformation Plan (2010/11-2014/15) seeks to consolidate the gains from PASDEP while focusing on other sectors; nevertheless with continued great emphasis on agriculture.

Official statistics of the GoE reveal that Ethiopian agriculture has recorded consistent growth since 2003. Despite some persistent handicaps and hiccups facing the agriculture sector and the overall economy as

[1] PASDEP Annual Progress Reports in 2006/7 and 2007/8, Ministry of Finance and Economic Development (MoFED)

a whole, Ethiopia has achieved significant progress in output and productivity in recent years. The sector has averaged about 8 percent growth in the past two years. Maize production, a major staple, has expanded at about 6 percent per annum since 2003. In addition, the aggregate export value across all commodities has grown at about 9 percent per annum, contributing to annual GDP growth of about 11 percent (Federal Democratic Republic of Ethiopia, 2010).

Ethiopia can potentially increase its GDP by an additional US$20 billion by 2025, a trajectory that would enable it to firmly establish food security and to become a middle income country. This development will be particularly feasible if productivity growth in agriculture can be accelerated. Agricultural export value could reach US$8 billion through strategic choices in high-value export crops and a vibrant livestock sector. This would place Ethiopia on par with Indonesia today in terms of agricultural exports (Bill & Melinda Gates Foundation and IFPRI, 2010).

Agriculture in Ethiopia, like in most other countries in Africa still suffers from numerous constraints, including diminishing arable land due to especially in the high potential area due to population pressure and land degradation, and a weak land tenure system. The effects of high variability in climate are especially acute given the general lack of irrigation facilities. Declining soil fertility is exacerbated by very low rates of fertilizer use. Transport infrastructure is generally lacking and where it is in place, tends to be in poor condition, which is one of the constraints that limit the distribution of inputs such as improved seeds. Producers have very limited access to agricultural credit, and marketing systems are quite poor. Ethiopian agriculture is also extremely labor intensive, and the drudgery of farm work is another factor limiting productivity (Croppenstedt, Demeke & Meschi, 2003; Alfsen, Bye, Glomsrod & Wiig, 1997). These constraints combine to undermine the attainment of food security and the effectiveness of government poverty reduction strategies. And they present a daunting series of challenges to the transformation of the sector from subsistence farming to commercial agriculture.

Public-private partnerships are often cited as an area in which a number of these constraints could be purposefully overcome. Yet the private sector itself needs to expand its participation in markets, and throughout entire commodity supply chains rather than in select activities determined by government agencies. This promises to increase the flow of private investment into Ethiopian agriculture, both domestic investment and foreign direct investment. And it has the very real potential of further unlocking much of the country's agricultural potential that remains untapped – including its rich endowment of human and natural resources.

In 2010, the International Food Policy Research Institute (IFPRI) published a diagnostic outlook for agriculture in Ethiopia and noted that the "formation of joint public/private development programs should be supported through target incentives and appropriate regulatory frameworks. The public sector should prioritize its role as catalyst and regulator, and undertake implementation strategically, seeking to drive activities that build self-sustaining momentum and foster growth of sizeable local private sector players in key value chains" (Gates Foundation and IFPRI, 2010).

In other words, there is a great deal of latitude and space for the private sector to become more actively involved in the production and marketing of agricultural products while the government focuses mainly on the formulation of policies and strategies and the creation of an enabling environment and infrastructure for a vibrant agribusiness sector capable of accelerating economic development. It is in this regard that IFPRI also recommended that the government of Ethiopia puts the enabling environment in place by supporting enabling areas such as access to financial services for actors along the entire value chain and the development of the necessary infrastructure to expand producers' access to markets among others.

It is against this backdrop that this study becomes an important input into the current development effort of public officials and policy makers whose decisions need to be informed by a clear understanding of the factors that will facilitate agribusiness development, and the areas in which action on the part of the government can be most constructive.

2. ABI Methodology

ABI methodology draws from the World Bank/IFC established method of Doing Business (DB) approach. DB focuses on 10 broad indicators, and up to 41 sub-indicators' which were designed to gauge general business conditions and the investment climate facing urban-based enterprises in 183 countries. The DB framework is applied to correlate the profile of a country's business environment to the performance of firms operating within that environment. Its overall objective is to advance the World Bank Group's private sector agenda in four main ways, namely: to motivate reforms through country benchmarking; to inform the design of reforms; to enrich international initiatives on development effectiveness, and ultimately to inform theory (World Bank 2008).

The *Doing Business* project has informed or inspired over 220 reforms in 65 countries.[2] The World Bank Group and the Gates Foundation anticipate that this pilot project will have a similar effect in the long run by focusing the attention of policy-makers, public and private sector stakeholders, and development practitioners on those factors that most affect productivity, efficiency, and competitiveness in agribusiness systems.

In contrast to DB, ABI focuses on a broad spectrum of diverse agricultural actors along the value chain of key agricultural commodities. In this way, ABI entails a relatively holistic perspective of representative farms and firms and actors that operate in the agribusiness industry**.**

ABI purposefully builds a constituency of key informants and triangulates its data collection to ensure data quality and consistency to enhance the reliability of the indicators that are used in benchmarking, and in cross country comparisons. It is also expected that the indicators that ABI seeks to construct would help in monitoring perceptions and opinions over time for an effective evaluation of policy impact on the general agribusiness environment in a country

2.1 Data for the Study

The study relied on discussions with key informants from a very broad range of respondents, representing different stages in the production, processing, and marketing of key agricultural commodities in the country. The team conducted an extensive review of scientific publications and policy research papers to examine the context in which agricultural and agribusiness activities are carried out. The information sheds important light on the potential and the limitations which influence private sector participation in the agribusiness industry in the country.

Secondary data were collected from various sources. These included the FAO, the Ministry of Agriculture, the Ethiopian Seed Enterprise, the Agricultural Input Supply Enterprise of Ethiopia, the Agricultural Transformation Agency, IFPRI, Ethiopian Institute of Agricultural Research and a number of financial institutions in the country. Other sources included international researchers, development partners, local institutions and NGOs, and policy makers. The methodology arrived at by the ABI team in Ethiopia involved five steps:

1. A scoping mission to identify important key stakeholders and isolate the important success factors that promote or hinder private sector participation and agribusiness development in Ethiopia.

[2] *Doing Business: An Independent Evaluation*, IEG, World Bank, 2008

2. A detailed and extensive literature review to investigate the agricultural situation in Ethiopia and to collect secondary data to establish indicators for benchmarking and for cross country comparisons.
3. Face-to face interviews with key informants to complement and validate as it were the information that has been obtained from literature and also as a basis for data triangulation and reconciliation in order to ensure data quality and consistency.
4. Internal and external peer review mechanism involving knowledgeable individuals on Ethiopian agriculture for the purpose of validating and enhancing the quality and acceptability of the findings of the study.
5. The final stage in the ABI study in Ethiopia would involve the strategic dissemination of the findings to selected key stakeholders in Ethiopia including government officials as a way to collect feedback and sensitize the government and private sector practitioners and other actors in the agribusiness into meaningful policy dialogues and debate. It is hoped such a process could engender policy reforms and promote public-private partnership that would leverage agribusiness development in Ethiopia.

In effect, ABI methodology combines the use of literature search and review with survey data that are generated through a participatory approach that brings all stakeholders onboard including the government in discourse and dialogue with the hope to nudge the government into policy reforms that could improve the efficiency and performance of the agribusiness sector.

In all, about 100 respondents were interviewed in Ethiopia, during the course of three missions that lasted approximately 8 weeks in total and with the contributions of a local consultant working for 40 man days.

Prior to the Ethiopian Country Study, the ABI team had carried out an exploratory survey in Ghana to pilot test the methodology developed for the ABI and to validate the success factors chosen and assess their relevance to the questions that the team had set out to answer.

The success factors identified and data collected for this pilot study are not exhaustive or all encompassing. Rather, what this pilot study intends to do is to identify and focus on the most *critical factors* and over time achieve progress and build upon the number of success factors to be analyzed. The study will be repeated and expanded upon in a number of additional African countries.

2.2 Success Factors and Indicators for Agribusiness

In consultations with other departments and individuals in the Bank and based on the extensive deliberations by the ABI team and the outcome of the Ghana pilot study the following categories of success factors were isolated as the most relevant factors that can effectively promote and leverage private sector development and engagement in Africa's agriculture.

- *Access to critical factors of production,* the identification of which included certified seed, inorganic fertilizers, and mechanical inputs.
- *Supporting services* including finance and transportation
- *Government policies, enabling and regulatory environment*. These include fiscal and monetary policies, trade policies and the private sector perception of enabling environment, particularly with regards to government crowding out of the private sector. Others are the role and influence of civil society and advocacy groups and the conduct of roundtables on issues affecting the stakeholders in the agribusiness sector.

3. Findings on the Success Factors and Indicators

Determining the presence or absence of the success factors and constructing reliable indicators that can be used for benchmarking and for cross country comparisons require an understanding of production and marketing systems as well as the agricultural policies and enabling environment that promote or hinder agribusiness development in a country. This chapter explores the access to critical factors of production by farmers, the extent of supporting services, and the impact of government policies, on *doing agricultural business* in Ethiopia.

3.1 Access to Critical Factors of Production

In Ethiopia, yields of major food crops are well below what is technically feasible. For example, the national average yields of maize, wheat, teff and barley are 2,122, 1,167, 1,625 and 1,376 kg per ha respectively compared to potentials yields of 10,000 kg per ha for maize, 5,000 kg per ha for wheat, 2,700 kg per ha for teff and 4900 kg per ha for barley obtained at research station under farmers' circumstances (Alemu *et al.*, 2010). There is huge latitude for the country to increase productivity through increased use of modern farm inputs and improved agricultural practices.

Ethiopia is under great pressure to relieve food insecurity and poverty and increase the production of raw materials for agro-based industries. Bringing additional land under cultivation would only help to a limited extent. Increase in productivity through a more optimal use of improved agricultural packages would be a more viable option in increasing output and in meeting the raw material and food security needs of the present generation without compromising the ability of future generations to meet their own needs. Table 3-1 shows the huge yield gaps that exist between actual and potential yields hence the need to increase the use of the critical factors of production in form of certified hybrid seeds, fertilizer and mechanical technology among others.

Table 3-1: Actual Yields versus Potential Yields of Major Crops in Ethiopia

Crop (1)	Actual Yield on Farmers' Field (2)	Potential Yield (3)	Yield Gap (4)	Actual as a % of Potential yield (2/3)
Maize	1,740	5000	3260	34.8
Wheat	1,167	5,000	3833	23.3
Teff	1,625	2,700	1075	60.2
Barley	1,376	4,900	3524	28.1

Source: Author's calculation; original data from MoA; Alemu *et al.*, 2008

3.1.1 Access to Certified Seeds

Certified seeds are critical to increasing agricultural productivity in Ethiopia. They are attributable for about 50 percent of the increase in crop yields. Other factors such as irrigation and fertilizer use account for the other half. The adoption of improved varieties therefore is a prerequisite for increasing agricultural productivity and enhancing profitability for farmers, particularly those of smallholders whose productivity is far below potential.

I: Area of major crops planted to certified seeds

The shortage of certified seed in Ethiopia has been clearly highlighted in the evaluation report of PASED. Available figures indicate that during the PASDEP reporting period (Federal Democratic Republic of Ethiopia, 2004/05-2009/10), excluding regional supplies, the plan for the Ethiopian Seed Enterprise (ESE) and other private seed producers was to supply 900,000 quintals of improved seeds. The actual quantity

of improved seed supplied to farmers by the ESE however, was 558,911 quintals, representing just 62 per cent of the amount expressed in the plan document. Although, evaluation result of PASED suggests that the annual supply of seeds seemed to have increased, however, when the planned quantities are compared with the actual, it is obvious that the performance of the public seed supply system has not been as satisfactory as had been anticipated (Federal Democratic Republic of Ethiopia, 2005; MoA, 2011).

Among the reasons for the underperformance of the public seed system is the fact is that the seed system has not yet brought together all stakeholders. This needs to happen all along the value chains in order to develop a demand driven seed market that is capable of addressing the constraints presently affecting the seed supply system, and to eliminate the perennial shortages of basic and pre-basic seeds. This is why the government established the Agricultural Transformation Agency (ATA) to satisfy the demand for improved seeds in the country.

In terms of improved seed supply in the country there are two main sources. There is the formal or commercial seed sector, which involves improved seeds supplied by institutions such as ESE, RSEs, HLIs, EIAR, and RARIs among others that are involved in the production and distribution of improved seeds. These improved seeds that have been proven to have higher yields than ordinary seeds and are sold to farmers through farmer cooperatives, input suppliers and other registered organizations. The second type of improved seeds comes from the traditional or informal seed sector. These are seeds that farmers save from their crops and use in subsequent planting seasons, or trade or buy informally.

The two main types of improved seeds that farmers frequently use are:

1. *Hybrid seeds* – seeds produced by artificially crossing selected parent lines. Farmers must buy this seed every year – they should not save seed from season to season. The only hybrid seed in use in Ethiopia is maize. Figure 3-1 shows the demand for basic seed to produce certified hybrid maize seed.
2. *Self Pollinated or Open-pollinated varieties (OPVs) or self-pollinated seeds* – these can be saved by farmers for several seasons (three seasons are usually recommended), and account for the majority of the seed for Ethiopia's staples. The primary crop that improved OPVs are used for is wheat, but other important open-pollinated varieties include teff, barley, sorghum, open-pollinated maize, and pulses (Alemu et al., 2010)

Ethiopian farmers require over 700,000 tons of improved seeds each year to grow cereals and pulses. The commercial formal seed sector supplies 20,000 to 30,000 tons of seed per year across all crops, representing only 3-6 percent of farmers' actual seed needs. The use of commercial maize seeds in Ethiopia is lower than in other African countries such as Zimbabwe, Zambia and Kenya, where commercial maize seed use exceeds 70 percent of total maize seeds (Alemu et al, 2010).

In Ethiopia, an estimated 5.24 percent, 0.71 percent and 0.54 percent of the areas under cereal, pulses and oilseeds respectively are planted with certified improved seeds. Table 3-2 shows the percentage of the land areas that are covered by certified improved seeds, and illustrates how much room there is for increasing productivity and output through a robust seed systems that allows the full participation of the private sector and the reform of the informal sector in such a way that seeds supplied by the sector can be authenticated to be of good quality and meet the minimum standards.

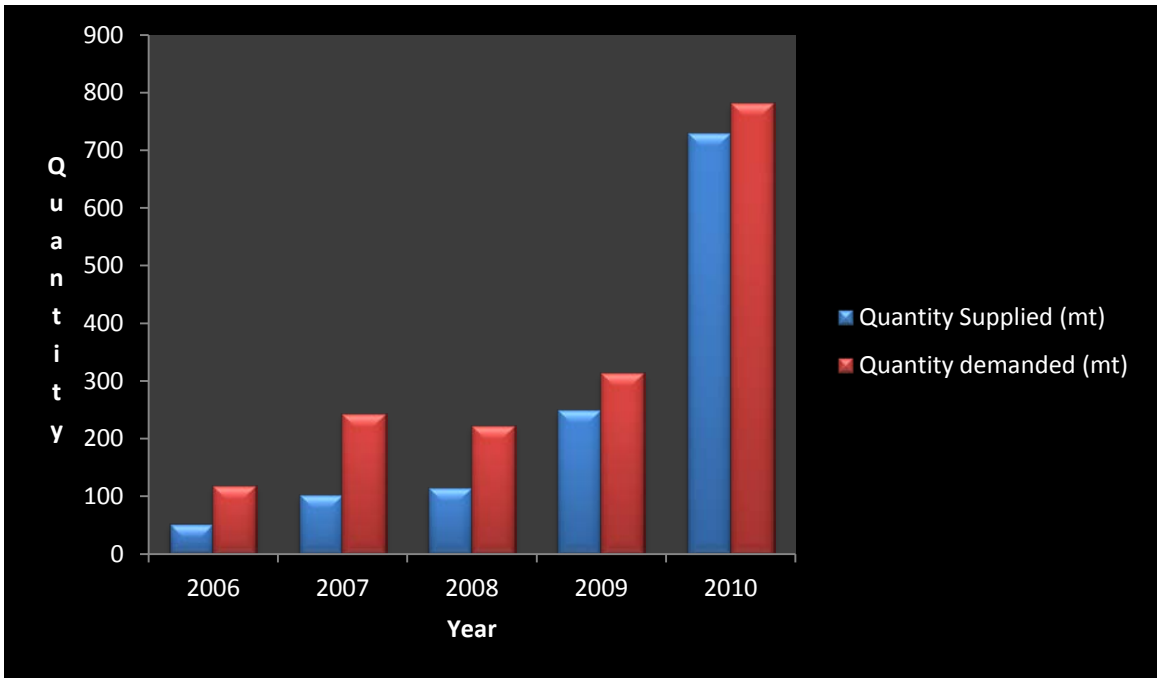
The use of commercial seeds as a percentage of estimated requirements (demand), with total demand obviously significantly higher, varies greatly among crops. Figure 3-2 (see also Appendix 3) shows that only a very small percentage of the quantity of certified seeds officially demanded is met by suppliers. The highest proportion is approximately 50 percent for maize. The lowest is for barley, at less than 10

percent over a five –year period.[3] In addition, Figure 3-3 highlights the fact that seed production from the formal commercial sector does not follow a particular pattern but rather reveals substantial fluctuation from a year to year.

While there are shortages of certified seed in most of the crops, the area planted to hybrid maize seed is the largest. Much of this may be attributable to a certified hybrid maize supplier named Pioneer International – an illustration of the important role that private seed companies can play in reducing Ethiopia's shortage of certified seed. Despite a national shortage in hybrid maize, the ESE had leftover seed in many other crops over the last few years. This raises serious concerns about the timeliness and efficacy of the centralized process of seed allocation, including the real possibility that seeds are being delivered too late to be planted or to places where they cannot be used effectively. Some believe there is a total disconnect between the ESE and the farmers. There is more over the larger issue of how to accurately quantify the effective demand for certified seeds by farmers.

By adopting commercial seeds and improved agricultural practices on a quarter of the crop land in Ethiopia, farmers could increase maize production alone by over 60 percent from approximately 22 quintals/ha to 40–80 quintals/ha and increase self-pollinated crop production, such as wheat, by over 30 percent. On the average, this would amount to a potential crop increase of over 7 million tons of maize and wheat per year (Alemu et al. 2010).

Figure 3-1: Basic Seed Demand and Requirements (Supply) for Maize Hybrid Multiplication, 2006–2010 (Metric Tons)



Source: Spielman, *et al.,* 2011, ESE, MoA; Pioneer Hi-bred

[3] The informal seed system in Ethiopia is defined as seed production and distribution along with the difference actors where there is no legal certification in the process. This includes retained seed by farmers, farmer-to farmer seed exchange, cooperative based seed multiplication and distribution and other such agencies with no quality assurance. For the purpose of this study and following other studies and to be consistent with what obtains in other countries, the seed from this informal source would not be counted as part of certified improved seeds (see Alemu, 2010; Matsumoto and Yamano, 2011)

Table 3-2: Percentage of Land Area of Major Crops Planted to Certified Crops, 2004/05-09/10

Year	% area planted to certified seed by crop				
	Teff	Maize	Wheat	Sorghum	Barley
	0.72	15.91	3.82	0.50	0.52
	1.10	20.09	5.73	0.38	0.78
	0.55	15.87	3.25	0.17	0.32
	0.70	19.50	2.29	0.14	0.62
	0.67	19.75	3.85	0.09	0.62
	0.85	18.98	6.37	0.52	0.55
	0.77	**18.39**	**4.22**	**0.30**	**0.57**

Source: Spielman *et al.*, 2011; IFPRI, (2010); ESE, MoA (2011)

Figure 3-2: Certified Seeds Supplied by the Commercial/Formal Seed System as a Percentage of the Amount Demanded (2005-2010)

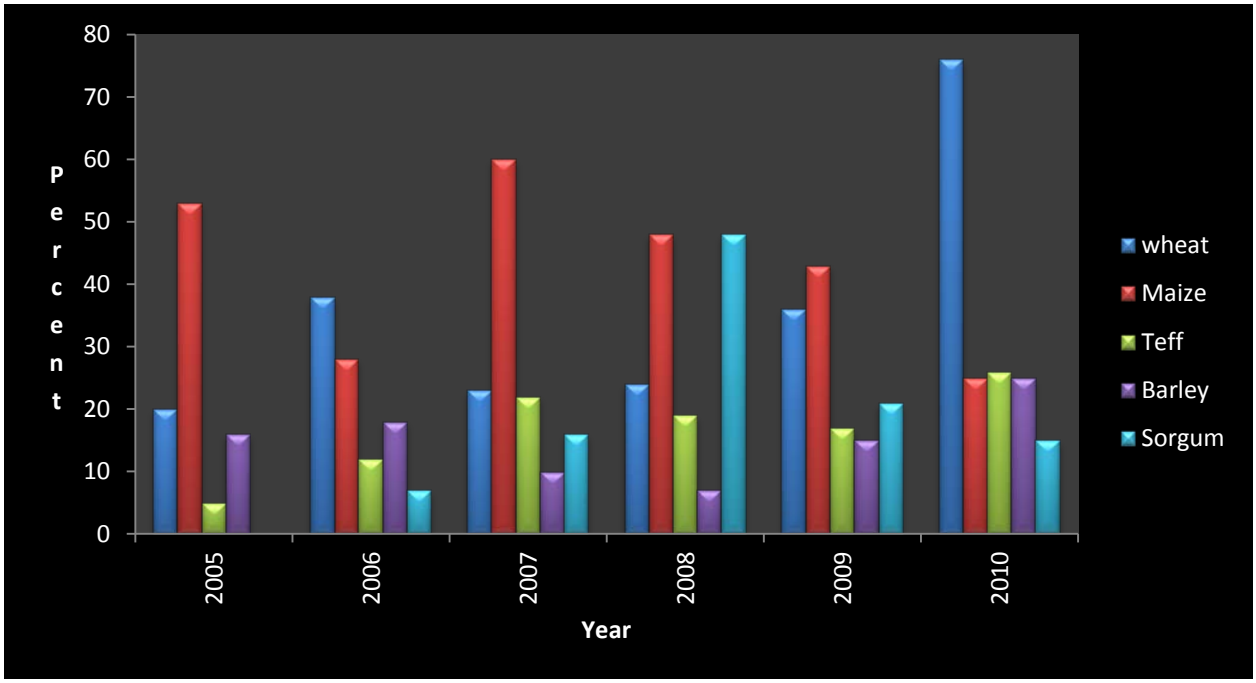
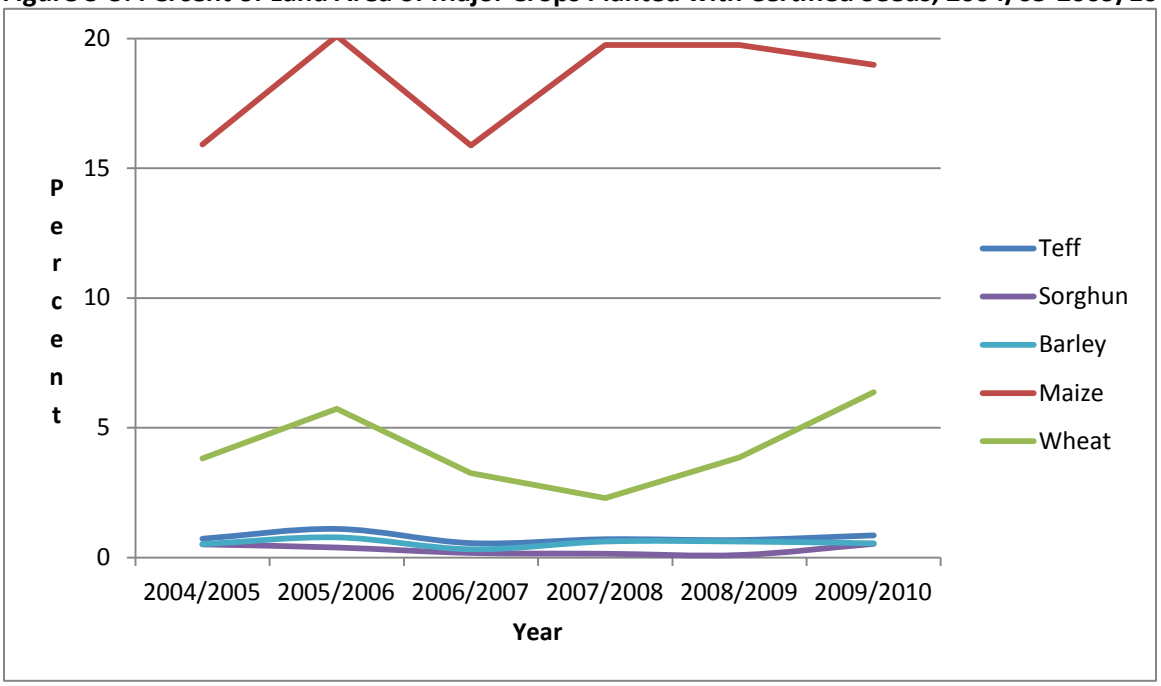


Figure 3-3: Percent of Land Area of Major Crops Planted with Certified Seeds, 2004/05-2009/10



II: Legal and regulatory framework for seed production, multiplication and certification

The presence of a few very powerful groups in the Ethiopian seed industry makes it particularly important to establish an effective legal and regulatory framework capable of ensuring that the seed industry is producing and delivering the right quantity and quality of seeds and at the right time. The Ethiopian seed sector is presently governed by policies and regulations that were introduced during the early 1990s in a series of decrees and proclamations (Thijssen, et al. 2008; Alemu 2010).

- Proclamation No. 56/1993 passed for the establishment of NSIA, the
- Seed Regulation No. 16/1997, was amended in 2000 by the National Seed Proclamation No. 206/2000, (which pertains the most specifically to the seed sector)
- the Plant Protection Decree (No. 56/1971),
- the Plant Quarantine Regulation (No. 4/1992),
- the Plant Breeders' Rights Proclamation (No. 481/2006), and
- Access to Genetic Resources and Community Knowledge and Community Rights Proclamation (No. 482/2006).

Interviews with key stakeholders indicate that these regulations and laws are outdated and need to be revised and amended. In the absence of a comprehensive functional seed law that is understood by all, the seed industry in Ethiopia continues to operate under a very weak regulatory system that fails to guarantee seed quality, and the quality of seeds from informal sources in particular. As a result, farmers are subject to paying higher prices for what are purported to be certified seeds, but which in fact are not improved varieties and which do not increase yields. By using recycled seeds, farmers forego as much as 50 percent of potential yield increases, which makes for significant lost opportunities to raise their income. Recycled seeds obtained from the informal sector are much more likely to have become contaminated and to have lost vigor and vitality.

At the time of interview, the seed law and policies were being reformulated and revised and the draft was in the Council of Ministers for discussion and debate before being ratified by the House of People's Representative and passed into law. Going by ABI's scoring for the indicator on this success factor, this stage of seed law enactment for Ethiopia gives the country a score of 2.

III: Private sector participation in the production and marketing of improved seeds of major grains

Before the establishment of the Ethiopian Seed Enterprise in 1978, there was no organized seed company in Ethiopia that produced and distributed certified seeds (Gugsa and Yonas 1993). Pioneer Hi-Bred Seed PLC was the first private seed company to become part of the Ethiopian seed industry in the 1990s. A number of seed companies operate in the Ethiopia seed industry today. These include public seed companies (federal and regional), state farms, multi-national private seed companies, local small scale private seed companies and unions. About 26 seed growers are now licensed to produce certified seed (Alemu et al. 2008). Most of these companies are actively participating in certified seed production in different capacities (see Table 3-3). The private sector accounts for about a mere 12 percent of the total seed supplied from the commercial sector, a situation that may be largely responsible for the perennial shortage of certified seed and the low yields that farmers obtain in the field (Table 3-4).

The proportion of Ethiopian foundation and breeder seeds produced by public seed institutions probably exceeds 95 percent. These include the Ethiopian Institute of Agricultural Research (EIAR), the Regional Agricultural Research Institute (RARIs), and Higher Learning Institutions (HLIs). According to Spielman et al. (2011) "……. the MoA has taken action to rectify these problematic allocations of scarce seed system resources by involving private firms and regional seed enterprises in the business of basic seed production." This overwhelmingly large proportion of the breeder seed that is produced and distributed by public institutions strongly suggests that the private sector has been effectively crowded out. It is only Pioneer hi-Bred PLC that has in 2010 started getting their parental lines from Zimbabwe and its share in the seed market is negligible relative to the total certified seed produced within the country.

Box 3-1 reviews the steps involved in producing certified seed. Box 3-2 describes the role of cooperatives in securing improved seed and other important inputs for smallholders. Figure 3-4 shows hybrid maize seed distribution by supplier; Figures 3-5 and 3-6 show the relative contributions of the private and public sectors to hybrid maize seed production and distribution in Ethiopia.

Box 3-1: Supply chain – from "breeder seed" to marketed certified seeds

• *Breeder seed* - the stock seed produced by the breeder or institution that develops and maintains the cultivar, used to develop pre-basic and basic seed

• *Pre-basic seed* - the progeny of breeder seed, commonly used for crops that have low multiplication rates, and where large quantities of certified seed are required

• *Basic seed* – produced from breeder or pre-basic seed under the supervision of a seed control agency

•*Certified seed* – seed must be certified for quality assurance, before being ready for distribution and marketing

Source: IFPRI, 2010

Box 3-2: Cooperatives are key grassroots organizations for smallholders to access critical factors of production (fertilizers, seeds and credit) and to market their outputs

A Case Study of the Lume-Adama Farmers' Cooperative Union

The Lume-Adama Farmers' Cooperative Union was established in 1997 with 4 primary cooperatives with an initial capital of ETB 150,000 Birr. Currently the union consists of 33 primary cooperatives with a total membership of 23,066 farmers; 20,221 are male members while the rest are females. It has paid up capital of ETB 23 million. Presently the union covers three districts: - Lume, Adama, and Bosset Districts;

Major Functions

The union is proximally located about 70 km from Addis Ababa and therefore has good access to primary and terminal markets such as Addis Ababa. Its main functions include the supply of agricultural inputs such as commercial fertilizer, seeds, and other chemical inputs. As a member of ECX, it supplies haricot beans to ECX for the export market. The union also buys other products from the farmers such as Teff and wheat which it sells and any profit s are distributed as dividends to the farmers. It provides credit provision to members. In an arrangement with commercial bank of Ethiopia and Oromiya Cooperative Bank it borrows funds in the amount of ETB 10-15 Million at 9.5 percent interest rate for on-lending to the farmers at 10.5 percent.

Currently, the union implements some development projects with partners:

- Poultry project with financial assistance with ILO. In this project, Day Old Chicks and 3 months old layers are sold to support women farmers;
- Crop Insurance Scheme on behalf of members with Niyla and Oromiya Insurance companies;
- Bakery Project where the union buys wheat from the farmers and adds value by converting the wheat grain first to wheat flour and eventually to bread in the partnership project with the Embassy of Japan in Ethiopia.

It provides tractor rental services for member and non-member farmers. The union has 11 tractors with medium range HP an average life span of about 12 years. Renting rates are as follows: Plowing was 1100 Birr/ha (2011); 800 Birr/ha (2010); harrowing was 650 Birr/ha (2011); 700 Birr/ha (2010);

Fertilizer Procurement and Supply to Members:

In the past two years, Ethiopian Agricultural Inputs Supply Enterprise (AISE) is now solely responsible for the importation of fertilizer and buys from the AISE warehouse in Adama. The fertilizer price is set by AISE and the union adds a margin of 10 percent after covering costs such as transport, insurance, loading and unloading, storage, etc.). The farm gate prices for the fertilizers were: DAP (658.50 Birr/quintal in 2010 and 1051.55 Birr/quintal in 2011); Urea (590 Birr/quintal 2010 and 869 Birr/quintal in 2011); loading and unloading (2 Birr/quintal for each activity). The union complained that the prices of the fertilizers have doubled since AISE took over the importation and procurement of the fertilizers in the country.

Membership

The applicant primary cooperative needs to have a legal status with clear information indicating membership strength and gender composition. It has to buy at least a share value of 5000 Birr and pay a registration fee around 500 Birr.

Constraints

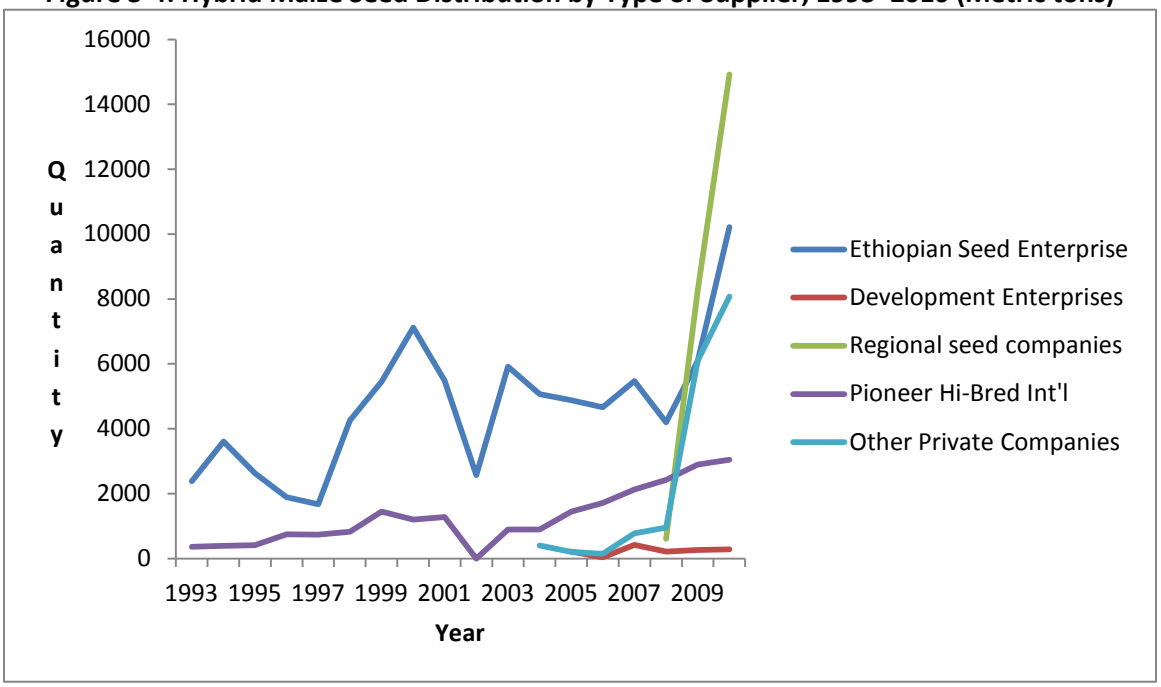
Some of the major constraints highlighted by the union included the takeover of fertilizer procurement by AISE. The union complained that, the centralization has doubled the cost of fertilizers in the country. The poor condition of the rural area was also highlighted and inadequate finance for the procurement of inputs and for facilitating the marketing of output.

Table 3-3: Contributions of the Seed Companies to Hybrid Maize Seed Supply in Ethiopia, 2010

No.	Organization	Amount of certified seed(quintals)	Share (%)
	Ethiopian Seed Enterprise	37,317	
	Gadisa Gobena	230	
	Anno agro-industry	1,550	
	Hadiya agricultural enterprise	288	
	Hawas agricultural enterprise	891	
	Mekiya enterprise	2,043	
	Ethio-Agri-Business	1,731	
	Avalo Agricultural enterprise	360	
	Hawasa Agricultural enterprise	2,039	
	Rushdi Hussein	619	
	Awasa Green Wood	1,240	
	Southern Regional beurau of Agriculture	723	
	Amhara Regional Beurau of Agriculture	1,983	
	Nono Agricultural enterprise	578	
	Pioneer Hi-bred International PLC	24,219	
	Coffee plantation enterprise	120	
	Oromiya Regional Beuau of Agriculture	3,330	
Grand total		**79,261**	**100.00**

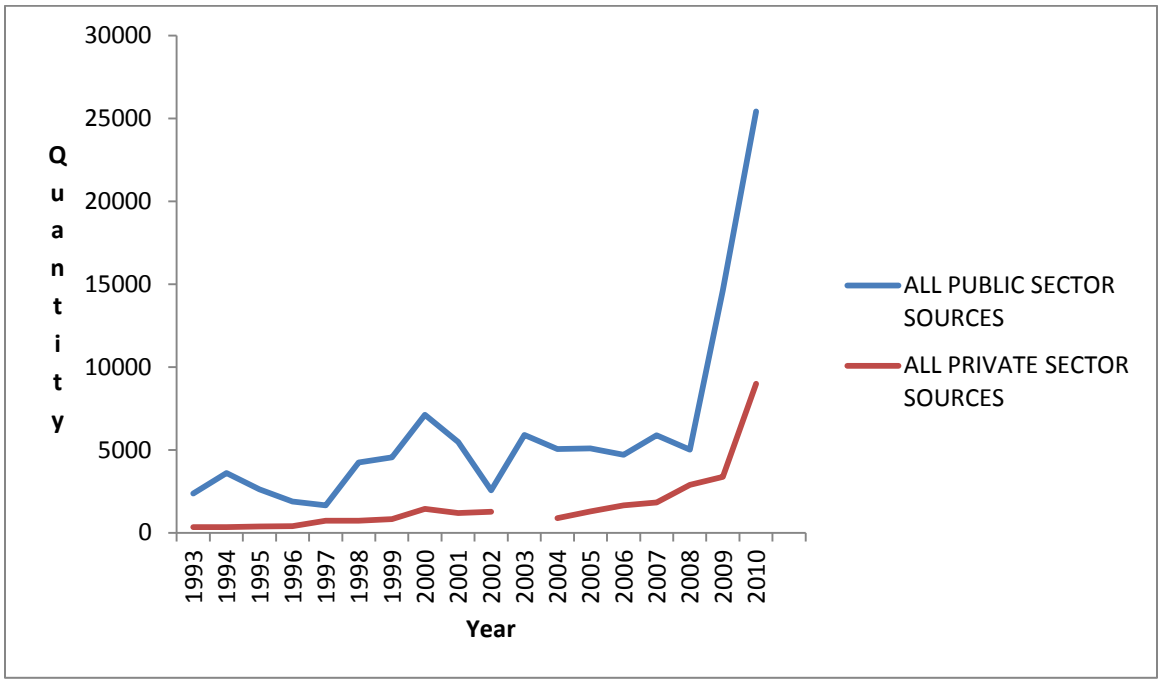
Source: Ethiopia Seed Enterprise, 2011

Figure 3-4: Hybrid Maize Seed Distribution by Type of Supplier, 1993–2010 (Metric tons)



Source: Spielman et al 2011, ESE, MoA; Pioneer Hi-bred

Figure 3-5: Hybrid Maize Seed Distribution by Private and Public Sector, 1993–2010 (Metric tonnes)



Source: Spielman et al 2011, ESE, MoA; Pioneer Hi-bred

Figure 3-6: Percent Share of Public and Private Sector Production of Seed in Ethiopia

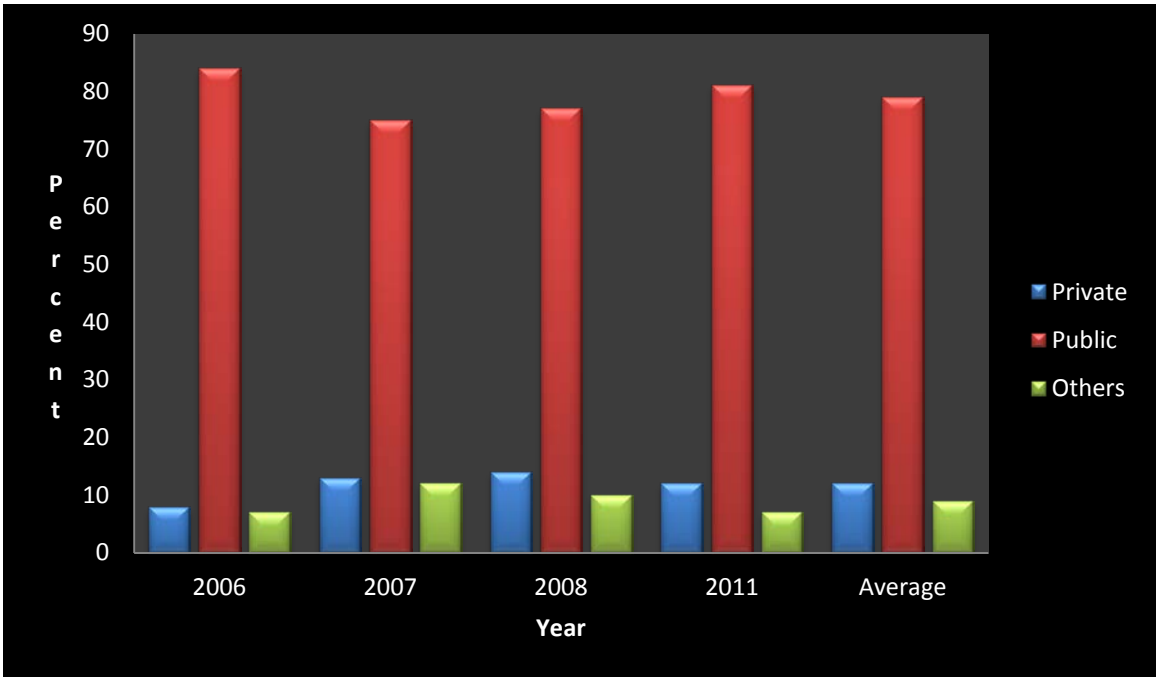


Table 3-4: Public versus Private Sector Production of Commercial Seed (2006-2010)

Crop Category	Commercial Seed Suppliers	% of Production				
		2006	2007	2008	2010	Average
	Public seed enterprise	71	62	50	65	62
	Private seed companies	28	30	40	38	34
	Others (unions, research centers)	1	8	10	7	7
	Public seed enterprise	90	85	90	82	87
p	Private seed companies	0	1	0	0	0
	Others (unions, research centers)	10	15	10	8	11
	Public seed enterprise	84	75	77	81	79
	Private seed companies	8	13	14	12	12
	Others (state farms, unions, research centers)	7	12	10	7	9

Source: IFPRI 2010; ESE 2011; Field Survey, 2011

IV: Seed imports in Ethiopia

Table 3-5 shows hybrid seed imports in 2010. According to the MoA, seeds of major staple crops such as maize and wheat cannot be imported for sale in Ethiopia. However, it was noted that there are cases where very few large commercial farms imported their own basic maize seeds for production purposes. It was only in the case of horticultural crops that private seed firms are allowed to import seeds for sale. The seed proclamation No 206/2000 allows import of seeds for sale provided that it complies with the prescribed regulation. Such seeds however are subjected to test in fields before they can be disseminated throughout the country. On the average, apart from going through a rigorous quarantine procedure, a one–year adaptation trial is required. This means that a minimum of two cropping seasons is required before the seeds can be planted in the fields.

Table 3-5: Hybrid Seed (Wheat and Maize) Imports in 2010

Importing Company	Crop	Quantity (kg)	Country of Origin
The Giving Tree Nursery	Maize	40.0	Netherlands
Alfa Fodder & Dairy Farms	Maize	640.0	Netherlands
Pioneer Hi-Bred Seeds Ethiopia PLC	Maize	30,333.0	South Africa
Alemayehu Mekonnen	Maize	1,000	Zimbabwe
J J Kothari Ltd.	Maize	300.0	Thailand
Jittu Horticultural PLC	Maize	100.0	Zimbabwe
Ethiopian Institute of Agricultural Research (EIAR)	Wheat	244.9	Mexico & Syria
Total for Both Crops		32,657.9	

Source: MoA, Regulatory, Inspection and Certification Department. 2011

V: Doing business in certified seed in Ethiopia

The pricing and marketing policy in the Ethiopian Seed system presents another bottleneck in the development of an efficient seed industry that is capable of meeting the local demand and producing

seeds of high quality at the right price and quantity. The seed marketing system in the country is highly centralized. The government sets the price for most actors in the seed market. Private seed producers such as the Pioneer Hi-bred Seed Company receive a negligibly higher price.[4] The government sets wholesale prices for different certified hybrid seeds. It then uses the cost plus approach, after consultations with the various private seed companies, to determine retail prices, allowing a fixed amount for profit margins after discounting for transport and handling costs. In theory, because of the higher price for pioneer hybrid, the public seed companies are not expected to sell their seeds until Pioneer Hi-bred has completely sold out. Such unenforceable policies have become a source of market distortions and failures in the seed system. Even at this "artificially set high price" for Pioneer Hi-bred, the administratively set prices by the government are very low compared to seed prices within the region (Spielman et al. 2011). Thus the pricing mechanism in the country today does not allow the private sector to produce enough quantities that can generate a reasonable level of economic profit to leverage private sector participation and motivate other private firms to enter the market.

The consequences of such price controls and price ceilings of this nature that fix prices below market equilibrium are entirely predictable. They lead to shortages in supply, disincentives for private investors to enter the market, and encourage rent seeking and the development of black markets (Rashid et al 2009; Worku et al, 2011 and Spielman, et al., op. cit).

In 2008/09 a major shift in policy was enacted to allow the regional research institutes and ESE in addition to the Ethiopian Institutes of Agriculture Research (EIAR) to be actively involved in basic seed production. At the time of the survey, although the production of basic seeds had doubled from 350 metric tons in 2009 to 750 metric tons in 2011, this has further concentrated the production of basic and certified seeds in the hands of public seed enterprises. Indeed, during the interview, the Seed Directorate claimed to have satisfied the demand for basic seed of maize variety -BH 660 while that for BH 540 is not yet satisfied because of the high cost of producing this variety and the high demand for it by farmers

In addition, empirical evidence has shown that for a hybrid maize business to be viable and profitable, the price ratio of certified seed to grain should be in the region of 5:1; and 2:1 for basic grains such as wheat and barley. In Ethiopia, during the time this survey was undertaken, the price for hybrid maize seed was between ETB 1329 and 2000 per 100kg (the 2009 prices ranged from 988.55 for ESE to 1936 ETB/quintal for Pioneer Hi Bred hybrid maize (Alemu, 2010). The average price for 100 kg of maize grain was between ETB 300 and 330, which translates to seed-to-grain price ratio of about 7:1, much lower than the recommended ratio. This too suggests that production of hybrid seed under existing policies and regulations does not encourage private sector participation.

It has been suggested that the creation of enabling business environment and appropriate policies and regulatory frameworks and the implementation of regional seed policies consistent with OECD and International Seed Testing Association (ISTA) standards and requirements would allow multi-national seed companies to enter the hybrid seed industry and compete with the local public seed companies. This would help to break the high degree of monopoly that the public seed companies currently enjoy as they account for more than 80 percent of the market share of the total hybrid seed produced in the country. This would in turn force the public seed industry to design public breeding programs that would

[4] At the time of survey (May 2011) the price of hybrid maize for Pioneer Hi-bred was set at ETB 2000 per quintal while the hybrid maize from ESE was ETB 1,329 per quintal. The argument for this price discrimination was that the cost of producing hybrid seed by Pioneer Hi-bred included the cost of research whereas for ESE, the cost of research largely came from the government. In effect, there is an implicit subsidy by the government in the hybrid seed produced and marketed by the public agencies

produce better performing hybrids which will contribute to enhancing the productivity of maize and other grains on farmers' field.

Table 3-6 presents summary indicators on certified seed use in Ethiopia.

Table 3-6: Summary of Indicators for the Use of Certified Seeds

Access to Certified Seeds	Indicators	Base Year/Period/Value
1)Use of Certified Seed	Average area of land planted to certified seed (%) -2004/05-2009/10:	
	Maize	18.4
	Teff	0.8
	Wheat	4.2
	Sorghum	0.3
	Barley	0.6
	Total land area planted to certified seeds	4.7
2) Legislative & Regulatory Framework	Existence of Regional & national Seed Laws and Regulations: Seed laws are being reformulated and revised; draft in the Council of Ministers ratification	2
3) Seed Importation	Sales of imported hybrid maize seeds as a % of total sales of certified hybrid maize seeds in 2010	0.1
	Time in days/weeks required to register, test and obtain approval to clear and use imported seeds	1 year
4)Private Sector Participation in Seed Production & Distribution	Percentage of foundation/breeder seed provided and supplied by seed companies	<5
	Percentage of certified seeds produced and supplied by private firms/farms/ Market share of private firms	12
	Number of private firms involved in the production, processing and distribution of certified seeds in the country.	In 2010, the total number of private seed companies that have been engaged in maize seed production and distribution in Ethiopia was 34. Pioneer Hi-bred accounted for 8.32% the maize seed supply in 2010
	Risk and Profitability of Seed of the private seed companies as measured by seed to Grain Price Ratio	7:1
	Perception of Stakeholder on Private sector Participation: The government through the ESE is the main distributor and retailer of the certified seed in the country. About 80% of the certified seeds are sold by the ESE. The overall perception of the stakeholders on government intervention is that of crowding out through unfavorable and biased policies against private sector	1.5

3.1.2 Access to Critical Factor of Fertilizer

The significant output and yield increases that can be achieved when farmers adopt packages of certified seeds, fertilizers, pesticides, and herbicides, are well documented. Although chemical fertilizers when applied in combination with other modern inputs have contributed to productivity increases, farmers in Ethiopia have not yet been able to capitalize on the important opportunity adopting these inputs would entail. Doing so would enable them to increase yields and generate marketable surplus

and thus move out of subsistence agriculture towards commercial agriculture and into the main stream of market economy. Recent studies by IFPRI on fertilizer usage and adoption found that less than 45 percent of farmers surveyed applied fertilizer, and only on about 40 percent of area under cultivation. Among farmers who did apply fertilizer, most used it at below recommended levels (Demeke *et al.* 1997; IFPRI 2010; CSA 2011). The results are that yields either stagnate or are even depressed, incomes are low and agriculture remains at a subsistence level.

In this section of the report, ABI constructs indicators that can help policy makers, and other stakeholders to undertake reforms where necessary that could promote fertilizer consumption. While it is true that differences in the application rates of fertilizer may be influenced by such factors as variations in soil conditions and agro-ecological conditions, it is also true that across most SSA countries, fertilizer use is very low and must increase significantly across the board if agriculture is to be profitable and stimulate entrepreneurship along the value chains of agribusiness.

I: Fertilizer import and distribution

Currently, fertilizer procurement and import in Ethiopia is highly centralized and coordinated by the Ministry of Agriculture (MoA) and the Agricultural Input Supply Enterprise (AISE). The AISE is a government agency established to import and distribute agricultural inputs in general, though it focuses mainly on fertilizers. Each year AISE through the MoA collates "demands" from the Regional Agricultural Bureaus that include Southern Nations, Nationalists Peoples Region (SNNPR), Amhara National Regional State, Agricultural Bureau, Tigray National Regional State and Oromiya National Regional State as well as various cooperative unions and the few large scale farmers in the country.[5] On the basis of this demand estimation, the MoA forwards its request to the National Bank of Ethiopia for foreign currency allocation for the import of fertilizer.

Well before the start of the major planting season, and based on the estimates of demand (requirements) received from the various organizations and regional agricultural headquarters, the AISE would initiate a "competitive bidding" inviting tenders from international main suppliers including Mid Gulf International, YARA Switzerland, AMPORA, and the Jordan Phosphate Mineral Company to bid for the supply of the input. Based on the results of the bid, a few suppliers are contracted to import on behalf of AISE and ship to Djibouti at CIF price. It is also the responsibility of the importing firm to package the fertilizer in 50kg bags. The order for the import of the fertilizer is placed around the 1st week of October after receiving the demand estimates from MoA. About 3 months later the fertilizer consignment reaches the port of Djibouti. The AISE starts moving the bagged fertilizer to the seven distribution centers located in different areas of the country as follows: Addis Ababa: main center, Bahir Dar - Northwest Ethiopia; Kombolicha - Northeast Ethiopia; Nekemit- Western Ethiopia; Nazareth- Eastern Ethiopia; Hawassa Southern Ethiopia and Mekele for Northern Ethiopia. Trucking the fertilizer from the port to the different distribution centers is normally completed within 10 to 15 days' time. Finally, the fertilizer input reaches most farmers in mid-May.

This arrangement seems convenient, given that the planting season in most parts of the country especially for major staple crops like teff and wheat begins with the onset of rainfall mainly in late June. Interview with major stakeholders indicated that although fertilizer generally arrived on time in the country, it was still late in getting to the farmers. In fact previous studies (Bonger et al., 2004, Spielman, et al. 2011) have reported late arrival of fertilizer on farmers' fields with about 40 percent of the farmers

[5] It is to be noted that the demand estimates from the various state regions and cooperatives are simply based on historical sales of fertilizer in previous years and has no relationship whatsoever with what the farmers would actually purchase given the price of the fertilizer and their income

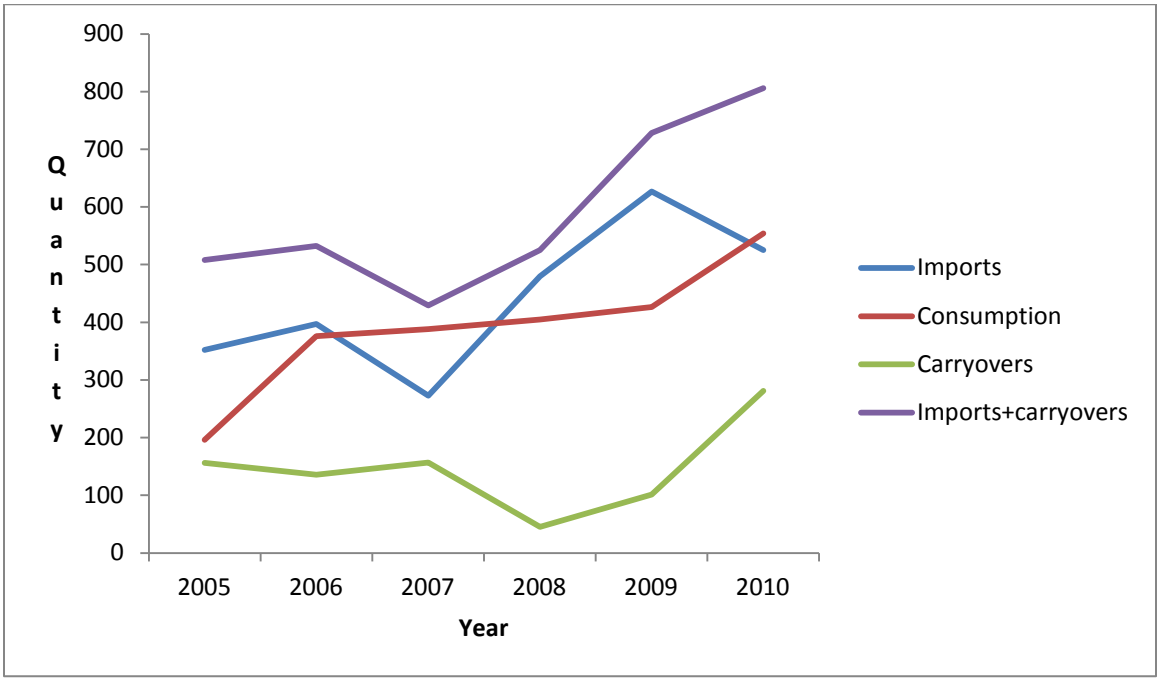
interviewed complaining that their planting was delayed by fertilizer problems. This late arrival at farmers' farms may be related to the logistical bottlenecks of accessing credits and organizing transportation by the cooperative unions in the procurement and distribution of fertilizers in the country.

II: Fertilizer supply and consumption

The only two main types of fertilizers used by the farmers are Urea and Diammonium Phosphate (DAP). It is estimated that total fertilizer consumption has increased from 250,000 metric tons in 1995 to 553,885 metric tons in 2010 with marked fluctuations in between the years, and a significant amount of carryovers in some years. This uncertainty leads to significant risk for dealers and retailers, and provides a major disincentive for private investors to participate in the fertilizer market (figure 3-7). Statistics indicate that the total consumption of nitrogenous fertilizers had increased from 49,996 metric tons in the 5-year period of 1993-1997 to 78,443 tons in the 5-year period of 1998-2002, before declining to 31,861 tons in the next 5–year period of 2003-2007 (although total imports and usage rates have been on the increase once again since 2009) (see Appendix 4).

These fluctuations are widely believed to be the result of budget constraints and government interventions and changes in fertilizer import and distribution policies. A number of experts have attributed the increase in imports and usage of inorganic fertilizers to a government credit scheme that supported fertilizer consumption at below-market or even zero interest rates (Demeke, et al. 1998; Yamano and Arai, 2010). Although these credits are now on the decrease, hidden subsidies in the government led fertilizer procurement and distribution in the country are likely to persist.

Figure 3-7: Fertilizer Imports, Consumption and Carryovers in Ethiopia 2005-2010('000 metric tons)



III : Intensity of fertilizer use

The intensity of fertilizer use when measured in terms of kg per ha of arable and permanent cropland is currently estimated at 17 kg per ha of nutrients or active ingredients. This converts to about 29 kg per

ha of commercial product. In terms of land that is actively being used for grain production however, the intensity of fertilizer use increases to 21 kg per ha, which is about 37 kg per ha of commercial products. Although fertilizer imports do exhibit an upwards trend, the intensity of fertilizer use does not appear to be following this trend, and has increased only marginally in recent years. Field study results indicate that in aggregate, fertilizer use increased by just 16.1 percent, from 31 kg of commercial product in 1995 to 36 kg per ha in 2008. One reason this increase in intensity was so small may have been that the increase in imports was mostly absorbed by a disproportionate increase in the area cultivated – this in addition to the fertilizers often arriving well after the part of the season when their application would have been more effective (Spielman et al., 2011).

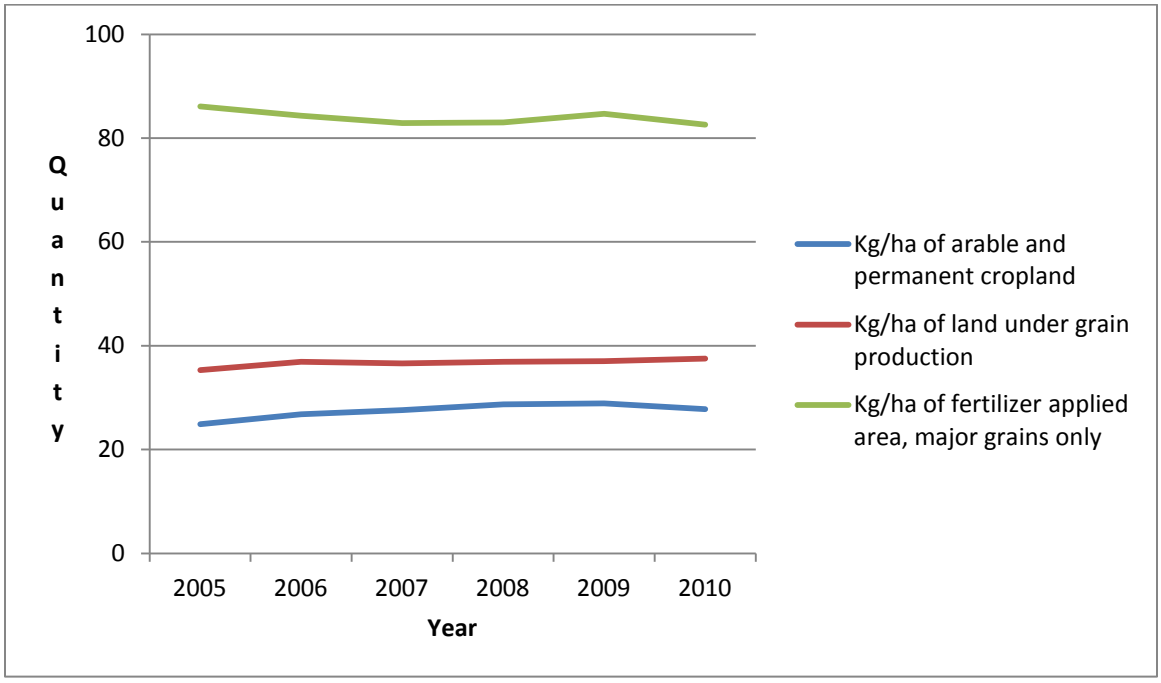
Current figures however indicate that intensity of fertilizer use has indeed stagnated since 2005, well after the government has completely monopolized the sector (Table 3-7). This strongly suggests that current government policies, particularly as they affect private fertilizer dealers, have not helped to improve fertilizer availability or increase the intensity of use. In fact, the government argues that one main reason it decided to re-enter the market soon after the liberalization in the early 1990s was that the private dealers were delivering the fertilizers at very high prices that depressed usage by farmers. Recent analysis however does not support this assertion about the decrease in fertilizer usage in the country during the period of liberalization (figure 3-8).

Table 3-7: Intensity of Fertilizer Use and Application Rates, Kg/ha of Commercial Product

Year	Intensity of Fertilizer Use (Kg/ha) of Annual and Perennial Crops	Intensity of Fertilizer Use (Kg/ha) of Land Under Total Crop Production	Intensity of Fertilizer Use (Kg/ha) of Land under Main Grains Only
2005	24.9	35.3	86.1
2006	26.8	36.9	84.3
2007	27.6	36.6	82.9
2008	28.7	36.9	83.0
2009	28.9	37.0	84.7
2010	27.8	37.5	82.6
Average	**27.5**	**36.7**	**83.9**

Source: Central Statistical Agency, Ethiopia, Spielman *et al*. 2011; Demeke et al 1997; Yamano and Arai, 2010, MoARD, Ethiopia

Figure 3-8: Fertilizer Use Intensity, 2005-2010



IV: Profitability of fertilizer use

Fertilizer prices are much higher in Africa than in any other region in the world and these high costs are largely responsible for low rates of use throughout the continent. Even within Africa, differences exist in prices within regional economic communities as well as within their member countries. A number of reasons have been forwarded for the high cost of fertilizer in Africa (Morris et al 2007).

This section of the report therefore focuses on how fertilizer prices are established at ports of entry, and investigates the different cost components within the domestic markets. What proportion of their local cost is attributable to transportation, handling, and other such charges that together add up to make fertilizers so expensive? The agribusiness indicators used in this analysis should help to explain the reasons behind these costs and therefore inform policies and actions that can be introduced to reduce them.

Field surveys of key informants in Ethiopia in April 2011 revealed that the CIF prices per ton of fertilizers were between US$587.74 and $634.12 for DAP and $450.15 and $492.27 for Urea fertilizers. The average retail prices for 100 kg of these fertilizers in the main agricultural production areas were ETB 1215 ($760) and ETB 982 ($ 613) per ton for DAP and Urea respectively (see Appendix 2 and also Figure 3-9 for a breakdown of costs). In other words, the CIF price is about 80 percent of the farm gate price. This implies that the handling and transaction costs account for about 20 percent of the total cost to the farmer. Cooperative unions sell the fertilizers to farmers on a cash basis at a price that includes a 10 percent markup over the cost recommended by the AISE. The unions charge this markup even though they normally obtain short-term credit facilities from commercial banks that are 100 percent guaranteed by the regional governments. It has been noted that the procurement of fertilizer through a credit program like the one in place in Ethiopia seriously hinders the emergence of private sector

distributors and retailers because it gives undue advantages to the cooperatives and the AISE (Yamano and Arai 2010).

Studies have shown that despite the fact that only about 40 percent of Ethiopian farmers applied fertilizer on their farms,

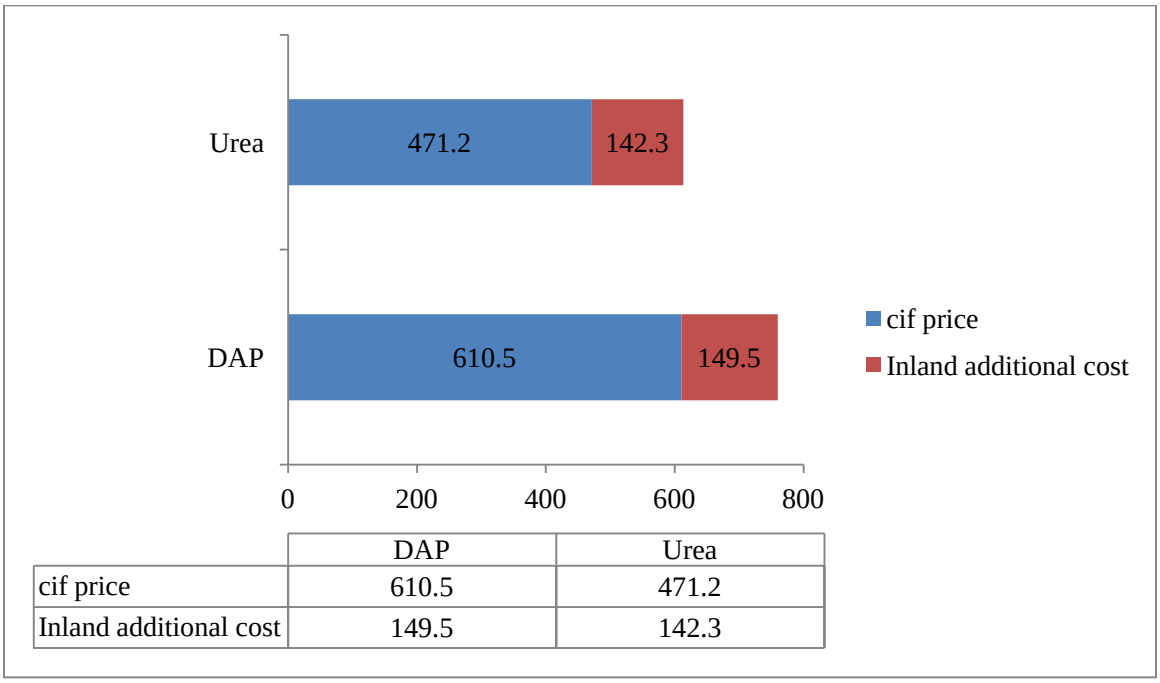
The input was neither applied on time, nor in the recommended quantities (200kg per ha - 100 kg of Urea and 100 kg of DAP). To measure the profitability associated with fertilizer use by farmers, we calculate the value-cost Ratio of using fertilizer as follows:

$$\{\frac{O}{N}\}|\{P_N / P_O\}$$

where P_N is the price of fertilizer; P_O is the output price of maize; and O is the quantity of output from one unit of nutrient N[6].

Returns to fertilizer in the country over the years have been profitable and with ratios consistently higher than 1, farmers can increase their profits by increasing the quantity of fertilizers applied on their farms (Table 3-8). In other words, the fertilizer input is being used at suboptimal level, findings consistent with the fact that farmers are using the input at very low levels.

Figure 3-9: Ethiopia Fertilizer Cost Component -2011 (US dollars)



	DAP	Urea
cif price	610.5	471.2
Inland additional cost	149.5	142.3

[6] The rule of thumb for the VCR is that for fertilizer use to be profitable the threshold for VCR should be about 2; the higher the VCR the profitable it is to use the input and the higher the likelihood that farmers would adopt the use of the input.

Table 3-8: Fertilizer Value Cost Ratios; Ethiopia 1992- 2011[7]

Year	Value Cost Ratio (VCR)			
	Maize	Wheat	Teff	Average for major grain
1992	4.24	3.38	3.74	3.79
1997	1.41	2.70	1.69	1.93
2004	2.12	2.20	2.02	2.11
2008	2.18	2.88	1.91	2.33
2009	2.51	3.25	3.39	3.05
2010	1.36	1.88	2.15	1.80
2011	2.36	3.34	3.17	2.96
Average	**2.31**	**2.80**	**2.58**	**2.57**

Source: Spielman *et al*. 2011; Demeke et al 1997; Yamano and Arai, 2010. For 2009, 2010 and 2011, data from field surveys were used to obtain the VCR.

V: Doing business in fertilizer: Private sector participation in the fertilizer market

Fertilizer procurement and marketing in Ethiopia has witnessed many changes in recent times. In the early 1990s, the government reformed and liberalized fertilizer import and distribution and adopted free market principals. This meant that the Agricultural Input Supply Corporation (AISCO), now the Agricultural Input Supply Enterprise (AISE) a government parastatal lost the monopoly of fertilizer trade in the country and all forms of fertilizer subsidies were removed. The full liberalization of the fertilizer market and the complete removal of the subsidies were effected in the 1997-1998 cropping season and the private sector responded rapidly to these reforms. Subsequently, by 1996, several private firms were reported to be importing fertilizer and about 67 private wholesalers. 2,300 retailers had entered the market and assumed a significant share of the domestic fertilizer the market (Spielman, et al. 2011; Matsumbo and Yamano, 2010).

Shortly after the liberalization however, because of unfavorable trading policies that were heavily biased in favor of government-affiliated companies and parastatals in the fertilizer industry, the private fertilizer firms could no longer compete and quickly began exiting the market. Available data suggest that the market share of private firms engaged in fertilizer import declined rapidly, from 33 percent in 1995 to 0 percent in 1999 (Spielman et al; op cit). Similarly, in terms of distribution, the share of the public sector soared to over 70 percent while that of the private dealers was drastically reduced to only 7 percent of sales nationwide in the same period.

A number of qualifications of this depiction of events are warranted. For one thing, most of the private sector dealers active at this time were at least in part publicly-endowed, and so their engagement in the fertilizer market could not be characterized as competitive or independent from government intervention. Their ongoing participation therefore may very well not have led a fully-functioning private market. It also warrants qualifying that the cooperative unions that stepped in to assume the roles of these private dealers sometimes performed quite well in delivering fertilizers – even though they relied heavily on government intervention, and even though in interviews many complained about the high cost of the inputs to compared to costs when the unions imported the product themselves.

[7] Please refer to Appendix 6 for the computation of VCR. VCR for 2009 and 2010 are shown for illustration purposes only.

At the time of the survey, AISE, in collaboration with the cooperative unions and the Regional governments have a monopoly on importing fertilizer and are supported by government guaranteed credit scheme and loans from the commercial banks. The apparent crowding out of the private sector has been attributed to a number of reasons including the difficulties private firms face in obtaining the required import license from GoE. Import licenses are usually allocated through a tender process and require that fertilizers be imported in lots of 25,000 metric tons – an amount estimated to cost between US$5 and $10 million. And given that the government would require private importers to deposit 100 percent of the value of fertilizer to be imported at the time the line of credit is opened and for an import license to be issued, it comes as no surprise that there was no local private importer of fertilizer in Ethiopia during the time of the survey.

Table 3-9 presents summary indicators on farmers' use of inorganic fertilizer.

Table 3-9: Indicators for the Use of Inorganic Fertilizers by Farmers

Access to Inorganic Fertilizers	Indicator	Base Year/Period/Value
1)Fertilizer Use and Consumption	Proportion of farmers using fertilizer (%)	35 percent*
	Average total fertilizer consumption (2006-2010)	390,855 Metric tons
	Percentage of fertilized area	40 percent
	Average fertilizer application rate/use intensity for all crops	17kg/ha of nutrients
2)Cost, Risk and Profitability of Using fertilizer	CIF price Djibouti (current prices) of a metric ton of fertilizer**	
	DAP	US$ 610.50
	Urea	US$ 471.20
	Average cost per ton for transportation and handling to main agricultural zones***	US $ 70 per metric ton
	Average price paid by farmers - 50kg bag	
	DAP	ETB 608/50kg or (US$760.00/ton)
	Urea	ETB 491 per 50kg or(US $ 613.75/ton)
	CIF Price as % of prices paid by farmers. Thus transaction costs account for about 20% of the total costs paid by the farmers	78%
	Average Value Cost Ratio for main crops	2.57
	Average Value Cost Ratio for maize only	2.31
	Nutrient-Output Price Ratio ($Pn/P_{o)}$ for maize (2010)	2.4
	Nutrient-Output Price Ratio for wheat (2010)	2.0
3)Timeliness in Fertilizer Import and Application	% of farmers reporting late arrival of fertilizers	40
4) Private Sector Participation in the Fertilizer Market	Number of private companies/firms involved in the procurement/import and distribution of inorganic fertilizers. (In the early 1990, GoE reformed and liberalized fertilizer import and distribution and adopted a free market approach. By 1996, there were about 67 private wholesalers and 2300 retailers had entered the market and taken a significant share of the domestic market in fertilizer at levels of the market. However, at the time of the interview there were no private dealers or importers of fertilizer in Ethiopia.)	0; all fertilizers are imported by AISE
	Demand by the cooperatives Society of the total fertilizer imports	90 percent

Access to Inorganic Fertilizers	Indicator	Base Year/Period/Value
	Share (%) of inorganic fertilizer imported and distributed to farmers through private companies (market share of private companies	0
5) Taxes and Subsidies on Fertilizers	Subsidies as % of total cost of fertilizersi)	0†
	Taxes and Tariffs as % of total cost of fertilizers	0

* Central Statistics Agency (CSA), Ethiopia reported 39%; Ethiopia Rural Smallholder Survey (ERSS) reported 32% while IFPRI reported about 45%

** There is no insurance cost for fertilizer imports hence the cif price is only for cost and freight

*** For details of cost computations and for cost of fertilizer for main producing areas please see appendix 2

† Although there are no explicit subsides in the fertilizer sub-sector in the country but certain hidden subsidies exist in that the government provides credit to AISE to import the fertilizer at zero or near zero interest rate. In addition there are the administrative and managerial cost borne by the government in the process of importing, storing and distributing the input.

3.1.3 Agricultural Mechanization and Access to Mechanical Technology in Ethiopia

It has been argued that the full benefits achieved through the use of many advanced crop husbandry inputs such as improved seed, fertilizer, and pesticides, as well as increased use of irrigation water cannot be realized without the use of improved tools and machines. Mechanization reduces the drudgery of agricultural labor and can free farm labor for other, often more productive purposes. Mechanization enhances agricultural productivity and profitability – necessary conditions for private sector investment.

Farm power in Ethiopia in general, especially among small-scale farmers who account for about 80 percent of the total farm output, relies mainly on animal traction and human power. It is based on operations that depend on the hoe and other hand tools. Using simple hand tools, a farmer can prepare an estimated 0.5 ha for planting per season. For farmers to earn a living from agriculture, they cannot count only on hand-tool technologies since a person as a power unit produces only about 0.01 horsepower of continuous output and is therefore not worth much as a primary source of power (FAO, 2010a).

In terms of agricultural technology, tractors are the most important and versatile type of equipment used by farmers wanting to mechanize some or all of their farm operations Apart from providing an important means of transporting heavy farm inputs and produce to and from the farms, tractors are useful in coupling other motorized and non-motorized implements for the efficient and timely land preparation that is necessary for achieving high yields and minimizing postharvest losses (FAO 2008b).

Furthermore, in Ethiopia, because of the problem of dwindling cultivable land area due to population pressure and changes in ecosystems and production landscapes from the overutilization of the arable soil, there is the need to cultivate the marginal and hilly lands to satisfy the increase in demand for food and other agricultural raw materials. Unfortunately, human labor is not adequately equipped to grapple effectively with these changes in ecosystem and production landscapes. It is against this background that the use of mechanical technology is considered to be one of the factors necessary for agribusiness development in Ethiopia agriculture. Also, the use of tractor and tractor drawn implements are becoming increasingly important in Ethiopia due to the fact that many large commercial farms are being

established by foreign investors as a result of investment incentive packages of the GoE and the facilitation efforts of the newly established Investment Support Directorate of the MoA.

I: Total number of tractors and horse power (HP) per 100 sq km of arable land.

An estimated 5,090 tractors were in use in Ethiopia as of 2010, a significant increase since 2004 when the number was about 3,000. The 2010 figure increases to about 6,000 when "walking" or pedestrian tractors are included. The number of tractors per 100 square km of arable land was about 4.0 and 4.7 respectively with and without the pedestrian tractors (Table 3-10; Table 3-11 presents figures on tractor horse power per square km). This steady increase in the number of tractors is primarily attributable to the growing number of foreign private investors engaged in large commercial agriculture in Ethiopia, mainly from China, India and Saudi Arabia.

Another major player in the tractor industry in Ethiopia is the Nazareth Tractor Assembly Plant (NTAP), a government parastatal that is engaged in assembling "semi-knocked down" (SKD) tractor parts imported from Russia. The Nazareth plant was established in 1978 as part of an economic and technical cooperation agreement between the Ethiopian government and the former Union of Soviet Socialist Republics. NTAP is involved in assembling pedestrian-controlled tractors with 8-15HP, small size tractors with 18-40HP (18, 25, 30 and 40 HPs) and heavy duty tractors with 57, 62, 81, 90, 105, and 130 HP). It is also engaged in the production of simple implements such as disc harrows and disc plows, as well as in the assembly of 6, 8, 10 and 12 ton trailers for haulage and transportation of agricultural inputs and products. During the period NTAP has been in operation, it has produced a total of about 6,000 tractors mostly small to medium sized at the rate of one tractor per day using 3 man-day labors.

Table 3-10: Number of Tractors per 100 sq km in Ethiopia (2004-2010)

Year	Arable Land (sq km)	Number of Imported Tractorsa	Tractors Assembled by NTAP	Total Number of Tractors in Use*	Number of Tractors per 100 sq km
2004	123,640	-	-	3,000	2.4
2005	129,230	190	267	3,547	2.7
2006	133,960	345	300	3,847	2.9
2007	140,380	332	310	4,157	3.0
2008	136,060	232	315	4,472	3.2
2009	124,939	546	300	4,772	3.8
2010	126,427	511	318	5,090	4.0

Source: FAO STAT, Central Statistical Agency of Ethiopia, Ethiopian Revenues and Customs Authority.

* We use the FAO STAT/World Bank figure of 3,000 tractors for the base year (2004) and assume that average useful life of a tractor in Ethiopia is about 8 years as informed by the field survey

Table 3-11: Estimate of Total Tractor Horse Power per 100 sq Km in Ethiopia, 2010

Tractor Distribution in 2010	Probability of Availability*	Total Estimated No. of Tractors**	Mid Range HP	Total HP
≤ 80	0.01	51	40	2,040
81-90	0.41	2,087	85.5	178,439
91-100	0.11	560	95.5	53,480
101-110	0.20	1,018	105.5	107,399
111-120	0.16	814	110.5	89,947
>120 to≤200	0.11	560	160	89,600
Total	1.00	5,090		520,905
Average HP per 100 sq km. of arable land				**412.10†**

Source: MoA Reis Engineering; Field Survey, 2011, Authors' calculations

* Using the HP distribution of tractors imported by Reis in 2010, we estimated the distribution in terms of HP for the 5090 tractors in Ethiopia in 2010

** The total number of tractors in Ethiopia in 2010 was 5090

† The total arable land under cultivation in Ethiopia in 2010 was 126,427 sq km.

II: Cost of hiring/ renting tractors

To assess the ease of obtaining tractor services in Ethiopia, the availability of tractor rental services and the cost of plowing farm land in the country is examined. This is based on the premise that high-cost tractor rental services (with cost of plowing as a proxy indicator) shed revealing light on the relative abundance or scarcity of the equipment.

Few tractor rental services exist in Ethiopia. Apart from the Agricultural Mechanization Service Enterprise (AMSE) of Ethiopia that is located in the capital city of Addis Ababa, most of the plowing services are provided by the cooperative societies and by a small number of very large commercial farmers who rent their tractors to other farmers in neighboring communities. During the time of the survey, AMSE had about 70 tractors in fairly good working condition and only four service centers throughout the country although it has a mobile workshop that is well equipped to travel to all corners of the country to service the tractors when the need arises. Most of the tractors owned and operated by AMSE are medium-sized tractors with engine capacity of between 80 and 120 HP.

Ethiopian farmers point to the apparent lack of tractors and tractor rental centers as major limitations to agricultural mechanization on their parts. As a result, those who do use tractors have to pay in advance and endure long waiting periods for tractor services, a situation which is apparently especially acute for rice and wheat farmers who operate under government subsidized irrigation schemes. For farmers with half a hectare or less, tractor services are generally not available.

The survey found that the average cost of disc plowing in the country was ETB 1,300 for the first plowing from private tractor service providers and ETB of 1,200 from the cooperative unions. For harrowing and second plowing, the costs were ETB 650 from the private sector and ETB 600 from the cooperative unions.

III: Private sector participation and perception of the agricultural machinery market

The agricultural machinery industry in Ethiopia is currently dominated by the private sector, although before the present regime, the government was heavily engaged in tractor imports because of the large state commercial farms that were owned and managed by the government. With the divestiture of

these state public farms; GoE is no longer involved in the direct import of tractors into the country. Currently, Ries Engineering, Motor and Engineering Company of Ethiopia (MOENCO), Gadeb Engineering, CLAAS tractors and Hagbes private firms are the dominant suppliers and service providers for tractors and agricultural implements in the country. Other major players are the government owned tractor assembly plant in Nazareth and the Ethiopian Agricultural mechanization Services Enterprises that provide most of the mechanized agricultural services although they do not engage in any direct tractor import but rather buy from licensed tractor importers in the country.

The firms in the tractor market in Ethiopia have specialized along distinct brands with Ries Engineering importing Massey Ferguson tractors, MOENCO importing New Holland, Gedeb importing John Deer Brand and Nazareth Tractor Assembly Plant specializing in coupling spare parts that have been imported from Belarus. Hagbes, PLC and CLAAS engineering import SAME and CLAAS brands from Italy and the United States respectively (See appendix 4). In addition, Reis Engineering was found to have the largest market share in tractor imports and in 2010 accounted for about 75 percent of the total 400 tractors imported into the country in that year. Table 3-12 shows the distribution in terms of horse powers of the tractors that were imported by Reis Engineering in 2010.

Table 3-12: Massey Ferguson (MF) Tractors Imported and Distributed by Ries Engineering, Ethiopia 2004-2010

	MF Tractors	2004	2005	2006	2007	2008	2009	2010	Total
1	< 80 HP	0	0	0		1		5	6
2	81-90 HP	5	30	161	51	10	29	65	351
3	91-100 HP			10	39			40	89
4	101-110 HP	3	43	1			24	97	168
5	111-120 HP	16	23	28	4	3	11	52	137
6	>120 HP	0	6	33	2	14	0	41	96
	Total	24	102	233	96	28	64	300	847

Source: Ries Engineering, Ethiopia

GoE does not engage in tractor imports and there is no element of competition between the private sector and the government in the import and marketing of tractors although, the government does set guidelines on the procedures and tariffs and taxes for tractor imports. On the basis of private sector participation and the crowding out of the private sector, the GoE receives a score of 5 indicating the absence of government intervention and a high degree of competition within the agricultural machinery market. The market is completely liberalized

IV: Useful life of tractors in Ethiopia

Findings from the study indicated that the useful life of tractors varied and was largely determined by the brand and type of tractors, the availability of spare parts, and the provision of routine services by dealers after sales. Some dealers do not have service centers outside of the capital city of Addis Ababa and there were little or no after-sale services nor constant routine check-up and maintenance of the tractors. This is a major issue for the tractor industry and since most of the people acquiring tractors are first time buyers with little or no experience in the use and maintenance of the machinery. Tractors in Ethiopia have a relatively short economic life span compared to what is technically feasible. The best quality tractors in Ethiopia can deliver up to a maximum of 30,000 engine hours, working on the average of 1,500-2,000 engine hours per year for 8 years, assuming they are properly and routinely maintained.

Table 3-13 shows the average useful life of the different brands of tractors as established from interviews with key stakeholders in this industry, which included the importers, cooperative unions, agricultural machinery services providers as well as the end users and farmers.

Table 3-13: Average Useful Life of Tractors in Ethiopia-2011

Type and Brand of Tractor	Useful Life (in years)
Massey Ferguson	10-12
New Holland	10
CLAAS	8-10
John Deere	10-12
Belarus (Nazreth Assembled)	5-7
SAME (Italy)	10
SAME (India, China)	5
Average	8

Source: Field Survey, 2011

V: Tariff/ taxes on tractor and tractor spare parts

Like other investment goods, tractor imports into Ethiopia are exempted from taxes and other excise duties as long as they are cleared and bought by customers within six months. There is a bonded warehouse system, an arrangement between the GoE and the Djibouti Ports Authority whereby imported tractors can remain in a warehouse in the Djibouti port for a maximum of 6 months until they are purchased by customers with tax free privileges. After 6 months the company should bring the delivery to its center in Addis by settling the required tax and this tax is invariably passed on to buyers of the tractors. Where applicable the taxes on tractors are 10 percent and 15 percent for import duties and VAT respectively for an effective tax on imported trucks of 25 percent of the CIF price.

Similarly, imports of spare parts for the tractors are tax free, provided these spare parts are imported at the same time with the tractors. However, if the spare parts are imported separately they attract an import duty of between 10 and 25 percent as well as 15 percent VAT.

The CIF price for the tractors varied based on the brand and size of the tractor. On the average, exclusive of VAT, it was established that the prices for Massey Ferguson and New Holland brands for small range (40-80HP), medium range (90-120hP) and large range tractors (>120HP) were ETB 500,000 (US$25,000); ETB 900,000 ($52,000) and ETB 2,000,000 ($117,000) respectively. The prices for the NTAP ranged from $1,000 for the walking/pedestrian tractors (8-25HP) to $27,000 (57-62 HP) for medium range tractors

VI: Doing Business in agricultural machinery (Tractors) in Ethiopia

Although, tractor imports are categorized as duty free, a number of other problems continue to retard the development of this sub-sector into a vibrant market that can attract potential investors and help leverage the commercial agriculture that the GoE wants to encourage.

First, funds borrowed for the purchase of a tractor often do not correspond with the timing of the purchase itself. As a result, tractors remain in the bonded warehouse at the port for too long. To avoid demurrage, the importers are forced to bring them to Addis Ababa implying that buyers must pay duty on those tractors. The cost of the duty, on top of the cost of the machinery often causes the total price to exceed what is affordable for farmers or the cooperative unit. These prospective buyers are consequently limited to buying tractors that are not optimal for their farm and business operations. Most of the stakeholders contend that the government's approval of the national budget and subsequent release of funds should be scheduled earlier in the year, rather than just prior to the main cropping season, when it is too late for farmers to initiate and complete the complex procedure of loan acquisition and purchase.

Table 3-14 presents summary indicators on mechanization.

Table 3-14: Summary of Indicators on Agricultural Mechanization (Tractors) in Ethiopia

Access to Agricultural Mechanical Technology (Tractors)	Indicator	Base Year/Period/Value
1)Availability of Tractors in the country	Total number of tractors in the country	5,090
	Number of Tractors per 100 Sq. Km. of Arable land	4.0
	Estimated Total HP for tractors in the country	520905HP
	Estimated Average HP per 100 sq.km	412.10
2). Cost of Mechanization	Average cost of buying a tractor in the country	a)ETB500,000 (US25,000) for small range HP (40-80 HP) b) ETB 900, 000 (US$52,000) for medium range (90-120HP) c) ETB 2,000,000 (US$117,000) for large range tractors
	Cost of renting a tractor for plowing one hectare of land	ETB 1300(US$81.25)
	Cost of harrowing one hectare of land	ETB 650 (US$40.63)
	Average operating cost for a medium HP tractor per annum	ETB15,000 or US$900
3)Taxes and Tariffs on Tractors and Tractor Spare Parts	Taxes and tariffs paid on imported tractors.	10% +15% VAT if the buyer has no tax exemption papers
	Tariffs and taxes on imported spare parts	10-15%
4). Private Sector Participation in the tractor business	Number of tractors imported by the private sector as a % of the total number of tractors that were imported in 2010	100 percent
	Perception of the stakeholders on government intervention and crowding out of the private sector; Scale of 0-5; 0 if the sector is entirely controlled by the government and 5 if the tractor market is fully liberalized.	The GoE is does not intervene in the tractor market
5) Useful life of Tractors in Ethiopia	Total number of years (useful life) that tractors fare effectively working (fully functional and operating)	8 years on average
	Average number of engine hours delivered by tractors	20, 000

3.2 Enabling Environment: Access to Financial Services and Transportation

Financial services are a critical enabling factor for sustainable economic growth and for private sector participation in the agriculture sector (FAO 2008a). Although an important factor for private sector development, access to finance is significantly more difficult for entrepreneurs in the agriculture sector and more so for smaller firms that are agro-based.

According to Thoburn (2002), in Africa, transport cost is a greater barrier to exports than the custom tariffs they face in importing countries. Sub-Saharan Africa's average freight costs are more than 20 percent higher than those of other countries around the world. For some goods, such as clothing, textile

and footwear, in which Africa potentially has a comparative advantage, average transport costs are between 15 and 20 percent of the total cost of production. (Limao and Venables 2000)

3.2.1: Access to Financial Services

To underscore the role of enabling environment on agribusiness in Africa, this section focuses on the success factor of credit in agribusiness in the country by considering the following: commercial banks lending to the agriculture sector, cost and access to credit, banking sector efficiency as measured by the spread in interest rate, loan performance and default rates as well other factors such as the existence of warehouse receipts and the use of leasing arrangements and movable property and non conventional collateral that could influence credit availability among actors in agribusiness

I: Ethiopian financial system

In Ethiopia, the financial sector consists of a large number of formal, semiformal, and informal financial service providers. The formal financial market in the country is dominated by the commercial banking sector which consists of one state-owned development bank (Development Bank of Ethiopia (DBE)), two state-owned commercial banks (Commercial Bank of Ethiopia (CBE), Construction and Business Bank (CBB)), and 12 private commercial banks. Commercial banks provide the biggest amount of credit both in number and quantum in Ethiopia, which is more than 60 percent of the total national loan portfolio.

Other major players in financing agribusiness in Ethiopia are the Microfinance Institutions (MFIs). Indeed, the MFIs in Ethiopia are seen as a major source of agricultural finance to smallholders in particular who lack collateral and are therefore not able to access credit from big commercial banks and other such formal financial organizations. Since their inception in 1996, the MFIs have made tremendous progress, registering 30 MFIs with 13 of these located in the capital city of Addis Ababa. These, in the absence of rural banks, deliver financial services to the poor with Amahara Credit and Savings Institutions (ACSI) and Tigrai Credit and Savings Institutions ((Dedebit/DECSI) being the largest and providing about 59.7 percent of the total credit from all the MFIs in the country (NBE, 2010). As of 2008, these MFIs had an active loan portfolio of about ETB 4.5 billion granted to about 2.3 million active borrowers with an average size of loans of about US$170 extended to a rural household. Despite their strong growth and presence in the rural areas, MFIs provide less than seven percent of the total national loan portfolio, again with government-owned MFIs playing the major role (Amha and Peck 2010).

In addition to the commercial banks and MFIs, the cooperative societies are also key grassroots organizations that play very important roles in providing credit and loans to small-scale producers in the agriculture sector in Ethiopia. Out of about 26,000 primary cooperatives active in Ethiopia only about 7,200 Rural Savings and Credit Cooperatives (RUSACCOs) focus on the provision of financial services mainly for agricultural production and marketing. This accounts for an estimated share of just about 0.1 percent of the total credit in the economy.

Other sources of agricultural finance in Ethiopia are the informal providers of financial services. These continue to serve as the main provider of loans for smallholders in rural areas. Loans from this source are currently estimated to be at about 20 percent of total credit extended to entrepreneurs in the country (Amha and Peck, op.cit.).

An important series of policy changes have taken place in the Ethiopian financial sector. These include the liberalization of the sector to the extent that in 1994, the National Bank of Ethiopia allowed the establishment and operation of privately owned domestic banking institutions and also in 1998, liberalized lending rates while maintaining a floor deposit rates and capping the limit on foreign exchange. Nonetheless, Ethiopia still has one of the strictest regulatory frameworks with regards to

foreign banking and completely prohibits the entry of foreign banks into the financial market. In addition, it has strict requirements for the import of foreign currency and all visitors into the country must declare currencies in excess of US$1,000 or its equivalent. Thus, foreign exchange accounts, payments and currency transfers are still subject to significant controls and restrictions. These measures are believed to have seriously affected inflows of FDI and invariably have implications for credit availability and the cost of credit in the long-run.

II: Commercial lending to agriculture sector

More than 60 percent of the total credit for Ethiopian businesses comes from the commercial banks, and as such these banks will play a vital role in leveraging agribusiness in the country. Unfortunately however, a very limited proportion of this credit is channeled towards agricultural lending. This underinvestment persists despite the fact that the sector accounts for about 45 percent of the country's GDP, and for more than 80 percent of both employment and exports.

Table 3-15 shows the amount of capital injection from the commercial banks and the share of agricultural loans from the banks as a total of loan portfolio during a 5-year period (2005 -2009). The total disbursement for the sector increased from ETB 2,018 million in 2005 to ETB 6,010 million in nominal terms in 2009, representing a share of just 9.6 percent over the five year period. Figure 3-10 shows that lending from the commercial banks has been increasing in nominal terms over the years, albeit very marginally.

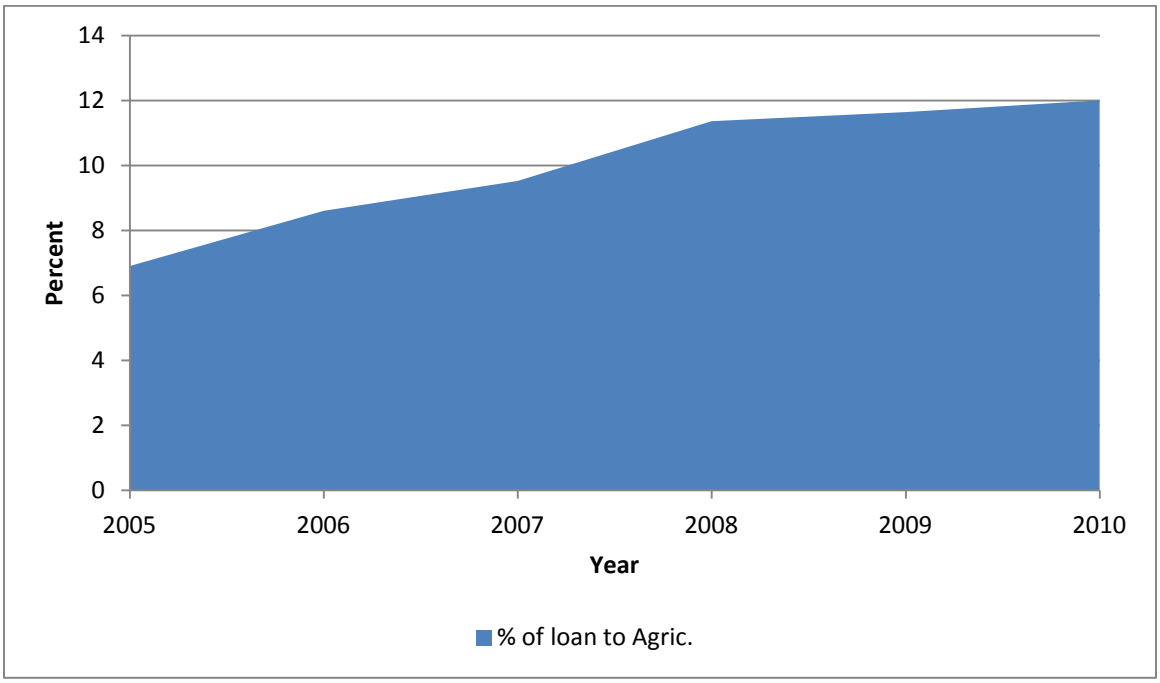
Interviews with stakeholders suggest that relatively little of the commercial lending that goes to agriculture is geared towards primary farm activities in production and distribution. A greater proportion goes to investment in export facilities for internationally traded commodities. This has the disadvantage of limiting production and marketing at the primary level – the level at which development is most necessary for the agribusiness sub-sector. It was in the bid to adequately fund the agriculture sector and to underscore the importance of the sector as a leading engine of economic growth that the Oromia Cooperative Bank of Ethiopia (OCBE) was established with the assistance of the GoE as a specialized bank. The bank is the first of its kind, devoted entirely to financing agribusiness enterprise and allied industries in Ethiopia.

Table 3-15: Levels of Loans from Commercial Banks by Sector, 2005-2009

Sector	2005		2006		2007		2008		2009	
	ETB (millions)	%	ETB (millions)	%	ETB (millions)	%	ETB (millions)	%	ETB (millions)	%
Industry	5,135.6	17.6	6,320.1	16.0	6,996.5	15.8	7,897.0	16.4	9.081.6	17.6
Agriculture	2,018.2	6.9	3,418.0	8.6	4,218.4	9.5	5,481.2	11.4	6,009.7	11.6
International Trade	4,607.6	15.8	5,324.9	13.4	6,500.3	14.7	12,205.0	25.3	12,513.6	24.2
Housing and Construction	2,218.3	7.6	3,206.9	8.1	3,790.7	8.6	4,865.1	10.1	6,688.1	13.0
Domestic trade	2,660.2	9.1	3,345.7	8.4	3,821.4	8.6	5,219.2	10.8	5,760	11.2
Other sectors	5,189.1	17.8	5,135.5	13.0	5,775.3	13.0	5,672.3	11.8	5,951.1	11.5
Government Deficit Financing	7,277.5	25.0	12,880.1	32.5	13,214.9	29.8	6,902.0	14.3	5,628.8	10.9
Total	29,106.5	100.0	39,631.2	100.0	44,317.5	100.0	48,241.8	100.0	51,633.5	100.0

Source: Annual Reports, National Bank of Ethiopia, Various issues, (2005-2009)

Figure 3-10: Agricultural Loan as Percentage of Total Loan Disbursement by the Commercial Banks



III: Loan performance from the Commercial Banks by sectors (2005-2009)

One of the reasons usually cited by the commercial banks for not providing credit to the agriculture sector is the high risk associated with the sector, a level of risk which is thought to result in low recovery rates and high rates of default. It was against this backdrop that the indicator of loan performance was conceived. A cursory look at Table 3-15 shows that although the loan disbursement is much higher for domestic trade and international trade sectors, in terms of the actual collection of outstanding loans, the agriculture sector fared as well as the other major sectors and indeed performed better than the industrial sector (see Figure 3-11)

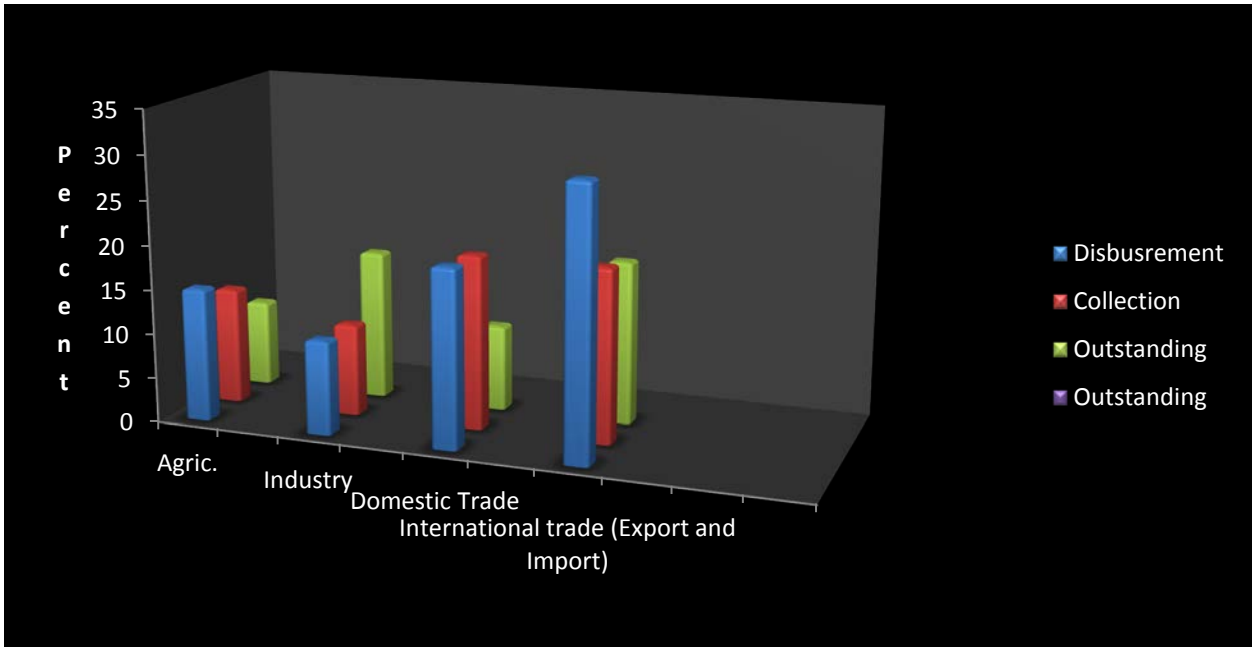
In terms of non-performing loans (NPL), the National Bank of Ethiopia, the country's Central Bank, has set a limit of 5 percent and 15 percent for commercial banks and the Development Banks in Ethiopia respectively. However, data from the two major banks in the country—the CBE and the DBE—as well as from the Oromia Cooperative Bank revealed varying NPL ratios.[8] While the NPL ratio for the Development bank of Ethiopia (DBE) averaged 28.9 percent over the last five years on all the loans (NBE sets limit at 15 percent for DBE), the CBE reported an NPL of only about 0.2 percent on total loans to the agriculture sector although the banks imposes an additional 3 percent interest on non- performing loans. Given the large variation in NPLs in the banks' agricultural portfolios, estimating an approximate NPL for agricultural loans nationally is difficult.[9] The National Bank of Ethiopia had no composite

[8] CBE is the largest bank and has the largest share of loan in the financial sector, representing over 43 percent of outstanding loans. Together with DBE, which represents 12 percent of all outstanding loans, they are responsible for more than half the credit volume in Ethiopia (Amha and Peck op. cit)

[9] The NPL rates were 6, 0.2, and 12.8 percent for the Oromia Cooperative Bank, the Commercial Bank of Ethiopia, and the Development Bank of Ethiopia respectively.

estimate either. On the average, interviews with the financial institutions estimated the default rate on all the loans to the agriculture sector to be about 3.0 percent.

Figure 3-11: Share of Disbursement, Collection and Outstanding Loan by Sector (2005-2009)*



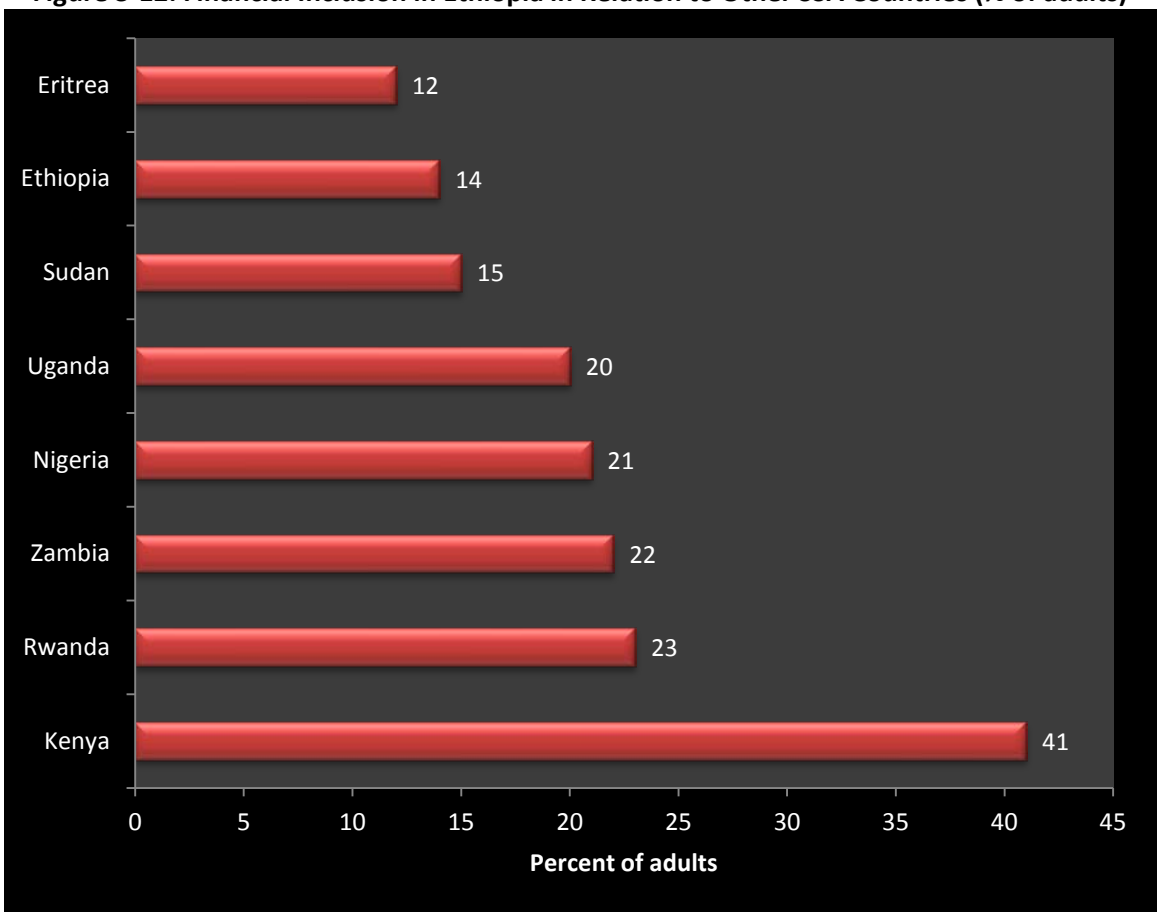
Source: National Bank of Ethiopia, Annual Reports Various Issues (2005-2009).
*For detailed breakdown by all sectors in the economy see appendix 8

IV: Cost and access to credit and financial services

The average deposit rate at the time of the interview in June 2011 was about 4 percent for public banks and about 6 percent for private banks. The lending rate was 9.5 percent for public banks and about 12.5 percent for the private banks, with some informal lending institutions charging as high as 20 percent. However, in the same period, the average inflation rate in the country was estimated to be about 45 percent, implying a negative real interest rate. Such an interest rate should have increased investment if farmers were able to access credit or had enough disposable personal income. The level of banking efficiency as measured by the interest rate spread (the margin between average deposit rate and lending rate) was estimated to be between 5.5 and 6.5 percent.

Access to credit by the rural population in Ethiopia, due to very low rural banking density, has been long identified as one main reason for low investment in agriculture, and especially smallholder agriculture. When it comes to banking in general, branches are concentrated in the urban areas and while the overall ratio of the total number of people in the country to a commercial bank or MFI branch has been put at 45,000 people per branch; with regards to only rural population the ratio is far lower with 125,158 people per branch or 0.80 branch per 100,000 people. Recent estimates show that only 1 percent of rural households maintain bank accounts, a condition generally required by most banks for prospective creditors and borrowers. Indeed, Ethiopia has one of the lowest financial inclusion ratios in East Africa (Figure 3-12).

Figure 3-12: Financial Inclusion in Ethiopia in Relation to Other SSA Countries (% of adults)



Source: Amha and Peck, 2010

V: Warehouse receipt financing (WRF) system

The use of warehouse receipt financing (WRF) systems has been prescribed as one way to facilitate access to credit particularly by small-scale farmers in situations where credit bureau services are inefficient or lacking, as is the case in Ethiopian agriculture. The warehouse receipt system in Ethiopia was therefore conceived, among other things, to link farmers to financial institutions and thus serve as collateral for farmers who otherwise would not be able to access credit due to a lack of acceptable collateral by the banks. In 2003, Ethiopia adopted a law governing warehouse receipts through proclamation 372/2003 to provide for a warehouse receipts system. This proclamation effectively set the stage with basic legal elements for creating such a system, and later culminated in the launching of the WRF system in 2011. The WRF was established by the Ethiopian Commodity Exchange (ECX), and has 16 warehouses located in different parts of the country.

The WRF system electronically links the central depository of the ECX clearing house with banks so that farmers can access loans using the receipts. It also allows producers and traders of agricultural commodities to access loans from partner banks. They do so by pledging warehouse receipts issued by the ECX for commodities stored in its warehouses. In this system, the bank offers 60 percent of the commodity value as a short term loan with a 9.5 percent interest rate. All ECX commodities except coffee (i.e. sesame, maize, wheat, and pea beans) in its warehouses are entitled to WRF loans. In this

project, the ECX has an agreement with four commercial banks—the Commercial Bank of Ethiopia, United Bank, Dashen Bank and Nib International Bank—in using the receipts from ECX as collateral for the farmers. Presently, however, only the Commercial Bank of Ethiopia is actively involved in the project. Small-scale farmers, cooperatives, traders, and commercial farmers are the major beneficiaries of the project. In the WRF system, the loan must be processed within three to five days of application and should be repaid within the warehouse receipt expiration period. The repayment period for the loan depends on the type of commodity. Repayment periods are presently one month for sesame, two months for white pea beans, three months for maize, and four months for wheat. In addition to these crops, there are plans to scale-up the project to other crops and market locations throughout the country.

VI: Leasing arrangements and movable property as collateral

The Capital Goods Leasing Business Proclamation No.103/1998 provides a lessee with the use of specified capital goods on a financial or operating lease or hire-purchase agreement basis, without collateral, for a specified period of time and collects in turn a certain number of installment payments over the specified period. While this legal framework exists, only standardized agricultural machinery and equipment were acceptable to the banks for collateralizing agricultural loans. This meant that few commercial farmers who own agricultural machinery could use them as loans, thereby excluding the majority of the small-scale producers. In addition, since the land belongs to the government and farmers cannot generally own land titles and therefore have no property rights, farmers cannot use land as collateral.

VII: Existence of collateral registry and credit reference bureau

In Ethiopia, there is no collateral registry in operation that is unified geographically or by asset. Nor is there an index of names of associating them with rights. An estimated 0.1 percent of adults in Ethiopia are covered in a credit registry. In addition, no financial credit bureau in Ethiopia has yet been established, although informal exchange of information on delinquent clients is common among certain financial institutions. Recently however, Compuscan, a South African based credit bureau has been contracted by the National Bank of Ethiopia to provide a fully functional Consumer and Business Credit Information Bureau, inclusive of infrastructure and application setup, training and data migration strategies. It is hoped that this service would be launched by August 2011. See the summary indicators in Table 3-16.

Table 3-16: Summary Indicators for the Success Factor of Access to Finance

Category/Subcategories	Indicator	Base Year/Period/Value
Commercial Lending to Agriculture (2005-2009)	Percent of commercial banks loan to the Agricultural Sector	9.60 percent
Loan Performance by the Agricultural Sector (2005-2009)	)% of loan approved that was disbursement to the agricultural sector	14.96
	% of loan to agriculture sector that has been collected	13.12
	% of loan outstanding	9.66
	Non Performing Loan (NPL) as at June 2011	a) Commercial Bank of Ethiopia: 0.2% b) Oromia Cooperative Bank: 6.0% c) Development Bank of Ethiopia: 12.8%
Cost of Credit and	Nominal average deposit Rate	5 %

Category/Subcategories	Indicator	Base Year/Period/Value
Financial Services	Nominal average lending rate	11%
Access to Credit and Financial Services	Commercial bank branch density/Ratio of number of people per rural branch)	125,158:1—that is, 1 branch per 125,158 people or 0.8 branch per 100,000 people
	Average loan extended by MFIs in 2010	US$ 170
	Access to Finance by FBOs	Most FBOs in Ethiopia are cooperatives and do have the capacities to meet the collateral requirements on their own to access credit from financial institutions unless the credit is guaranteed by the government. Only about 1 percent, like the Coffee Production and Marketing Coops, are directly involved in coffee export. Multipurpose cooperatives, representing about 76 percent of the FBOs, do not have the capacity to meet the collateral requirements set by commercial banks.
	Percent of rural households with bank accounts	1%
	Financial inclusion: Percent of adults accessing credit	14%
Banking Sector Efficiency	Interest Rate Spread	6.0
Warehouse Receipt Financing (WRF) System	Existence and extent to which the WRF is established and functional of a Warehouse Receipt Financing (WRF) System	Yes; Ethiopia commodity Exchange (ECX) has just launched a very robust WRF system to be used by farmers as collateral and has entered into an agreement with three banks to grant loans to the farmers based on the Warehouse receipt. During the period of the survey, the banks have started granting farmers loans based on the receipts although only about ETB 10M was disbursed as loans by the banks under this arrangement indicating a very big shortfall to what had been anticipated by ECX. Ethiopia scores 4 on the existence and use of warehouse receipts as collateral
Leasing Arrangements and Movable Property as Collateral:	Existence of a law on leasing	Yes; “Capital Goods Leasing Business Proclamation No.103/1998.” which “provides a lessee with the use of specified capital goods on financial or operating lease or hire-purchase agreement basis, without requirement of collateral, for a

Category/Subcategories	Indicator	Base Year/Period/Value
		specified period of time and collects in turn a certain amount of installment in periodical payments over the specified period."
	Existence of a law for use of movable assets as collateral	Yes; While there are legal framework and laws for the use of movable assets as collateral in the agriculture sector, it was found out that only standardized agricultural machinery and equipment were acceptable to the banks for collateralizing agricultural loans.
	Presence of a collateral Registry	No; In Ethiopia, there is no collateral registry in operation, that is unified geographically and by asset type, as well as indexed by the grantor's name of a security right.
	Existence of Credit Reference Bureau	No; Presently, there is no functional credit reference bureau although one is scheduled for launching on August 12, 2011

3.2.2 Enabling Environment: Success Factor of Transport

In this section, ABI examines access to transport as a success factor for agribusiness in Ethiopia. It does so by examining the overall policy of the GoE with regards to transport, the cost of transport and haulage of inputs and outputs to major distribution and marketing cities, and the degree and extent of regulation and/or deregulation of the trucking industry. It also examines the extent of and network of the roads measured by the Rural Access Index (RAI) and the Logistics Performance Index (LPI) that measures the overall quality of infrastructure of a specific country in relation to trade and doing business in general.

I: Overview of the Ethiopian road transport system and implications for agribusiness

The Ethiopian Roads Authority (ERA) is the main government organ responsible for the development and maintenance of roads and for setting out the guidelines and regulations for both private and public transport in the country. Together with the Regional Road Agencies and *woreda* (district local government) road offices, the ERA has a mandate to restore and expand Ethiopia's road network, which has been described as a major obstacle and impediment to sustainability of the country's economic development program.

Although the total road network expanded considerably between 2005 and 2010, road density per capita appears to have stagnated. This is an indication that the expansion may be just keeping pace with the increase the country's population. The percentage of total road network that was in good condition in 2010 was about 56 percent, on a par with the 57.6 percent average for low income countries in general. In this larger series of studies using agribusiness indicators however, it compares quite unfavorably with Ghana where this index is 74 percent.

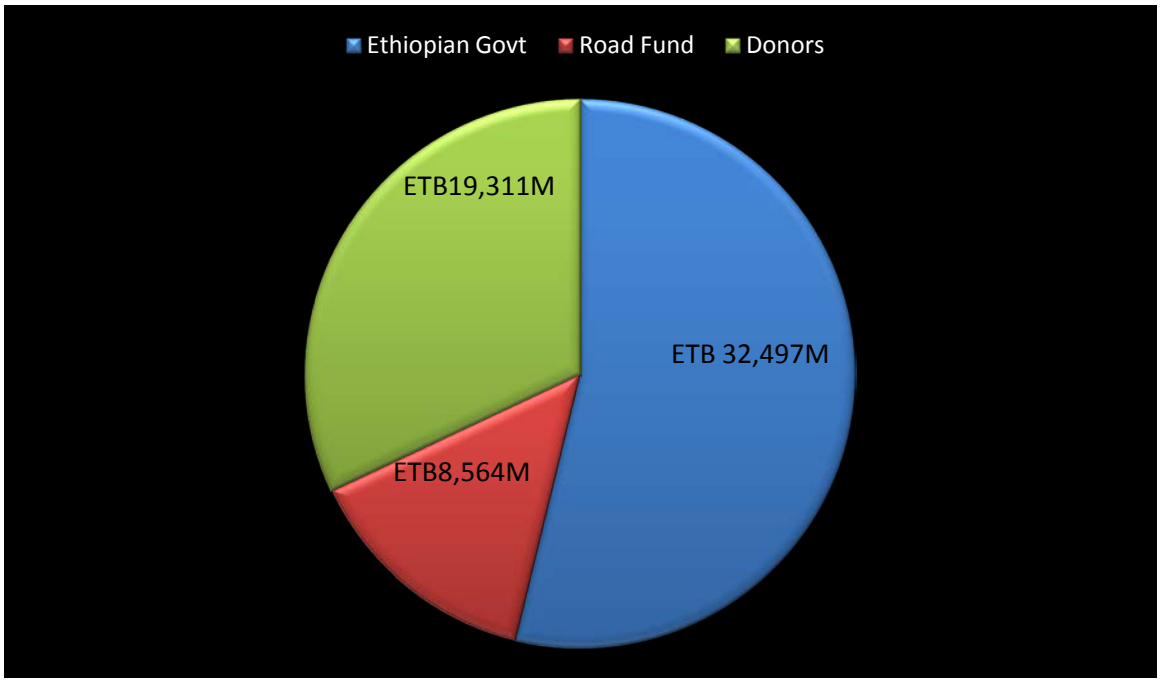
In terms of funding, most of the funds for the implementing the Road Sector Development Program (RSDP) and ERA come from the GoE, the Office of the Road Fund, and other development agencies and

donor organizations (see Figure 3-13 and for details see appendix 10). The Office of the Road Funds collects a fuel levy and revenues from road user charges. The Road Fund supports routine and periodic maintenance works and provided 14 percent of the total financial budget of the RSDP during the period 1997-2010 (ERA, 2011, P.47)

During the period 1997-2010, a total of ETB 6.5 billion was allocated by the Office for Road Maintenance Works; an average of about ETB 541 million a year (ERA, 2011). This amount was not enough to carry out all of the annual road maintenance works that were required. As a result, there has been a substantial build up in the maintenance backlog, with about 20 percent of the main road network remaining in a poor condition (ERA, 2011 op cit). A study is underway to identify new road user charges and revenue sources that will supplement the existing road fund which would enable scheduled and periodic maintenance to be undertaken.

The bulk of the Road Fund is used in the reconstruction and improvement of the existing network of roads rather than in the construction of new roads (Appendix 11). In addition, the construction and maintenance of rural roads and regional roads are under the jurisdiction of the *Woredas* and regional governments which in part may account for the poor network and condition of those tiers of roads necessary for leveraging agribusiness in the country.

Figure 3-13:Sources of Funding for Road Sector Development Program (RSDP) (1997 – 2010)(ETC millions)



Source: Ethiopia Roads Authority, 2011

II: Regulations and government intervention in the transport (road) industry

Because Ethiopia is a landlocked country, the dry trucking fleet is the main mode of transport and haulage of goods including agricultural produce. Investment in the transport business in the country is limited to local investors (citizens). The trucking industry in the country is categorized into those operating in local markets and the trucking fleets that operate beyond the national borders. The main

business in the transport sector is the trucking of import and export commodities mainly along the Djibouti-Addis Ababa corridor (Aschenaki and Aynaoui 2004).

The major actors in the dry cargo transport sector in agricultural commodities and inputs are private companies with large fleets, transport associations consisting of a group of private operators with a limited number of trucks, the government operated public transportation companies, and enterprises and the sole proprietors that involve one or more individuals owning and operating their own trucks. The government owned transport enterprise or "strategic" companies as they are known in Ethiopia, are used by the government to lift huge volumes of loads in cases of fertilizer import into the country, haulage of relief items (food grain) during emergency situations as well as in transporting strategic commodities such as coffee for export to the port of Djibouti. These public transport companies have recently been restructured to operate as self-financing and profit oriented enterprises. During the time of study there were about 36 private companies and 151 associations engaged in freight transport industry in the country

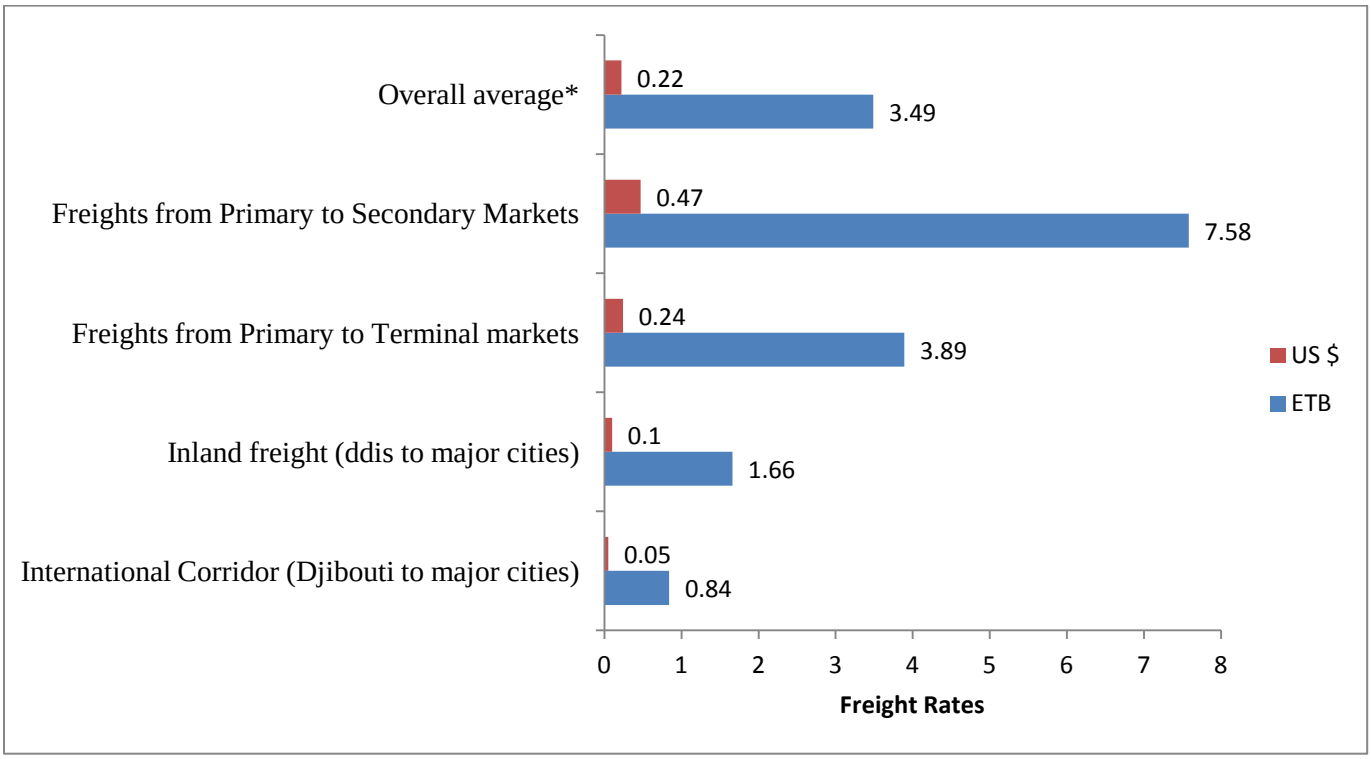
Although, the government is directly engaged in the transport business and occasionally intervenes in setting prices, many of the transporters interviewed believed that government involvement did not affect their business adversely. Key stakeholders interviewed isolated the price of gas (which during the survey was tax free due to the high cost in the international market), cost of spare parts and servicing of the trucks and the road conditions which determines the route to follow in the case of long distance haulage as the main variables influencing transportation cost in the country rather than competition from the government owned public transport companies.

III: Transport cost in Ethiopia

Although transport prices are to a large extent determined by the market, there are some strategic commodities such as fertilizer, wheat (food grain), and coffee for which the government through the Ethiopian Transport Authority sometimes intervenes in setting transport prices. In this case, the Ethiopian Transport Authority (ETA) sets the transport prices by estimating the break-even point using the cost plus approach and then adds about 15-20 percent profit margin for the transporters. That is, the government sets the price when it seems that the high transport costs for these inputs could be transmitted to the cost of production of these commodities to the extent where it could adversely affect supply and possibly make the country less competitive in the international export market.

At the time of the survey, the average transport prices for the Djibouti-Addis Ababa corridor were between ETB 0.75 and 0.79 per ton/km on asphalt roads and between ETB 0.80 and 0.90 per ton/km on gravel roads, with an overall average of ETB 0.84 (US$0.05) (see Appendix 12) . The average transport prices for inland transportation from Addis Ababa to major cities in the country were ETB 1.66 (US$0.11). The average transport prices for transporting inputs and outputs for various routes between one type of market and the other were also investigated. Results from the field showed that transport price from the primary markets to the secondary markets was ETB 7.58(US$0.47) and from primary markets to terminal markets was ETB 2.90 (US$0.19) indicating significantly higher prices for transporting goods and inputs using the rural routes than for the urban and international routes (see Appendix 14 and Figure 3-14). This finding is consistent with earlier results which showed that rural roads were very poorly maintained and in very bad conditions, a situation that may be limiting competition and in addition increasing costs of transportation in the rural routes.

Figure 3-14: Comparison of Transport Cost for the Different Road Networks in Ethiopia, 2011–ETB (US$)



Source: Original data from Field Survey, 2011; *= Overall average is obtained by simple average

IV: Rural Access Index (RAI) and road quality in Ethiopia

An adequate transport network, particularly in rural areas where most of the agricultural production takes place, is crucial for transforming subsistence agriculture to profitable commercial enterprise in Africa.

RAI, which measures the proportion of rural population that has adequate access to the transport system would have a direct implication for agribusiness development, given that SSA countries with low RAI, all things being equal, would incur significantly higher production and marketing costs as result of high transport costs and spoilage due to the perishable nature of most agricultural produce. In effect, a good network of rural roads is a success factor in leveraging agribusiness by facilitating the movement of agricultural produce from the farms to the collection centers before they are moved to the secondary and tertiary or urban markets. They are very crucial in the backward flow of agricultural inputs from the major distribution and marketing centers in the urban cities to the rural areas. It is on this basis that we consider RAI as key transport headline indicator with regards to leveraging agribusiness in SSA.

Table 3-17 shows the overall RAI for the entire country between 1997 and 2010 whereas Figure 3-15 highlights the differences in the RAI among the different regions in the country. From the tables we can see that overall, the RAI in the country has improved markedly over the years, increasing from 13 in 1977 to 27 in 2010 although this improvement appears to be concentrated in very few regions of the country (see also Figure 3-14). The main agricultural zones and food basket of the country of Tigray, Oromiya and Amhara regions have low RAI and would need significant improvement to leverage

agribusiness development. This is primarily because of the large population in these regions and hence relatively low connectivity.

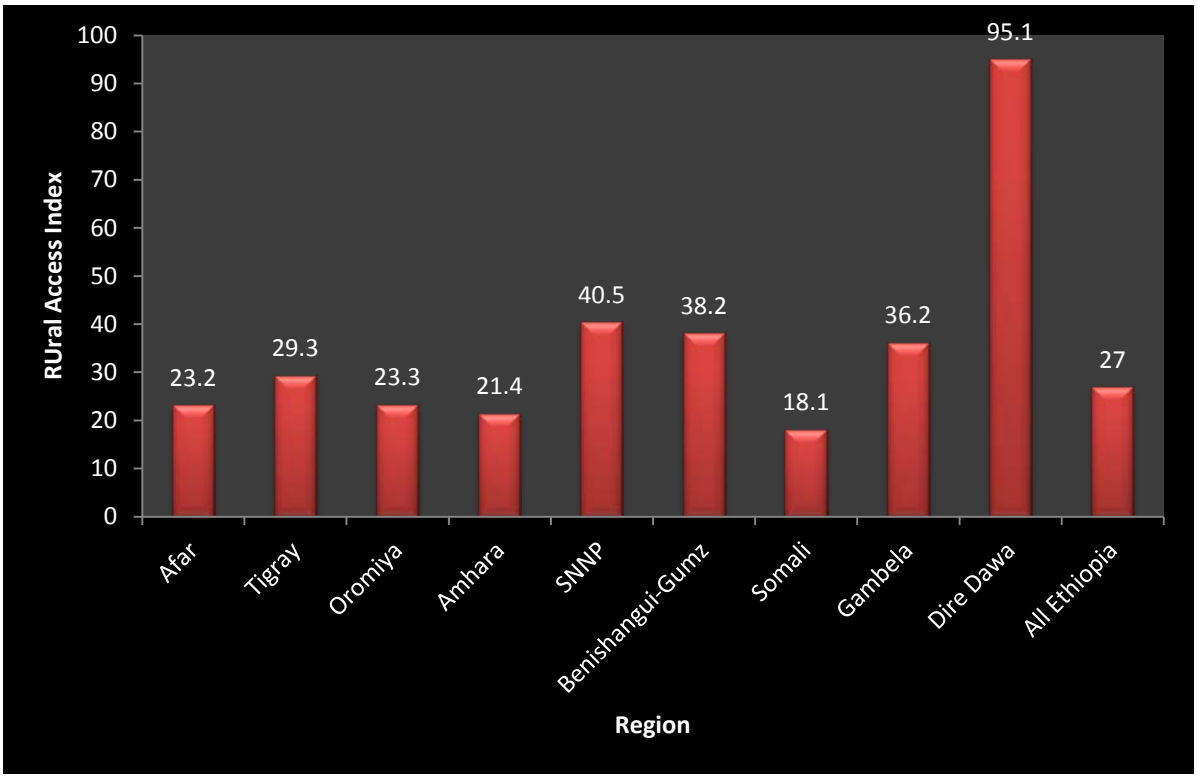
Table 3-17 Rural Access Index (RAI) for Ethiopia, 1997-2010

Total Area (000Km^2)	Inhabited Area (000 km^2) (80%)	Year	Total Population	Rural Population	Rural Population Density	Road Network	Rural Population within 2km Access	Rural Access Index (%)
1,099.00	879.2	1997	58,117,000	46,493,000	57	26,550	6,103,363	13
		2002	67,220,000	53,776,000	66	33,297	8,853,298	16
		2007	74,186,830	59,349,464	76	42,429	12,851,242	21
		2010*	79,777,690	65,686,312	81	48,793	17,404	27

Source: CSA, Addis Ababa, Ethiopia; Ethiopian Roads Authority, 2011

*Estimates for 2010 are based on rural population still make up 80% of the total population and population growth rate of 2.62 and 2 for 2002 and 2007 respectively

Figure 3-15: Rural Access Index for Regions (Ethiopia), 2010



IV: Doing business in the road transport industry in Ethiopia

In Ethiopia, the trucking associations are the predominant form of trucking business in the country because of the comparative advantage they confer to members by increasing the chances of securing business. Thus, by joining an association, a small independent private operator with a small fleet of trucks increases the chances of securing businesses for most of the year. These associations and the private limited companies account for about 50 percent of the trucking fleet operating in the country

(ETA, 2011) To become a member, one should own a truck(s) which must be roadworthy and not be more than 10 years of age and must be insured to cover the goods to be transported. Other requirements include the payment of registration fees for new members and annual membership fees for registered members. Usually, there is an extra fee for each additional truck that a member owes in his fleet. Members cannot belong to any other similar associations.

The Ethiopian Transport Authority issues guidelines for the registration of the trucking associations and for the regulation of the trucking industry. To be registered as a trucking association, the organization must have a minimum of 20 trucks of 40 MT each and must establish its legality as a purely business entity. On average, it takes about seven days to register a truck and about 21 days to register a trucking association from the time an application is submitted for registration. Once operational, the association must submit monthly reports of its activities to the government or the license to operate will be revoked. Notwithstanding, these regulations and requirements, interviewees believe that there is freedom of entry and exit into the trucking market, although one major external barrier is the prohibitive custom tariffs and taxes on imported trucks and spare parts. Tariffs and taxes on imported trucks comprise of custom duties, excise tax, transaction taxes, surtaxes, VAT and in some cases withholding taxes. It is estimated that these taxes could add up to more than 70 percent of the CIF price of the imported trucks and parts depending on the model. As a result, a good percentage of the freighters in Ethiopia are not in very good conditions, a situation that in part accounts for the high transportation cost in the country.

Most truckers interviewed complained that the trucking business presently is not profitable given the limited amount of imported goods into the country due to the devaluation of the local currency. In addition, some truckers complained of unfair competition from the government owned transport enterprises as they were favored when it comes to government bids and tender for hauling goods and inputs. This, the associations contended, has further constrained their activities with the result that the trucks are largely underutilized.

Results from the survey of key stakeholders in the road transport industry, including private transporters and trucking associations show a score of 3.5 on a 0-5 scale; 0 being government totally controls the market and 5 being that the market is completely liberalized and deregulated. In terms of free entry and exit into the transport market, the country scores an average of 4.0 on a 5 point scale as the only constraining factor mentioned by interviewees was the huge initial investment to purchase the trucks.

Table 3-18 is the Logistics Performance Index (LPI) of Ethiopia for 2010, as reported by the World Bank which is the weighted average of the country scores on the six key dimensions in the overall areas of transport and custom clearance in the doing business indicators of a country. Given these scores and in comparison with the scores of whole of Sub-Saharan Africa (see also Figure 3-16), it is very apparent that Ethiopia needs to improve its infrastructural base particularly in the area of roads in order to better facilitate the movement of goods and services and the overall road transport services within the country.

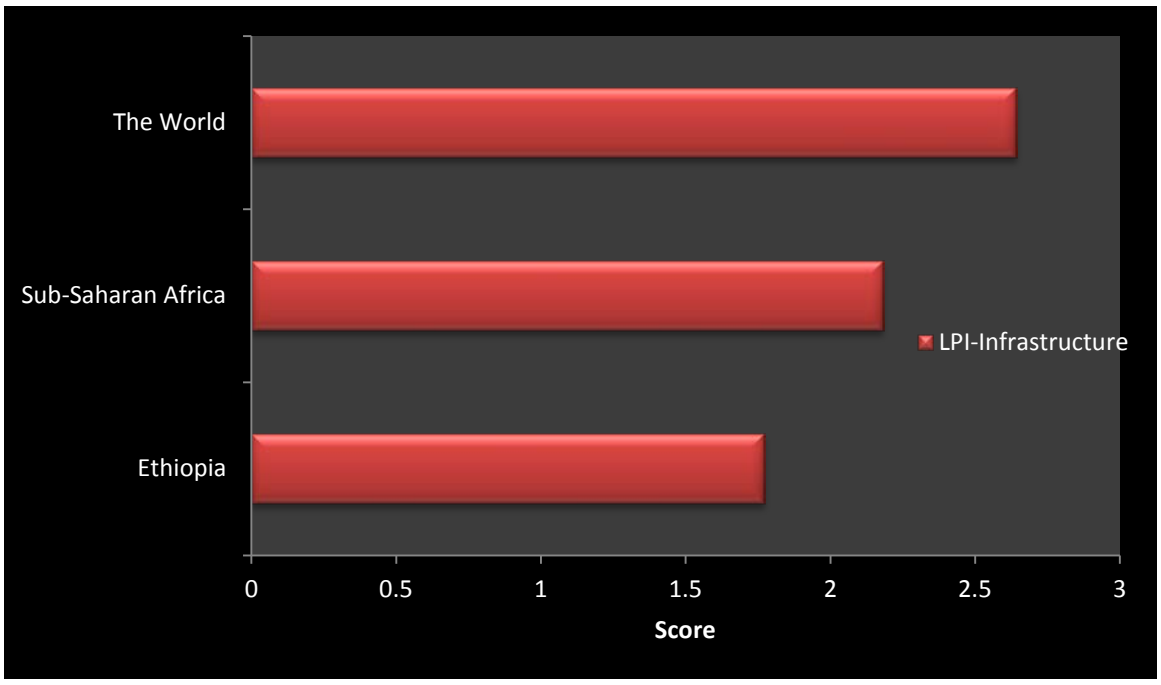
Summary indicators are in Table 3-19.

Table 3-18: Ethiopia's Logistics Performance Index (LPI)

	Ethiopia		Sub Saharan Africa Score	World Score
Overall LPI	Score	2.41	2.42	2.87
	Rank	123		
Customs	Score	2.13	2.18	2.59
	Rank	120		
Infrastructure	Score	1.77	2.05	2.64
	Rank	145		
International Shipments	Score	2.76	2.51	2.85
	Rank	89		
Logistics Competence	Score	2.14	2.28	2.76
	Rank	136		
Tracking & Tracing	Score	2.89	2.49	2.92
	Rank	67		
Timeliness	Score	2.65	2.94	3.41
	Rank	144		

Source: Logistics Performance Index, World Bank 2010

Figure 3-16: Comparison of LPI (Infrastructure): Ethiopia, Sub-Saharan Africa and the World



Source: Original data from LPI, World Bank 2010

Table 3-19: Summary Indicators for the Success Factor of Road Transport in Ethiopia

Categories/Subcategories	Indicator	Base Year/Period/Values
1.Transport Costs	Freights from Primary to Secondary Market	ETB 7.58 (US$ 0.47) per Km/MT
	Freights from Primary to terminal Markets	ETB 3.89 (US$ 0.25) per Km/MT
	Inland freights for Addis Ababa to major cities	ETB 1.66 (US$0.11) per Km/MT
	Freight in the international corridor (Djibouti to major cities)	ETB 0.84 (US$0.05) per Km/MT
	Overall freight Average within the country	ETB 3.49 (US$ 0.22) per Km/MT
2.Competiveness of the Trucking Industry	Opinion of traders and truckers on the competitiveness/Degree of free entry and exit from the trucking industry-Scale of 0-5; 0 being a highly monopolized by few firms/individuals and 5 being very competitive and easy entry and exit	4.0. The only barrier mentioned by the truckers is the high cost of investment cost to purchase a truck
3 Degree of Regulation by the Government	a)Government intervention in setting transport prices; Scale of 0-5; 0 if the government totally controls the market and 5 if the industry is completely liberalized	Yes; 3.5 on 5 point scale; The government periodically intervenes especially in the transportation of strategic commodities and inputs.
	Number of days required to register a truck for hauling agric. Products/commodities	7 days
	Number of days to register a trucking association	21 days
	Transit Fee	There are no transit fees as long as the truck is registered and the driver has the permit/license to transport goods
4.Quality of Roads	Total road network in good condition (%) (2010)	56%
	Rural Roads in good Condition (2010)	53%
	Area more than 5km from all weather roads (%)	64%
	Road density/1000 population in Km (2010)	0.58
	Rural Access Index-Rural- Population within 2 km access road (2010)	27

3.3 Public and Trade Policies and the Role of Civil Societies in Leveraging Agribusiness

3.3.1 Government Policies on Agribusiness

I: Public policies and a new institution for promoting agribusiness

In the current Growth Transformation Plan of the country, the GoE states that the private sector should be the engine of growth in the new economic order and that private capital should play an important role in the development and growth of the economy. Thus, GoE has taken some strides in terms of policy changes to encourage both private domestic and foreign investment within the country. In this regards, the government has “eliminated” at least in theory, most of the discriminatory tax, credit and foreign trade policies that negatively impacted the private sector. It has simplified administrative procedures and established a clear and consistent set of rules regulating business activities particularly in the agribusiness industry.

In 2009, the Ethiopian government shifted its agricultural policy focus towards encouraging private investment (both domestic and foreign) in larger-scale commercial farms. The Ministry of Agriculture and Rural Development (MoA) created a new Agricultural Investment Support Directorate (AISD) that is currently negotiating long-term leases (all land is owned by the government) on 3.6 million hectares that has been delineated by the government for commercial farms. The new Directorate's goal is to boost productivity, employment, technology transfer, and foreign exchange reserves by providing information and offering incentives to private investors as a way of facilitating the process of establishing business ownership particularly in the agriculture sector. The major activities of the Directorate include among others: to formulate policies, strategies, rules and regulations that can accelerate agricultural investment and identify potential agricultural investment land and facilitate the transfer of land to investors. Others are to build capacity of agricultural investors and link agricultural farm level production with the agro-processing industries.

The investment incentive packages that AISD extends to investors include a duty free tax on imported capital items that are purely for investment purposes and to help investors to access loan of up to 75 percent of the total cost of the project if the investor has about 30 percent equity in the project. In addition, the investor is given a reasonable grace period of about two to three years on loan repayment and is exempted from rent on the land until a project starts to earn benefits. Interviews with key stakeholders revealed that these polices have started to yield dividends although there is still the problem of establishing a holistic approach of integrated land planning, due to the lack of satellite imagery system that could facilitate the process of land allocation, a major setback that prolongs the time for establishing new business in the country.

The Government has also set up a National Foreign Investment Promotion Advisory Council to operate with the goal of conducting foreign investment promotion on textiles and garments, leather and leather products, fruits and vegetables, and agro-processing areas. The Council's major tasks are to collect and make available basic data regarding land allocation, utilities connections, investment opportunities, market and other relevant information. Despite all these improvements, findings indicate that it takes on the average about 14 business days to register an agribusiness in Ethiopia, excluding the time required to acquire the land as bureaucratic hurdles continue to affect the registration and establishment of businesses.

Although, the GoE has initiated some policy reforms recently aimed at improving the business environment for private sector development, however, evidence suggests that state involvement and ownership and promotion of state-owned enterprises and corporations continue to dominate the major sectors and subsectors of the economy (US Department of States, 2010). This is typified by the dominance of the government-owned AISE and ESE in the fertilizer and seed markets respectively. Interviews with key stakeholders confirmed the fact that state-owned enterprises have considerable advantages over private firms, particularly in the bid for public contracts and government tenders, and are accorded priorities in the allocation of foreign exchange and custom clearance and similar services.

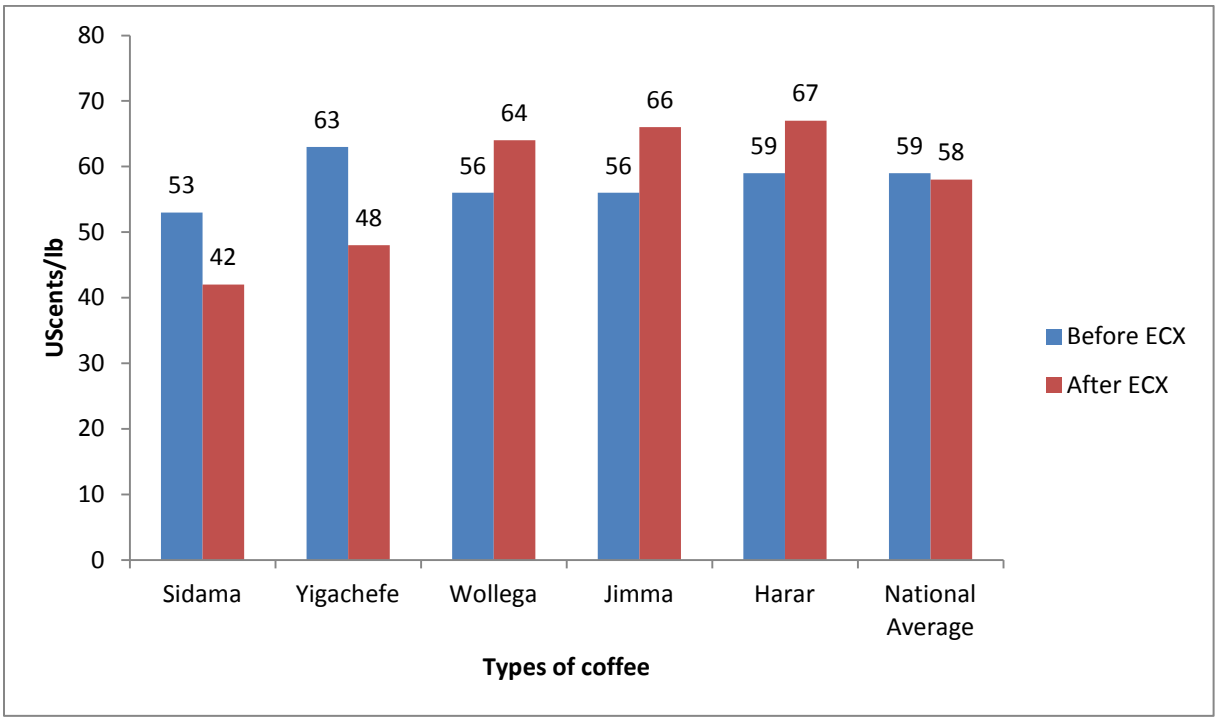
II Private sector perception of agribusiness enabling environment

The overall perception of the major stakeholders is that the implementation of government policies as regards to private sector and agribusiness development is very problematic and on that basis the average score of stakeholders' perception of the government policies was 2.5. In terms of policy consistency, due to the frequent changes that the government is introducing to "improve" the enabling and business environment for private sector participation, (though implementation is seen to be difficult) the GoE receives a score of 2.0

3.3.2 Trade Policies and Producers' Share of FOB Price

One major policy change in the trading of the most important export commodity in Ethiopia, coffee, has been the introduction of the Ethiopia Commodity Exchange (ECX). Coffee accounts for 60 percent of Ethiopia's exports and 10 percent of the country's GDP. The ECX is responsible for conducting coffee sales through auctions in the country. While some stakeholders contend that the introduction of ECX has improved the entire value chain of the coffee subsector, others argue that ECX has fallen short of expectations and can do much more to reduce transaction cost and increase producers' share of the FOB price of coffee. For example Rashid et al. (2011) enumerated some of the trade policies accomplished by ECX in the coffee value chain to include among others; zero default in paying farmers, the decentralization of coffee inspection centers to regions thus saving time and cost, the development of considerable physical and human infrastructure and the improvement in the flow of price information (electric board, SMS, others) at traders level all of which have considerably improved efficiency. Figure 3-17 shows the producers' share of the FOB price of Coffee in the country.

Figure 3-17: Producers' Share of FOB Price of Coffee in Ethiopia



Source: Adapted from Rashid et al (2011)

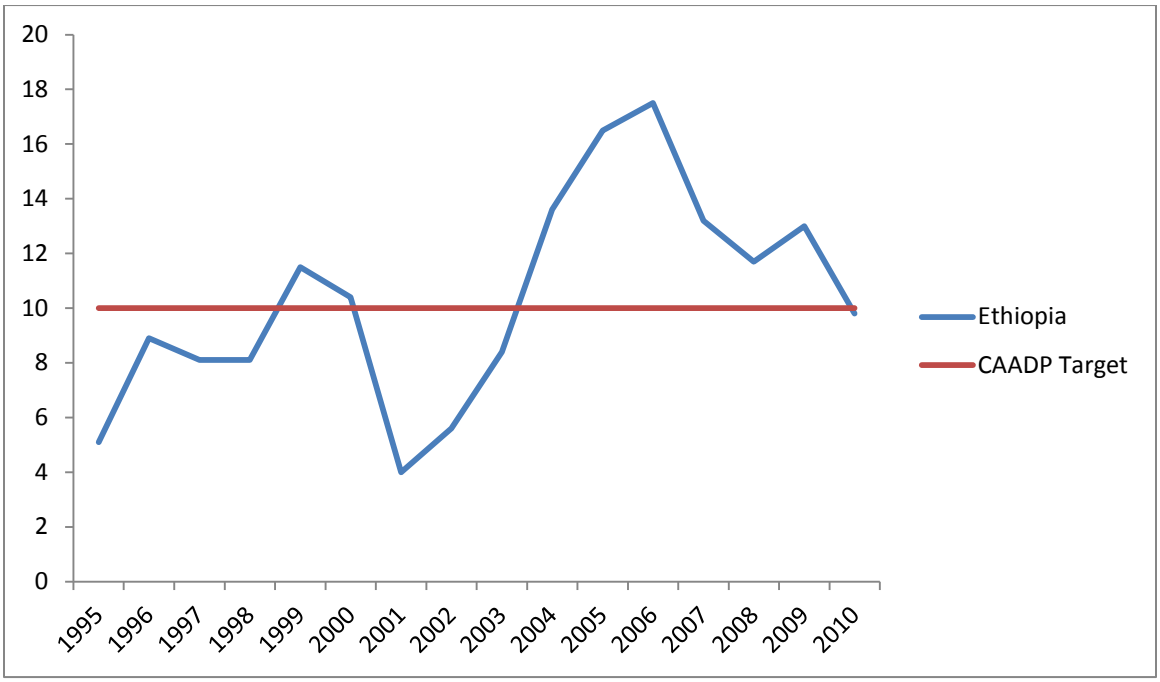
3.3.3 Government Budget Allocation and Expenditures on Agriculture

At the Second Ordinary Assembly of the African Union in July 2003 in Maputo, African heads of state and government endorsed the "Maputo Declaration on Agriculture and Food Security in Africa" (Assembly/AU/Decl. 7(II)). The Declaration contained several important decisions regarding agriculture. Prominent among them was the "commitment to the allocation of at least 10 percent of national budgetary resources to agriculture and rural development policy implementation within five years." Since the Maputo Declaration the share of national budget allocated to agriculture has therefore been

taken as a proxy to governments' commitment to promote investment in the agriculture sector and thus a positive step in government policy to leverage agribusiness development.

Under the Comprehensive African Agricultural Development (CAADP) therefore, the main framework for accelerating agricultural development in the continent, member countries are mandated to allocate at least 10 percent of their annual budget to agriculture. Recent figures show that Ethiopia has already surpassed the 10 percent target and currently allocates about 13 to 17 percent of her national budget to agriculture (Fan et al., 2009) (Figure 3-18). As regards to CAADP implementation, Ethiopia has concluded its round table conference and signed the CAADP Compact and thus is in the process of implementing the investment proposals identified as priority projects for increasing productivity and output.

Figure 3-18: Agricultural Expenditure as Share of Total Government Expenditure, 1980-2010



Source: ReSAKSS, 2009; MoA, Ethiopia 2011)

3.3.4 Role of Civil Society, Advocacy Groups and Roundtables in Influencing Agricultural Policies

Experts believe that social and economic problems of a country cannot be resolved by the government alone and that concerted efforts are needed in form of dialogue and discourse and roundtables in putting together well thought out policies and strategies based on objective evaluation of the causes of the economic problems. There is a general consensus that civil society and advocacy groups that cut across gender, regional, ideological, political and professional lines can bring pressure to bear upon the government and policy makers to initiate and implement economic reforms. These groups may therefore be a key force of economic development and growth within a country.

Ethiopia's long history as a feudal monarchy and the suppressive government of the past military Marxist regime left most structures of civil society stunted and in disarray. There are very few organizations that can be considered as advocacy groups or civil organizations with the aim of bringing

pressure on the government in order to influence economic policies capable of improving enabling environment for agribusiness and private sector development in the country.

One such major advocacy group is the Ethiopian Chamber of Commerce and Sectoral Associations (ECCSA), an apex organization for all private businesses and associations in Ethiopia. Another advocacy organization that can be considered to be more focused on agribusiness is the Ethiopian Association of Agricultural Professionals (EAAP). EAAP is made up of different agricultural professional societies ranging from associations of agronomists, animal scientists to associations of agricultural economists and other agricultural related disciplines. It also includes the few large scale commercial farmers operating within the country. Other civil organizations and advocacy groups in the agribusiness industry which in most cases are members of the ECCSA include the associations of Floriculture Exporters, Textile Exporters, Ethiopia Export Coffee Association and Ethiopian Millers Association.

Interviewees with these advocacy groups revealed that there is the general lack of dialogue and discourse between these advocacy groups, either collectively or individually with the government. Indeed, ECCSA acknowledged that it was just a year ago that a Memorandum of Understanding was signed between the association and the government to have a regular Public-Private Platform Forum but that at the time of the interview no roundtables have been scheduled or held. It was only EAAP that confirmed holding about two roundtables with the MoA in the run up to design of CAADP Framework and signing of compact in the country.

Findings show that most members of the associations are very skeptical as to the willingness of government to have any meaningful forum to discuss issues influencing agribusiness and private sector development in the country. There is also a lot of apathy and lack of initiatives among advocacy groups in seeking forums for public-private partnership and discourse with the government. Without the participation of the advocacy groups and civil society, policy formulation will remain largely skewed in favor of the government with little impetus to respond to problems of private sector development and in engaging entrepreneurs in leveraging agribusiness that the government development plan hinges on.

On the basis of the responses received form stakeholders as to the efficacy of advocacy groups in influencing policies in the country, Ethiopia receives a score of 1.3 in this specific indicator. Table 3-20 summarizes all of the indicators.

Table **3-**20: Summary **I**ndicators for the **S**uccess **F**actor of **P**ublic and **T**rade **P**olicies and **R**ole of Civil **Society in Influencing Agribusiness in Ethiopia**

Categories/Subcategories	Indicator	Base year/Period/Value
1 Policy Measure	Private sector perception of agribusiness enabling environment (5-point scale; 0 if the policy environment is hostile and crowds out the private sector and 5 otherwise)	2.5, based solely on the fact that the government continues to crowd out the private sector in all stages of production, marketing and distribution of agricultural products
2.Policy Consistency	5-point scale based on number of frequency and magnitude of policy changes. Private sector actors loath frequent changes in policies	2.0. The government is embarking on numerous policy changes to attract both foreign and domestic investors in the agribusiness industry. Unfortunately, most of these changes could be very helpful however, they distract investors and above all they are almost never fully implemented and tend to confuse

Categories/Subcategories	Indicator	Base year/Period/Value
		investors.
3. Agricultural Trade Policies	a)The main trade policies that currently influence producer share of FOB prices of main export commodity- coffee, is the buying and selling (auction) policies by the newly established Ethiopian Commodity Exchange (ECX). As a proxy we use the producers' share of the FOB price to quantify the effect of government policies.	The national average for the producers' share of the FOB price was 58% after the establishment of ECX as compared to 59% before ECX implying no significant difference.
	Percent of total staple crop (wheat and maize) production passing through formal marketing channels	Maize -30% based on the amount traded at ECX. Wheat -80%; Although not much wheat is traded at ECX but interviews with food processors revealed that most of the wheat is processed into pasta, a staple diet for most Ethiopians
4. Government Fiscal Policy of Expenditure on Agriculture as a Percentage of Total Government Budget	The African driven CAADP framework stipulates that at least 10% of total annual government Budget/expenditure should be allocated to the agricultural sector.	Total government expenditure allocated to the agriculture sector in 2009 was 13%. Over the 13 year-period that this declaration has been in existence GoE has allocated 13% of its budget to agriculture, making Ethiopia one of the few countries that has surpassed the target.
5.Private Sector Advocacy Group for Agribusiness and Roundtables with Civil Society in a Public-private Partnership Forum	Ordinal Scale based on efficacy and effectiveness in influencing government policies; 5 if very influential and always influences government agricultural policies through roundtables.	1.3. There is Ethiopian Association of Agricultural Professionals in the country that meets with the MoA officials but really do not have much impact on government agricultural policies.

4. Concluding Remarks

This study has focused on identifying the success factors that are likely to determine the prospects for agribusiness development in Ethiopia. Based on these factors, a series of agribusiness indicators has been developed that can be used to benchmark, monitor progress, and draw comparisons across a selection of Sub-Saharan African Countries. Such empirical cross-country comparisons have been known to be instrumental in "nudging" governments towards policy reforms and in providing advocates of such reforms with political traction.

As a first step towards developing a comprehensive and robust methodology that will scale up the study to include more variables and countries within Africa, ABI isolated and studied three categories of success factors: a) access to critical factors of production, b) supporting services and enabling environment, and c) policy issues as related to government expenditures and interventions in the agribusiness sector in six countries in Africa.

The findings from Ethiopia country study revealed the extensive presence and dominance of the GoE and public enterprises in most spheres of the agribusiness industry, and an associated crowding-out of the private sector – particularly in the input markets of fertilizers and certified hybrid seeds.

In the seed industry, there is the perennial problem of certified seeds and the apparent disconnect between the seed companies and the farmers who are the ultimate consumers of this input. Although there are a number of registered private seed companies, their market share in certified seed production and marketing stood only at 12 percent. The results of this study identified a number of strategic measures the government needs to take in order to enable local private seed companies to thrive. These include expanding private seed companies' access to breeder seeds and enabling a pricing mechanism to develop that uses the "invisible hand" of market supply and demand to determine the price of certified seed.

The government also needs to take measures to improve seed quality and increase the country's seed certification capabilities, as well as to streamline the processes of seed testing, certification, and multiplication. A comprehensive review of options for feasible and affordable seed certification systems and the promotion of internal quality control procedures that adequately protect consumers would go a long way in enhancing famers' confidence in the seed industry. This would likely attract more private investors in the system and would reduce if not completely eliminate the shortages and increases the levels of certified seeds used by the farmers.

The fertilizer market, like the market for certified seeds, is dominated by the public sector. The Agricultural Input Supply Enterprise is the only company mandated by the government to import and distribute fertilizers in the country. While a large number of cooperative unions were formed with extensive government support to carry out the functions of fertilizer marketing, private distributors and importers are generally lacking. Logistics problems tend to hinder the timely import and distribution of this important input, although available figures suggest a marginal increase in application rates. A shift in policy that allows the full participation of the private sector in fertilizer import and distribution would help diversify the types of fertilizers currently imported in the country (as of now only DAP and Urea) and help reduce the delay in the application of this input at farm level.

The use of tractors in the country has started to gain momentum despite the persistent prevalence of human and animal traction in Ethiopian agriculture. The emergence of large scale foreign commercial farmers and the duty free policy in the import of tractors for agricultural purposes are responsible for the spikes in tractors imports in the country during the last two cropping years in particular. However, the high duty and tariffs on imported spare parts for tractors in the country have continued to hinder

the efficient use of this important and versatile agricultural equipment. The aftermath is that most tractors in the country have a very short life span and deliver far fewer engine hours than are technically achievable through proper maintenance. An important upshot of this is that tractor rental services are very expensive.

With regards to the success factors of access to credit, good logistics in terms of rural roads and transportation and the overall enabling environment for doing agribusiness in the country, Ethiopia has enacted some laws, established some institutions and revised some policies and introduced some new programs. The warehouse receipt financing (WRF) system through the newly created Ethiopian Commodity Exchange (ECX) and the establishment of the Agricultural Investment Support Directorate (AISD) are some of the positive measures that have been introduced to leverage agribusiness despite the initial hiccups these programs and institutions are experiencing. ECX when fully developed would undoubtedly help farmers to access credit from formal credit institutions which currently are virtually nonexistent due to the fact that most farmers, particularly the smallholders who are unable to provide the necessary collateral needed to access credit from banks and other major lending institutions.

In terms of the success factor for transportation, although significant progress has been made in overall road density, not much progress has been recorded in the rural road density in the past decade that are very crucial for transporting agricultural produce from the primary producer to the secondary and tertiary markets. The poor conditions of the rural roads are clearly manifested in the higher cost of transportation in the rural areas compared to the urban areas and the international corridor from Djibouti to major agricultural hubs in the country.

Finally, the absence of constructive dialogue and interaction between Ethiopia's public sector and private sector represents an important opportunity cost in terms of forming public-private partnerships that could otherwise be instrumental in fostering agribusiness in the country. The private sector has little if any input into policy planning or formulation, which as a result remains skewed heavily in favor of government enterprises and parastatals that compete with and largely crowd private enterprise out of agribusiness. The future of the agribusiness industry will depend in large measure on Ethiopia's success or failure in reversing this disconnect, and in forging partnerships that engage a broad range of concerned stakeholders in meaningful discourse that informs purposeful policy reform.

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Annex 1: Supporting Tables

Table A1-1: Average Area and Percentage of Total Cultivated Area of Major Crops in Ethiopia

Crops		2009 Total Area (ha)	2010 Total Area (ha)	Average (ha)	% of Total Cultivated Land (avg 09-10)
A	Cereals	8,770,118.00	9,233,025.00	9,001,571.50	79.14
	Tef	2,481,333.00	2,588,661.00	2,534,997.00	22.29
	Maize	1,768,122.00	1,772,253.00	1,770,187.50	15.56
	Wheat	1,453,817.00	1,683,565.00	1,568,691.00	13.79
	Sorghum	1,615,297.00	1,618,677.00	1,616,987.00	14.22
	Barley	977,757.00	1,129,112.00	1,053,434.50	9.26
B	Pulses	1,585,236.00	1,489,308.00	1,537,272.00	13.52
	Faba bean	538,820.00	512,067.00	525,443.50	4.62
	Field pea	230,749.00	226,533.00	228,641.00	2.01
	Haricot Beans	267,069.00	244,013.00	255,541.00	2.25
	Chickpea	233,440.00	213,187.00	223,313.50	1.96
C	Oil seeds	855,147.00	780,916.00	818,031.50	7.19
	Neug	313,445.00	256,794.00	285,119.50	2.51
	Linseed	180,873.00	140,801.00	160,837.00	1.41
	Sesame	277,992.00	315,843.00	296,917.50	2.61
D	Other crops	15,601.73	18,908.42	17,255.08	0.15
Total cultivated land		**11,226,102.73**	**11,522,157.42**	**11,374,130.08**	**100.00**

Table A1-2: Commercial Seed Use among Different Crops in Ethiopia, 2005-2008

Crop	% of certified seeds officially demanded that are supplied by commercial sector						
	2005	2006	2007	2008	2009	2010	Average (2005-2010)
Wheat	20	38	23	24	36	76	36.1
Maize	53	28	60	48	44	25	43.0
Teff	5	12	22	19	17	26	16.8
Barley	16	18	10	7	15	25	15.1
Sorghum	Na	7	16	48	32	14	23.4
Average	23.5	20.6	26.2	29.2	28.8	33.2	26.9

Source: IFPRI, (2010); ESE, MoA (2011)

Table A1-3: Total Fertilizer Consumption, 2005-2010 (metric tons)

Year	DAP	UREA	Total
2005	103,455	92,497	195,953
2006	251,156	124,560	375,717
2007	259,020	129,121	388,141
2008	265,768	138,988	404,756
2009	278,239	148,437	426,676
2010	352,309	201,576	553,885
Average	**251,658**	**139, 197**	**390,855**

Sources: Various (IFDC; FAO Rome; CSA, Ethiopia and MoARD, Ethiopia)

Table A1-4: Cost of Fertilizer in Major Agricultural Production Zones and Decomposition of Fertilizer Costs, 2011

Item	DESCRIPTION		Units	Value
1	Fob price (USD per ton)	1/		
	DAP		$/ton	610.50
	Urea		$/ton	471.20
2	C.i.f. Ethiopia (does not include insurance)	2/		
	DAP		$/ton	670.50
	Urea		$/ton	531.20
3	tariff and all other taxes	3/		-
4	Demurrage due to delays in the port	4/		-
5	Any undocumented payments			-
	Exchange rate (June 30, 2011)		Birr/$	16.70
	Exchange rate premium		%	-
	Adjusted exchange rate		Birr/$	16.70
	Cif Ethiopia domestic currency			
	DAP		Birr/ton	11,197.35
	Urea		Birr/ton	8,871.04
6	Transport cost	5/	Birr/ton/km	0.75-0.90 (Average0.84)
	Addis Ababa	925	km	835.50
	Bahir Dar	891	km	784.08
	Kombolicha	567	km	447.93
	Nekemit	1253	km	1,052.52
	Adama (Nazireth)	827	km	694.68
	Hawassa	1052	km	679.91
	Mekele	839	km	696.37
7	Unloading	6/	Birr/ton	30.00
8	Local Transport cost to the farm gate	7/	5 Birr/50 kg bag	
	Addis Ababa		Birr/ton	100.00
	Bahir Dar		Birr/ton	100.00
	Kombolicha		Birr/ton	100.00
	Nekemit		Birr/ton	100.00
	Adama (Nazireth)		Birr/ton	100.00
	Hawassa		Birr/ton	100.00

Item	DESCRIPTION		Units	Value
	Mekele		Birr/ton	100.00
9	Loading & Unloading		Birr/ton	60.00
10	Farm gate price from	8/		
	Addis Ababa			
	DAP		Birr/50 kg bag	608.22
	Urea		Birr/50 kg bag	491.90
	Bahir Dar			
	DAP		Birr/50 kg bag	606.79
	Urea		Birr/50 kg bag	490.47
	Kombolicha			
	DAP		Birr/50 kg bag	593.18
	Urea		Birr/50 kg bag	476.87
	Nekemit			
	DAP		Birr/50 kg bag	621.99
	Urea		Birr/50 kg bag	505.68
	Hawassa			
	DAP		Birr/50 kg bag	613.55
	Urea		Birr/50 kg bag	497.24
	Mekele			
	DAP		Birr/50 kg bag	604.61
	Urea		Birr/50 kg bag	488.29

Source: Authors own computation based on key informant survey AISE, transporters, farmers and extension agents.
1/ AISE, 2011.
2/ AISE has noted that the Cif price in the case of Ethiopia does not include insurance cost, i.e. only cost & freight.
3/ Fertilizer is exempted from all sorts of taxes.
4/ AISE has noted that it has never been faced demurrage. Yet, there is a common agreement with shipping lines to pay 10,000 to 20,000 US$ per day for delays in taking the delivery.
5/ Transport cost is calculated from the port of Djibouti to all fertilizer distribution centers of AISE as indicated in the table.
6/ Assumption the cost of loading & unloading is 3 Birr/50 kg bag across all locations.
7/ Assuming the average distance to all-weather roads in Ethiopia: 11.3 km in 2010 (ERA, 2011) and informal survey.
8/ Farm gate price estimation includes 10% profit margin charged by the cooperative societies.

Table A1-5: Calculation of the Value Cost Ratio, 2009 and 2010: Basic information on Yield and Fertilizer Application Rates

Crop	Control Yield (kg/ha)	N Rate (kg/ha)	P Rate (Kg/ha)	Yield at Economic Optimum Rate	Incremental Yield (Kg/ha)
Teff	684.0	57.0	23.0	1,274.0	590.0
Wheat	1,416	47.0	18.0	2,152.0	736.0
Maize	2,457.0	60.0	28.0	3,850.0	1,393.0

Table A1-6: Calculation of Value Cost Ratio for 2009 Cropping Season

Crop	Fertilizer Price (ETB/kg)				Fertilizer Cost (ETB/kg(		Incremental Cost (ETB)	Grain Price (ETB/ kg)	Incremental Benefit (ETB)	VCR
	Urea	DAP	N	P	N	P				
Teff	6.52	7.31	14.17	36.55	807.91	840.65	1,648.56	9.48	5,593.20	3.39
Wheat	6.52	7.31	14.17	36.55	666.17	657.90	1,324.07	5.84	4,298.24	2.25
Maize	6.52	7.31	14.17	36.55	850.43	1,023.40	1,873.83	3.37	4,694.41	2.51

Table A1-7: Calculation of Value Cost Ratio for 2010 Cropping Season

Crop	Fertilizer Price (ETB/kg)				Fertilizer Cost (ETB/kg(		Incremental Cost (ETB)	Grain Price (ETB/ kg)	Incremental Benefit (ETB)	VCR
	Urea	DAP	N	P	N	P				
Teff	8.94	10.75	19.43	53.75	1,107.78	1,236.25	2,344.03	8.56	5,050.40	2.15
Wheat	8.94	10.75	19.43	53.75	913.43	967.50	1,880.93	4.80	3,532.80	1.88
Maize	8.94	10.75	19.43	53.75	1,166.09	1,505.00	2,671.09	2.61	36,375.73	1.36

Table A1-8: Major Firms in the Tractor Business, Ethiopia, 2011

Firm	Tractor Type and Brand	Comments
Ries Engineering	Has the largest market share in the country. Imports and trades Massey Ferguson; mostly 80 to 130 HP	Major customers include private sesame commercial farms in Humera areas, cooperative union in Amahara region and recently the Saudi Star farm-an international investor that recently acquired 10,000 hectares of land for rice production in the region. In 2010, out of the total 400 tractors imported into country, Reis imported 300 of them mostly for SAUDI STAR Farms.
MOENCO	Has 2nd largest market share in the country. Imports New Holland from the Netherlands; imports mainly small-sized tractors (40-70HP) and medium sized tractors (90-120HP); also imports few large scale tractors (>120HP)	Main customers are the cooperative unions and societies, few private large commercial farms in the country. Because MOENCO is engaged in the sales of motor vehicles as well, it has service centers located in major cities in the country and also has a mobile workshop that can service tractors in farms in the remote rural areas of the country.
CLAAS	Imports small-to medium sized CLAAS tractors as well as heavy duty tractors. Imported about 600 tractors in the last 20 years it has been business. Tractor imports account for about 40% of the total agricultural machine imported in the country. Also imports implements such as discs plows and disc harrows	Main customers are foreign investor from China and India. The company imports using the exim facility from the manufactures overseas and sells on a 12 moth credit to local private investors. It has a train8ing center where it updates employees and individuals from other establishments on how to maintain and service tractors built with new and latest technologies. It does not have out service centers but has a mobile workshop. In the past 3 three years, service capacity has increased tremendously and this tended to increase the life span of tractors.
Hagbes	Imports small and medium sized SAME tractors from Italy. HP ranges from 70-120 with tractors of 85-100HPs imported mostly for private and cooperative farmers. These days, small HP tractors of SAME brand are also imported from China and India.	Major customers are the sugar plantations, private commercial farms as well as cooperative unions and societies. Also major supplier to government institutions such as the Ministry of Water Resources & Energy and some state farms. Obtains loans from the Commercial Bank of Ethiopia to finance imports. Supply to govt. goes through competitive tenders Annual imported units are in about 15 tractors of 90HP capacity and about 100 units of 130 HP units and above. It is estimated that Hagbes PLC ranks third in the sales and service of tractors in Ethiopia.
Nazareth Tractor Assembling Plant (NTAP)	Established: 1978 as an agreement between Ethiopian Government and USSR, Tractor products: a) Walking/pedestrians controlled tractors with 8 – 15 HP capacity (8, 12, 15 hp); b) Small size with 18 – 40HP (18, 25, 30, 40 HP); c) Medium size with 57- 130 hp (57, 62, 81, 90, 105, 130 HP). Production: 1 unit/day/3 persons, has produced 6,000 tractors in the past 20 years at the average of 300 tractors per year	Service centers: Currently there are no out-service centers but NTAP has a mobile service facility and there four upcoming centers planned for 2012 to be located in Addis Ababa, Bahir Dar, Hawassa and Jimma

Table A1-9: Share (%) of Loan Disbursement, Collection, and Outstanding Credit by Economic Sector, 2005-2009

Sector	2004/05			2005/06			2006/07			2007/08			2008/09		
	D	C	O/S	D	C	O/S	D	C	O/S	D	C	O/S	D	C	O/S
Govt. Deficit Financing			25.1			32.5			29.9			10.9			10.9
Agriculture	16.5	11.9	7.0	17.6	13.8	8.6	16.9	14.3	9.5	11.9	12.8	11.6	11.9	12.8	11.6
Industry	11.5	11.1	17.7	10.5	11.3	15.9	9.8	12.2	15.8	10.5	8.6	17.6	10.5	8.6	17.6
Domestic Trade	20.2	22.6	9.2	19.8	18.1	8.4	19.1	17.7	8.5	20.7	19.9	11.2	20.7	19.9	11.2
International Trade (Export and Import)	31.2	31.2	15.9	28.6	34.5	13.2	28.1	33.8	14.6	32.1	32.8	24.2	32.1	32.8	24.2
Others	20.5	23.2	25.2	23.7	22.1	21.1	26.2	22	21.6	24.8	26	24.5	20.5	23.2	25.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Bank of Ethiopia, Annual Reports Various Issues (2005-2009)
Note: D = Disbursement; C = Collection; O/S = Outstanding Credit

Table A1-10: Road Sector Development Data (2005-2010)

Type/Nature of Road	2005	2006	2007	2008	2009	2010
Federal Roads (Km)	18,612.00	19,313.00	20,080.00	20,429.00	21,172.00	21,849.00
Asphalt Road	4,972.00	5,002. 00	5,452.00	6.066.00	14.243.00	14,373.00
Gravel Road	13,640.00	14,311.00	14,628.00	14,363.00	6,938.00	7,476.00
Rural All-weather Road (km)	18,406.00	20,164.00	22,349.00	23,930.00	25,640.00	26,944.00
Total Road Network (km)	37,018.00	39,477.00	42,429.00	44,359.00	46,812.00	48,793.00
Rate of Network Expansion (%)	1.40	6.60	7.50	4.50	5.50	4.20
Road Network in Good Condition (%)	39.00	47.00	49.00	53.00	54.00	56.00
Rural Roads in Good Condition (%)	33.00	46.00	46.00	49.00	50.00	53.00
Area >5 km from All-weather Roads (%)	71.42	69.85	68.00	66.81	63.30	64.20
Average Distance to All-weather Road (km)	14.86	13.93	12.96	12.40	11.80	11.30
Road Density/1,000 sq km	33.60	35.89	38.60	40.30	42.60	44.39
Road Density/1,000 population (km)	0.51	0.53	0.55	0.56	0.57	0.58

Source: Ethiopian Roads Authority (ERA). 2011

Table A1-11: Funding for Implementation of Road Sector Development Program (RSDP) (1997–2010) (Millions of ETB)

Source	1996/79-2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Total	% contribution
GoE	6,158.70	2,612.00	3,354.30	5,096.20	6,032.10	9,393.40	32,497.80	53.81
Road Fund	2,126.50	618.60	788.90	1,310	1,742.80	1,977.10	8,564.20	14.19
IDA	3,788.50	196.70	583.10	841.90	1006.90	695.40	7,112.30	11.78
European Union	1,304.30	174.40	249.20	1,156.70	1,177.30	984.00	5,212.90	8.64
Community	-	199.90	684.90	85.20	384.30	214.00	1,568.40	2.60
AfDB	825.50	102.70	96.00	160.10	115.60	220.70	1,520.50	2.52
China						1,252.70	1,252.70	2.08
Japan	483.50	61.40		86.60	188.10	32.50	852.00	1.41
OPEC Fund for Intl. Dev.	82.60	54.40	156.60	101.50	66.40	45.70	507.20	0.84
Germany	187.40	18.10	124.70	4.20	50.60	12.30	397.30	0.66
Badea	0.20	-	59.70	66.50	67.30	41.40	235.10	0.39
United Kingdom	70.60	40.10	47.50	13.60	14.60	30.40	216.80	0.36
NDF	47.10	4.40	27.20	33.30	23.60	40.30	175.90	0.29
Saudi Fund for Development	-	-	39.30	44.40	48.50	30.20	162.40	0.27
Kuwait Fund		-		-	-	49.90	49.90	0.08
Ireland	14.20	5.40	3.90	-	0.70	18.70	42.80	0.07
Sweden	5.00	-	-	-	-	-	5.00	0.01
Total	15,094.10	4,088.10	6,215.30	9,000.50	10,918.70	15,038.60	60,355.20	100.00

Source Ethiopia Roads Authority, 2011

Note: IDA = International Development Association; AfDB = African Development Bank; Badea = Arab Bank for Economic Development in Africa; NDF = Nordic Development Fund.

Table A1-12: Use of Funds by the Ethiopian Roads Authority (Million ETB)

Use of Funds	2005	2006	2007	2008	2009	2010	% Share
Rural Roads	-	-	-	-	-	-	0.0
Reconstruction and/or Betterment	1,843.50	1,622.80	3,545.60	5,414.80	5,887.50	9,506.40	65.9
Construction	182.50	650.00	687.60	1,667.40	2,288.90	2,307.70	18.4
Maintenance	620.30	475.40	628.50	869.80	1,379.70	1,338.90	12.6
Regional Roads and Special Projects	-	-	-	-	-	-	0.0
Others	202.00	137.90	175.80	172.60	246.60	359.20	3.1
Total Program Expenditure	2,848.30	2,886.10	5,037.50	8,124.60	9,802.70	13,512.20	100.0

Source: Ethiopian Roads Authority

Table A1-13: Average Transport Prices between Djibouti and Hubs in Ethiopia, 2011

Destination	Total Distance from Djibouti (km)	Tariff per MT (ETB)	Tariff per MT/Km (ETB)	Tarff per MT/km(US$)*
Addis Ababa	925	835	0.90	0.06
Bahir Dar	891	784	0.88	0.06
Kombolicha	567	447	0.79	0.05
Nekemit	1,253	1,052	0.84	0.05
Adama (Nazareth)	827	694	0.84	0.05
Hawassa	1,052	841	0.80	0.05
Mekele	839	696	0.82	0.05
Average Freight	908	764	0.84	0.05

Source: Ethiopia Roads Authority; Field Survey 2011

* Exchange rate of the ETB to US $ as at June 2011 was about ETB1=0.06

Table A1-14: Average Prices of Inland Transportation to Selected Market Cities, Ethiopia,-2011

Destination	Distance from Addis Ababa (km)	Average Tariff (ETB/MT)	Tariff per MT/Km (ETB)	Tarff per MT/km(US$)*
Bahir Dar	563	850	1.51	0.09
Kombolicha	376	700	1.86	0.12
Nekemit	328	700	2.13	0.13
Hawassa	273	600	2.00	0.13
Mekele	783	850	1.09	0.07
Gondar	738	1,250	1.69	0.11
Woldiya	521	800	1.54	0.10
Jimma	346	700	2.02	0.13
Gambiella	766	1,200	1.57	0.10
Arba Minch	505	950	1.88	0.12
Moyalie	771	1,000	1.30	0.08
Assossa	675	900	1.33	0.08
Average	554	875	1.66	0.11

Source: Ethiopia Roads Authority; Field Survey 2011

Table A1-15: Average Cost of Inland Transportation to Different Types of Markets, Ethiopia,-2011

From	To	Type of Route	Cost/MTKM (ETB)	Cost/MT/KM (US$)
Arerti (Primary market)	Addis Ababa (terminal/wholesale market)	Primary to terminal market	2.46	0.16
Arerti (Primary market)	Nazareth (terminal/wholesale market)	Primary to terminal market	2.67	0.17
Chefe Donsa (Primary market)	Addis Ababa (terminal/wholesale market)	Primary to terminal market	3.61	0.23
Average Freight Rates	Primary to terminal/wholesale market	Primary to terminal market	2.90	0.19
Chefe Donsa (Primary market)	Debre Zeit (secondary market)	Primary to secondary market	6.11	0.38
Arerti (Primary market)	Modjo (secondary market)	Primary to secondary market	3.08	0.19
Adulala (Primary market)	Debre Zeit (secondary market)	Primary to secondary market	8.24	0.51
Dire (Primary market)	Debre Zeit (secondary market)	Primary to secondary market	8.33	0.52
Arib Gebia (Primary market)	Debre Zeit (secondary market)	Primary to secondary market	12.50	0.78
Ardaga (Primary market)	Debre Zeit (secondary market)	Primary to secondary market	8.00	0.50
Chefe Donsa (Primary market)	Sendafa (secondary market)	Primary to secondary market	6.82	0.43
Average Freight Rates	Primary to secondary market	Primary to secondary market	7.58	0.47

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