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PROJECT PERFORMANCE ASSESSMENT REPORT

ETHIOPIA

**FERTILIZER SUPPORT PROJECT
(IDA-GRANT H4420-ET, IDA-CREDIT 4543-ET)**

**UNDER THE ETHIOPIA EMERGENCY FOOD CRISIS RESPONSE PROGRAM
AND THE GLOBAL FOOD CRISIS RESPONSE PROGRAM**

June 28, 2011

IEG Public Sector Evaluation
Independent Evaluation Group

Currency Equivalents (annual averages)

(Exchange Rate Effective as of January 25, 2011)

Currency Unit = Ethiopian birr (ETB)

US\$ 1.00 = ETB 16.48

2008	US\$1.00	ETB 09.60
2009	US\$1.00	ETB 11.78
2010	US\$1.00	ETB 13.13

WEIGHTS AND MEASURES

Metric System

Abbreviations and Acronyms

ADLI	Agricultural Development Led Industrialization
AfDB	African Development Bank
AIDB	Agricultural Industrial Development Bank
AISCO	Agricultural Inputs Supply Corporation
AISE	Agricultural Inputs Supply Enterprise
ATA	Agricultural Transformation Agency
BOFED	Bureau of Finance and Economic Development
BP	Best practice
CAS	Country Assistance Strategy
CBE	Central Bank of Ethiopia
CBO	Community Based Organization
CEM	Country Economic Memorandum
CPI	Consumer Price Index
CSA	Central Statistical Authority
DA	Designated Account
DAP	Di-ammonium phosphate
DAG	Development Assistance Group
DSA	Development Studies Associates
EARO	Ethiopian Agricultural Research Organization
EDRI	Ethiopian Development Research Institute
EEA	Ethiopian Economic Association
EEFCRP	Ethiopia Emergency Food Crisis Response Program
EFSRA	Emergency Food Security Reserve Administration
EGTE	Ethiopian Grain Trading Enterprise
EIAR	Ethiopian Institute for Agricultural Research
ESW	Economic Sector Work
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FEWS	Famine Early Warning System
FSP	Fertilizer Support Project
GDP	Gross Domestic Product
GFRP	Global Food Crisis Response Program
GOE	Government of Ethiopia
ICR	Implementation Completion Report
IEG	Independent Evaluation Group
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center

IFPRI	International Food Policy Research Institute
IMF	International Monetary Fund
ISR	Implementation Status and Results Report
M&E	Monitoring and Evaluation
MoARD	Ministry of Agriculture and Rural Development
MOFED	Ministry of Finance and Economic Development
MT	Metric Ton
NAEIP	National Agricultural Extension Intervention Program
NBE	National Bank of Ethiopia
NGO	Non-Governmental Organization
NFSP	National Fertilizer Sector Project
OP	Operational Policy
PA	Poverty Assessment
PADETES	Participatory Demonstration and Training Extension System
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PBS	Protection of Basic Services
PDO	Project Development Objective
PER	Public Expenditure Review
PPAR	Project Performance Assessment Report
PSNP	Productive Safety Net Program
SDPRP	Sustainable Development and Poverty Reduction Program
SG2000	Sasakawa Global 2000
SNNP	Southern Nations, Nationalities and Peoples' (Regions)
SSA	Sub-Saharan Africa
USAID	United States Agency for International Development
WDI	World Development Indicators
WFP	World Food Program

Fiscal Year

Government: July 8 – July 7

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This report was prepared by Nalini Kumar, with input from Mamusha Lemma who also provided support for the IEG mission to Ethiopia in February-March 2011. It was peer reviewed by Gene Tidrick and John Heath reviewed it for the IEG Panel. Yezena Yimer provided administrative support.

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Principal Ratings

	<i>ICR*</i>	<i>PPAR</i>
Outcome	Satisfactory	Moderately Unsatisfactory
Risk to Development Outcome	Moderate	Moderate
Bank Performance	Satisfactory	Moderately Unsatisfactory
Borrower Performance	Moderately Satisfactory	Moderately Unsatisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department.

Key Staff Responsible

<i>Project</i>	<i>Task Manager/Leader</i>	<i>Sector Manager</i>	<i>Country Director</i>
Appraisal	Achim Fock	Karen Brooks	Kenichi Ohashi
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IEG Mission: Improving development results through excellence in evaluation.
About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEG annually assesses 20-25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEG staff examine project files and other documents, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEG peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. The PPAR is also sent to the borrower for review. IEG incorporates both Bank and borrower comments as appropriate, and the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the IEG Rating System for Public Sector Evaluations

IEG's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEG evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEG website: <http://worldbank.org/ieg>).

Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High, Significant, Moderate, Negligible to Low, Not Evaluable.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Preface

This is the Project Performance Assessment Report (PPAR) for the Fertilizer Support Project (IDA Grant H4420-ET, IDA-Credit 4543-ET) under the Ethiopia Emergency Food Crisis Response Program and the Global Food Crisis Response Program.

The project was approved on December 10, 2008 and became effective in the same month on December 23, 2008. A total of US\$250 million were approved for the project. At project closure US\$244.13 had been disbursed. The project closed on July 31st 2010, one month behind schedule.

The report presents findings based on review of the projects' implementation completion report, program paper, legal documents, sector reports, and other relevant material. In addition, an IEG mission to Ethiopia in February-March 2011, made field visits and held discussions with government officials and agencies, project staff, beneficiaries, key donors, and academia.

The assessment has a three-fold purpose: (i) an accountability purpose to assess the project to verify that the Bank intervention has achieved its intended outcome; (ii) a learning purpose to draw lessons of experience to help inform future engagement in this area; (iii) to contribute to a future IEG food crisis response evaluation.

Following standard IEG procedures, copies of the draft PPAR were sent to the Government of Ethiopia for comments. These are included as Annex C.

Summary

Ethiopia is one of the poorest and most food insecure countries in the world. The Government has prioritized agricultural development as a part of its strategy for increasing the country's food security. The Government's Agriculture Development-Led Industrialization strategy, first formalized in 1993, started reforms to generate a supportive macroeconomic framework, liberalize markets and promote the intensification of crops through the use of modern inputs. In the last few years Ethiopia has achieved significant progress in increasing agricultural production. However, much of the increase has come from area expansion rather than by wide-spread productivity growth and food insecurity remains a significant issue for the country.

More recently, Ethiopia's pro-growth development policies have contributed to high average growth but demand has been ahead of capacity expansion in the economy, contributing to high inflation and strong import growth. In 2008, when the Fertilizer Support Project (FSP) was approved, Ethiopia faced multiple challenges: high inflation, widening trade deficit, low foreign exchange reserves, failed 2008 *belg* rains resulting in drought and food shortages affecting some 12 million people.

Among the modern inputs emphasized by the Government to promote agricultural intensification, fertilizer has received priority attention. Ethiopia depends entirely on imports to meet its annual chemical fertilizer demand. In 2008, with foreign exchange reserves in the country at an extreme low and international price of fertilizers at an extreme high, the Government requested the World Bank under the Global Food Crisis Response Program (GFRP) for support to import fertilizers, and FSP came into being as a part of the Ethiopia Emergency Food Crisis Response Program (EEFCRP). EEFCRP had two parts. Part A was additional financing for Bank support to the Productive Safety Net APL II project and Part B was FSP. This assessment covers Part B.

With an appraisal amount of US\$250 million, FSP's development objective was *to contribute to the Government's efforts to ensure an aggregate availability of supply of chemical fertilizers for the 2009-2010 production season, adequate to meet smallholder farmers' priority demands*. The program goal was to increase the likelihood that crop production in 2009-2010 would remain on or near the growth trends of recent years.

Taking advantage of the flexibility in its procedures under the Operational Policy/Best Practice 8.00 and the newly approved GFRP, the Bank responded with alacrity to the emergency situation in the country. The project helped the government import 510,370 MTs of fertilizers. Including imports financed by other donors and left-over stocks from the previous year, a total of 727,637 MTs of fertilizer was available in the country against an actual demand of about 427,000 MTs for the 2009-2010 production season—70 percent more than actually needed.

The logistical and capacity constraints of importing both large quantities of fertilizers and food aid, through the Djibouti port were overlooked during preparation and appraisal. Consequently, congestion at the Djibouti port led to delays and higher costs of the World Food Program's (WFP's) response to the humanitarian crisis, arising from the poor rains in the same year.

Ultimately in 2009, partly because of the sheer logistical challenge at Djibouti, the fertilizer came in late to cover most of the need for the *belg* season which was largely covered from available stocks. One of the main justifications for the rapid preparation of the project was to ensure that the imports supported through it were also available for this season. There was also delay in getting it to farmers for the *meher* season. The delayed rain in 2009 provided for some flexibility in delivery as farmers usually wait to buy fertilizers until the rains come in. Overall, there were shortcomings in the fertilizer being available in time to meet the priority needs of farmers. Cooperative unions and the public enterprise, the Agriculture Input Supply Enterprise (AISE), acknowledged that particularly DAP (that formed more than 80 percent of the fertilizer procured) delivery in the FSP year was less efficient compared to 2008/09 and one quarter of farmers report receiving fertilizer late. Wide discrepancies in data reported from different sources make it difficult to determine whether agricultural production increased as intended by the project.

About 300,000 MTs of the fertilizers were carried forward as leftover stocks after the 2009-2010 production seasons. Better demand estimation, planning and coordination, and a project design that would have agreed on importing an amount of fertilizer in line with actual needs, would have allowed use of the foreign exchange that was locked up in the surplus fertilizer to fulfill other competing demands in the economy in a time of crisis. In sum, this assessment has several concerns about project relevance, efficacy and efficiency, and rates overall project outcome as *moderately unsatisfactory*.

While the project implementation arrangement that allowed the AISE to emerge as the sole fertilizer importer for the country may have contributed to timely allocation of foreign exchange and procurement of fertilizers, the whole effort put into promoting fertilizer marketing reform by the Bank over more than a decade, was set back. Many of the cooperative unions that had also been importing fertilizers before the FSP are no longer doing so and are now engaged only in its distribution. Their distribution profit margin is determined upfront by the Ministry of Agriculture and Rural Development when it sets the fertilizer price to be charged at the primary cooperative level. At the time of the IEG mission in February-March 2011, AISE was still the sole importer and stakeholder interviews revealed that this arrangement may have come to stay. Further, the loss of importing experience and associated revenues for these cooperatives could affect their capacity to provide other services to their members and in the longer run compromise the effectiveness of the fertilizer distribution system. The program goal was ultimately to keep crop production at or near the trend level in 2009/10 and these changes that have occurred in the fertilizer distribution system have increased the risk that such an outcome may not be maintained in the coming years. Therefore risk to development outcome is rated *moderate* even though this was an operation with a limited, time-bound objective.

The assessment rates both Bank and Borrower performance as *moderately unsatisfactory* because of issues related to inadequate attention to competition with food aid, weak due-diligence on demand-estimation, shortcomings on financial management, safeguards and delayed attention to monitoring and evaluation during implementation. The project's Environment and Social Management Plan came too late to allow for environmental and health safety mitigation measures to be taken in distributing fertilizers. It showed that

many fertilizer stores did not observe the national standards and requirements for storage and the health safety situation got worse as one moved from main stores at urban centers to those held by cooperatives/unions at community level (i.e., primary cooperative stores).

Building on the project experience this assessment identifies four major lessons:

- The risk of a short-run emergency response compromising a long term World Bank supported reform effort should be assessed at design. Steps to bring the reform effort back on track if needed after the emergency should be identified.
- Health safety and environmental implications need particular attention in emergency projects such as FSP since their rushed implementation schedule often does not allow for mitigation plans to be put in place before implementation.
- Inadequate attention to the limits of country capacity and effective coordination with agencies, such as WFP, that have traditionally been in the forefront in dealing with food crisis situations can hamper both the timeliness and effectiveness of the food crisis response.
- A more sophisticated system of estimating demand, including an estimate of the optimum level of strategic fertilizer reserves between one season and the next would be important for ensuring efficiency of resource use in Ethiopia which is entirely dependent on centralized imports for its fertilizers.

Vinod Thomas
Director-General
Evaluation

1. Country and Project Context

Country Context

1.2 Ethiopia is one of the poorest countries¹ in the world and food insecurity defined as the "lack of access to sufficient food for an active healthy life"² has long plagued the country's poor. Between 5 to 7 million Ethiopians suffer from *chronic*³ food insecurity and devastating recurrent droughts that occur every few years lead to wide variations in the number of those facing *transitional or acute*⁴ food insecurity at any given time. The country is one of the world's largest recipients of food aid which bridges the gap between available food supply and demand. Food aid has averaged about 700,000 metric tons (MTs) annually over the past ten years (IFPRI 2007).

1.3 Making Ethiopia food secure is a major Government development goal and one of the most important steps taken by the Government in this direction is prioritization of agricultural development. The agriculture sector in Ethiopia accounts for about 40 percent of national GDP, 85 percent of employment and 90 percent of exports. The agricultural development-led industrialization (ADLI) strategy was formalized in 1993. It emphasizes national food self-sufficiency and development through increased agricultural growth driven by the commercialization of smallholder production and stronger linkages with Ethiopia's emerging industrial sector (Spielman and others 2009). In the 1990s, ADLI also started reforms to generate a supportive macroeconomic framework, liberalize markets and promote the intensification of crops, through the use of modern inputs, such as seed and fertilizers (*ibid*). Over time, the ADLI strategy has been further developed and fine-tuned, for example, in the Plan for Accelerated and Sustained Development to End Poverty (PASDEP), Ethiopia's strategic framework for the five-year period 2005/06-2009/10 (Dercon and Zeitlin 2009).⁵ The Government also has a separate food security strategy which is embedded in the ADLI. Apart from emphasizing direct food production, the food security strategy supports voluntary resettlement, income diversification and a productive safety net program (PSNP) to provide direct cash/food transfer to vulnerable households.

1.4 In the last two decades, Ethiopia has achieved significant progress in its social and economic indicators and, particularly in the last few years, agricultural production is reported

¹ At US\$350, Ethiopia's /capita income is significantly lower than the Sub-Saharan African average of US\$1,077 in FY 2009 (GNI, atlas Method).
<http://intranet.worldbank.org/WBSITE/INTRANET/INTCOUNTRIES/INTAFRICA/INTETHIOPIA/0,,menuPK:295839~pagePK:145893~piPK:147168~theSitePK:295830,00.html>

² This shorter definition is derived from the following longer one: "The commonly accepted definition of food security is—when all people, at all times have physical, social and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life." World Bank 2007a.

³ Chronic food insecurity arises because of the inability of the poor to produce or purchase sufficient sustenance.

⁴ Transitional or acute food insecurity arises due to catastrophic events such as droughts or food price increase.

⁵ In December 2010, the Government established the Ethiopian Agriculture Transformation Agency (ATA) with the primary aim of promoting the transformation of the agriculture sector by supporting existing structures of government, private sector and other non-governmental partners to address systemic bottlenecks to delivering on a priority national agenda for achieving growth and food security.

to have increased significantly. Official (Central Statistical Agency (CSA)) sources indicate that between 2004/05 and 2008/09, cereal production, which accounts for about 70 percent of total crop production, increased at 12.2 percent annually and total grain production (cereals, pulses, oilseeds) increased at about 11.8 percent annually (IFPRI 2011). However, for the country as a whole, both chronic and acute food insecurity remains a significant issue. Land and environmental degradation have been challenges to agricultural development⁶ and the increasing food demand because of a rapidly growing population has made it difficult for supply to keep pace.^{7, 8}

1.5 Ethiopia is endowed with significant water resources, which remain largely unexploited (World Bank 2006a). Despite the priority given to agricultural development, access to irrigation remains very limited leaving crop production heavily dependent on the highly erratic rainfall. Most small farmers continue to also rely on traditional technologies and produce primarily for self-consumption (Braun and Olofinbiyi 2007).⁹ Despite the push for greater use of modern inputs through government policies and extension programs, the inherent features of Ethiopia's small holder agriculture sector¹⁰ have not changed substantially. Much of the increase in production over the past decade is explained by area expansion rather than by wide-spread productivity growth.

Box 1. Global Food Crisis Response Program (GFRP)

On May 29th, 2008 the Bank's Board of Executive Directors approved a new \$1.2 billion rapid financing facility to address immediate needs arising from the food crisis. In response to high demand, the Bank increased the GFRP ceiling to \$2 billion on April 16, 2009, allowing for accelerated processing of an additional \$800 million in IDA/IBRD resources over the next year. GFRP provided an umbrella for rapid Bank support to address different aspects of the food crisis. Both development policy and rapid response investment lending could be used to provide support for various activities, among others, those contributing to enhancing household food security by strengthening targeted safety nets and maternal and child health and nutrition services, including cash transfer programs; emergency financing for food imports; support for import of agricultural inputs; measures aimed at stabilizing highly volatile food prices and assisting governments to make better use of risk management instruments in dealing with food price unpredictability; enhancing the consistency between emergency price policy measures and longer term measures requiring for lasting solutions. Information on the program is available at <http://intranet.worldbank.org/WBSITE/INTRANET/SECTORS/INTARD/INTGFCRP/0,,menuPK:5042183~pagePK:64168324~piPK:64168339~theSitePK:5042148,00.html>

Source: program website and World Bank 2008

1.6 Though several bilateral and multilateral donors are active in the country, the World Bank has been a key development partner of Ethiopia providing considerable support to the

⁶ Agricultural productivity growth has been undermined by serious land degradation.....Average estimates of productivity loss due to soil degradation are on the order of 2-3 percent annually (World Bank 2007).

⁷ The rapidly increasing population also further contributes to degradation of the natural resource base. Total fertility was about three times the replacement rate, which makes it one of the highest in Sub-Saharan Africa (Minas 2008).

⁸ "The population pressure and its impacts through access to land holdings, land resources management and degradation is an important factor that affects the performance of the sector." Adenew 2009.

⁹ For example, oxen-drawn plough is the major source of power for ploughing (Adenew 2009).

¹⁰ Small holder agriculture produces 90 percent of production and accounts for 95 percent of cultivated lands.

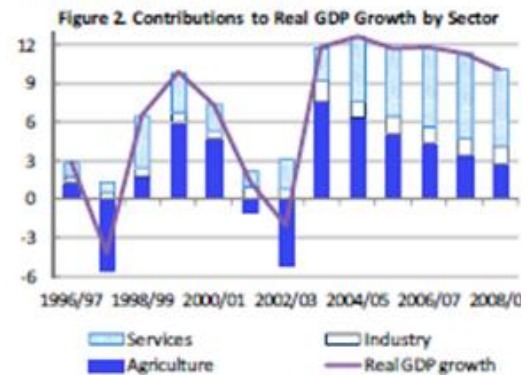
country overtime.¹¹ Reducing vulnerability and enhancing growth have long been Bank goals as reflected in the country assistance strategies (CASs) for the periods 2003-2005 and 2008-2011. Emergency support has also been provided over the years—for recovery and rehabilitation after the war with Eritrea, for drought relief and most recently in 2008 as a part of the Bank’s Global Food Crisis Response Program (GFRP) (Box 1).

Figure 1. Growth in the Ethiopian Economy

Ethiopia has seen strong growth in recent years...



...initially led by agriculture, but increasingly by services.



Source: IMF 2010

Project Context

1.7 The strong growth in the Ethiopian economy in the past six years as reflected in Figure 1, has come largely from government-led development policies that have emphasized not only agricultural development but also public investment and nonfarm private sector development (IMF 2010). These policies have contributed to high average growth of 11.5 percent (as per official statistics) since 2003/04 but demand has been ahead of capacity expansion, contributing to high inflation and strong import growth (IMF 2009). While some of the import dependency is explained by the need to build large infrastructure, the considerable increase in import of consumption goods, largely a consequence of Ethiopia’s small and stagnant manufacturing sector, has also played a role (World Bank 2008c).

1.8 Since Ethiopia is entirely dependent on imports to meet its annual chemical fertilizer demand, the emphasis on agricultural development has also added to the increasing import bill. Typically loans, grants from donors, and government resources have provided for the foreign exchange needed for fertilizer imports. The state-owned Agricultural Input Supply Enterprise (AISE) plays the major role in fertilizer import and marketing. However, since,

¹¹ IEG’s recent Country Assistance Evaluation for the period 1998-2006 found that Ethiopia is among the World Bank’s largest IDA-eligible borrowers in Sub-Saharan Africa for a total net commitment of US\$2 billion as of end-FY07 (IEG 2008a).

2005, an increasing number of cooperative unions were involved in import and distribution of fertilizers to both union and non-members.¹²

1.9 In 2008, when the Fertilizer Support Project (henceforth FSP) was approved, Ethiopia faced multiple challenges. Beginning in 2006/07, inflation began to accelerate in the country, and there were significant increases in the nominal prices of both food and non-food items.¹³ In addition to the high inflation, widening trade deficit and low foreign exchange reserves, the 2008 *belg* rains failed (Box 2 for details on the *belg* and *meher* cropping seasons in Ethiopia). The poor *belg* harvest and the resulting drought and food shortages affected some 12 million people and added to the high food inflation in the country.¹⁴ Nominal wholesale prices of teff, maize and sorghum all rose by more than 90 percent between March and August 2008; real prices of these commodities rose by 30 to 40 percent (Rashid and Dorosh 2008). At this time Ethiopia had one of the highest food price inflation rates in the world (World Bank 2008). Steep increases in international prices for key imports, such as fertilizers, further increased the strains on the Ethiopian economy and pushed foreign exchange reserves to critically low levels—equivalent to just 1 month of imports of goods and services at end-November 2008 (IMF 2009).¹⁵

1.10 The Government took several measures to deal with the crisis: it took steps to reduce aggregate demand through, among other measures, reducing federal expenditure as discussed elsewhere (e.g. in World Bank 2008c); it imported about 300,000 tons of wheat which it sold in urban areas at below domestic market price to meet the food security needs of the vulnerable urban poor; its productive safety net program provided supplementary food and cash assistance to 4.4 million families; it launched an appeal for emergency food relief.¹⁶ To prevent further worsening of the food security situation in the coming year it also continued to simultaneously strive to increase agricultural production. With reserves at an extreme low, the Government requested foreign exchange support to import fertilizers from the World Bank under the GFRP, and the FSP came into being as a part of the Ethiopia Emergency Food Crisis Response Program.

¹² Annex B Table B1 documents the shifting roles of public and private actors in the fertilizer market.

¹³ Between January 2007 and March 2008, the overall consumer price index (CPI) rose by 35 percent; food prices rose by 47 percent and non-food prices rose by 18 percent (Rashid and Dorosh 2008)

¹⁴ After three successive good harvests in 2005, 2006 and 2007, Ethiopia experienced a poor *belg* harvest in 2008. Although the *belg* rains only account for a small amount of total agricultural production, they have a significant impact on long cycle crop production since these rains provide the seedbed moisture for the long-cycle *meher* crops. The poor *belg* harvest of 2008 precipitated a dramatic rise in food prices (USAID 2010).

¹⁵ “International prices of oil and fertilizers rose by 150 percent and 75 percent, respectively. This contributed to a doubling of the oil and fertilizer import bill in 2007/08 to almost US\$2 billion (about 8 percent of GDP). A 28 percent rise in prices of coffee, the largest export item, provided only a partial offset to the trade balance.” IMF 2009.

¹⁶ “In 2009 two consecutive poor *belg* cropping seasons (March-May) prompted the Ethiopian government to launch an emergency appeal in October for 6.2 million people. The June-September rains started late were erratic and ended early in some areas. This resulted in below normal harvests in *meher* (November–December) cropping areas. It also resulted in shortages of pasture and water which affected the reproduction and productivity of livestock particularly in the water-deficient areas of Afar. All this combined with high staple food prices, poor livestock production and reduced agricultural wages meant elevated food insecurity was a constant feature in 2009. By the end of the year 6.2 million people were in need of emergency food relief.” WFP 2009.

Box 2. Cropping Seasons in Ethiopia	
<i>Belg</i> season	<i>Meher</i> season*
Areas: North and east Shoa, southern parts of SNNPR**, west Hararghe	Areas: Eastern and southern Tigray, eastern and western Amhara, north and east Shoa, western Oromia, midlands and highlands of Bale, parts of Benishangul Gumuz, Gambella, southern and eastern SNNPR
Normal rains: February-May The <i>belg</i> rains cover the months of February to May in most <i>belg</i> growing areas though some areas have early rains and others have late rains. In addition to regional variability in rainfall distribution, there is also unpredictability.	Normal rains: June-September The long-rainy season normally covers the months of June and September. However, there is regional variability and unpredictability. The rains may start late and stop early during the flowering and grain filling stages of the crops. In some places, there are unseasonal rains in October and November.
Planting: During the <i>belg</i> season different crops are planted at different months. For example, barley and wheat are planted in February and maize in May. <i>Despite the regional variability and different crop planting time and requirement, for the belg season as a whole, fertilizers should be available to farmers around January.</i>	Planting: differs according to crops. Maize and sorghum in April and May. Teff is planted in July when the soil is wet. <i>Despite the regional variability and different crop planting time and requirement, for the meher season as a whole, fertilizers should be available to farmers around May before the rains start and road access becomes difficult.</i>
Food deficit periods: March-May	Food deficit periods: July-September
Harvesting: late May-July depending on crops	Harvesting: September-March depending on crop types and rainfall conditions
Crops: Cereals and pulses	Crops: Cereals and pulses
Some general facts: <ul style="list-style-type: none"> • High fertilizer prices, because of which farmers usually use less than the recommended rates. Farmers experiment with applying inorganic fertilizers with organic manure. • Farmers buy fertilizers when the rains start. • Late <i>belg</i> rains delay land preparation for the <i>meher</i> season and prevent long-seasons crops of maize and sorghum. • When <i>belg</i> rains are late, farmers substitute high yielding crops of maize and sorghum with low yielding crops of barley and wheat. 	Some general facts: <ul style="list-style-type: none"> • Because of high fertilizer prices and shortage of improved seeds, farmers usually use less than the recommended rates. Farmers experiment with applying inorganic fertilizers with organic manure. • Farmers buy fertilizers when the rains start. • Late onset, erratic distribution and early secession of rains is common. • Dry periods may coincide with flowering and grain filling stages of cereal and pulse crops.
<i>Source:</i> compiled from FAO/WFP 2010, DSA 2010, IFPRI 2011, Project Environment and Social Assessment Report 2009 and IEG field interviews <i>Note:</i> * Small holder cereal production in the <i>meher</i> season dominates cereal production in Ethiopia and accounted for 93 percent of national cereal production in 2007/08. **SNNPR Southern Nations Nationalities and people's Region	

2. Project Objectives, Design and Implementation Experience

Objective

2.1 There were two parts to the Ethiopia Emergency Food Crisis Response program each of which had a program goal and a development objective. Part A was additional financing for Bank support (Productive Safety Net APL II) to the PSNP¹⁷ and Part B was the FSP. The program goal for the former was to ensure that the needs of chronically food-insecure households are adequately addressed and for the latter was to increase the likelihood that crop production in 2009/10 would remain on or near the growth trends of recent years. The development objective of Part A was to contribute to the Government's efforts to maintain adequate coverage of the Ethiopia's PSNP in 2009 thereby ensuring that the objectives of the PSNP project were met. The development objective of Part B as stated in the program document [and the Financing Agreement] was *to contribute to the Government's [or Recipient's] efforts to ensure an aggregate availability of supply of chemical fertilizers for the 2009-2010 production season, adequate to meet smallholder farmers' priority demands.* This assessment covers Part B.

Components, Costs and Timing of FSP

2.2 FSP had two components:

- **Fertilizer Component (US\$249.60 million at appraisal and US\$243.84 million at completion):** to ensure the availability of foreign exchange for the import of fertilizers to meet the demand for the 2009/10 production seasons.
- **Monitoring and Evaluation (M&E) Component (US\$0.4 million at appraisal and US\$0.29 million at completion):** to track the fertilizer imports through the various steps along the distribution system and to assess the impact of the project.

2.3 The Project Development Objective (PDO) and components were not revised during implementation. The project was not co-financed. However, the African Development Bank (AfDB), and the Government of Japan provided parallel support. According to the completion report for the FSP, the AfDB allocated US\$59.6 million which allowed for procurement of about 158,000 MTs of fertilizers¹⁸ and the Government of Japan provided about 28,000 tons of urea to Ethiopia in 2009, a substantially larger donation than Japan was providing in previous years.

2.4 The FSP was financed through re-deploying resources from 12 projects, including several agricultural and rural operations, as well as new commitments from the World

¹⁷ The additional financing was to fill the gap that emerged as result of the food price inflation and drought in 2008.

¹⁸ According to the project documents obtained from AfDB the letter of Agreement between the Government of Ethiopia and the AfDB became effective on November 27, 2008. The documents also show that part of the fertilizer was procured for the 2009 production season and the balance for the 2010 production season.

Bank.¹⁹ Of the appraisal amount of US\$250 million, US\$127.50 million was IDA Grant and US\$ 122.50 million was IDA credit. It was agreed with the Government that the bulk of the local currency equivalent would be used to lower its domestic borrowing—so that no new money is created in the system. Due to SDR appreciation against the US\$ during project implementation, an additional US\$9.3 million was available to the Government. Actual project cost was US\$244.01 million. Approximately US\$ 6.2 million could not be used to buy fertilizer in 2010/11 as intended by the Government as the tender was not advertised internationally. Based on this and because of the appreciation of the SDR against the US\$ undisbursed funds amounting to about US\$15.5 million were cancelled. At the request of the Government, these are to be transferred to the Protection of Basic Services (PBS) Project.

2.5 The project inception started around May 2008. It was approved in December 2008, became effective in the same month, and was to close on June 30, 2010. The Board presentation of the project followed streamlined procedures in line with the GFRP program. Shortly before closing the project was formally restructured and the closing date was extended by one month to July 31, 2010 to ensure completion of the project and to allow for time to process the cancellation and reallocation of funds. The PDO and performance indicators did not change.

Implementation Experience

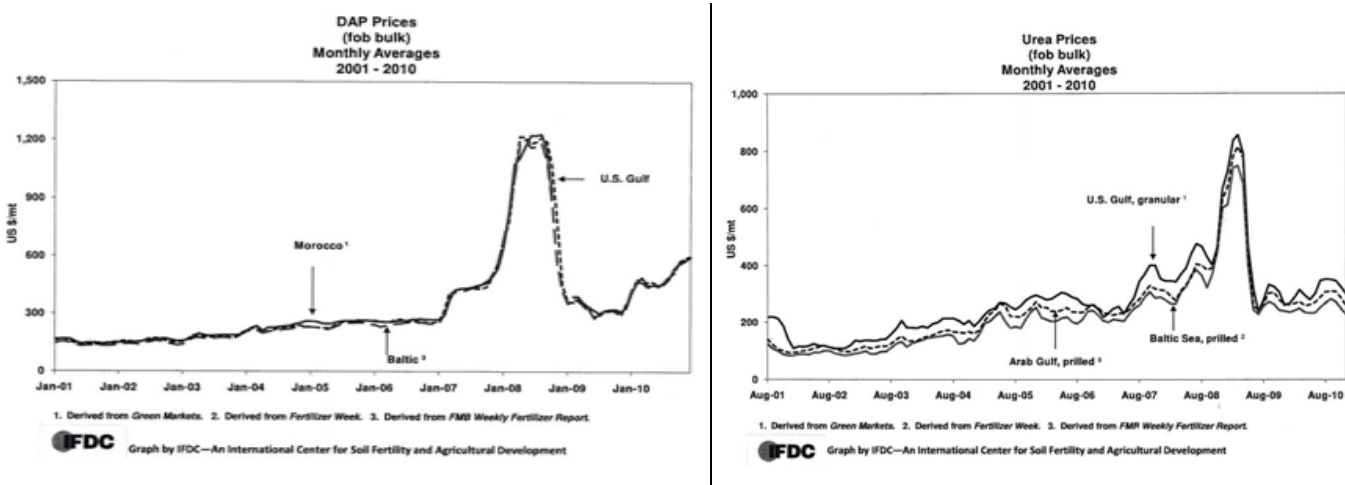
2.6 The Ministry of Agriculture and Rural Development (MoARD) was the main project implementing agency, but in reality, several Government departments/parastatals were involved in project implementation: MoARD, which was responsible for the financial management aspect of the project; AISE, which was responsible for procuring the fertilizer; Ministry of Finance and Economic Development (MOFED), which was responsible for depositing the Birr equivalent amount of the credit and grant of the project in the treasury account; National Bank of Ethiopia (NBE) which was responsible for availing the foreign currency account; and the Commercial Bank of Ethiopia (CBE), which was responsible for opening the letter of credit for fertilizer procurement.

2.7 The size of the main fertilizer component was determined by the world fertilizer prices prevailing at the time of project conception (mid-2008) and the estimated local demand. World prices, for both di-ammonium phosphate (DAP) and urea, were at an all time high then (Figure 2). However, prices, for both commodities, began dropping dramatically around November 2008 (Figure 3). Ultimately, the resources allocated under the project enabled the government to import about 510,000 tons of fertilizers instead of the planned 400,000 tons, contributing to an oversupply of 70 percent.

2.8 In the short project lifetime implementation faced four serious challenges, two of which had implications for the project's outcome, and two of which were related to safeguard and project financial management.

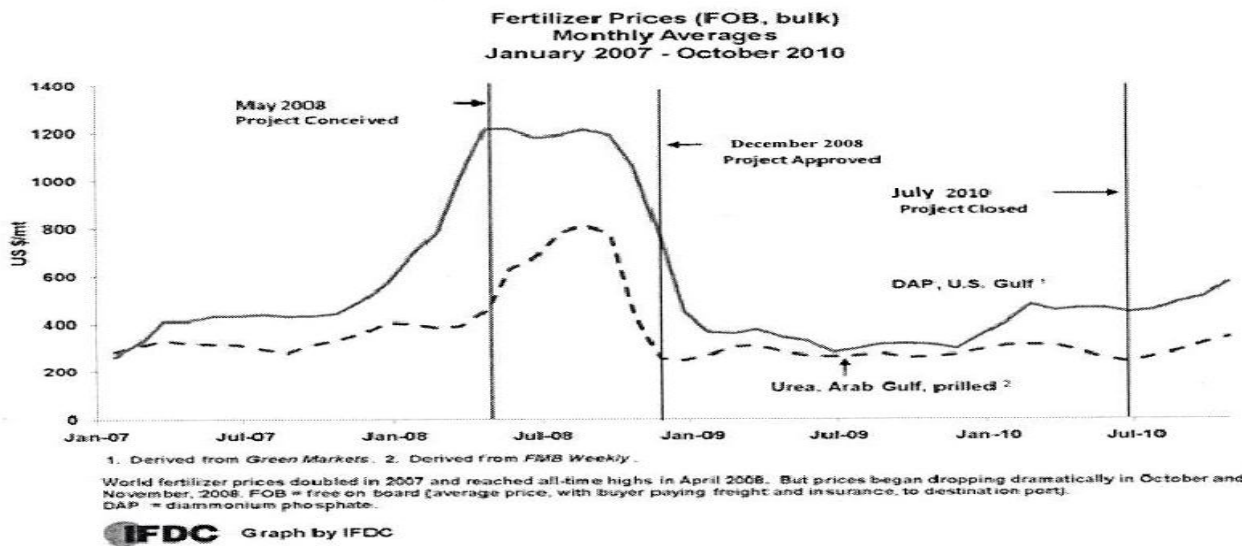
¹⁹ Annex B Table B4 includes a list of the 12 projects and the amounts redeployed.

Figure 2. World Prices for DAP and urea



Source: IFDC at http://www.ifdc.org/getdoc/f96e7b52-d2dc-4f4f-8c2a-be41252e6311/Fertilizer_Statistics

Figure 3. International Fertilizer Prices and FSP Project Implementation



Source: from the ICR but corrected for project approval month

PORT CONGESTION AT DJIBOUTI

2.7 Port congestion at Djibouti and insufficient capacity for fertilizer trucking was a considerable constraint during the early months. Internal documents show that the delivery at Djibouti of the first 150,000 MTs of DAP was scheduled to be completed by February 17 and the first 75,000 MTs of urea by early March 2009. This was delayed and only about 60,000 MTs was in the country by mid-March, the time of the first supervision mission, though none of it had reached the farmers by then. Congestion at Djibouti and a shortage of trucks was to a large extent responsible for the delay in getting it to the warehouses. The port had limited capacity for discharging the fertilizers. Initially, of the 12 berths, only two were allocated for

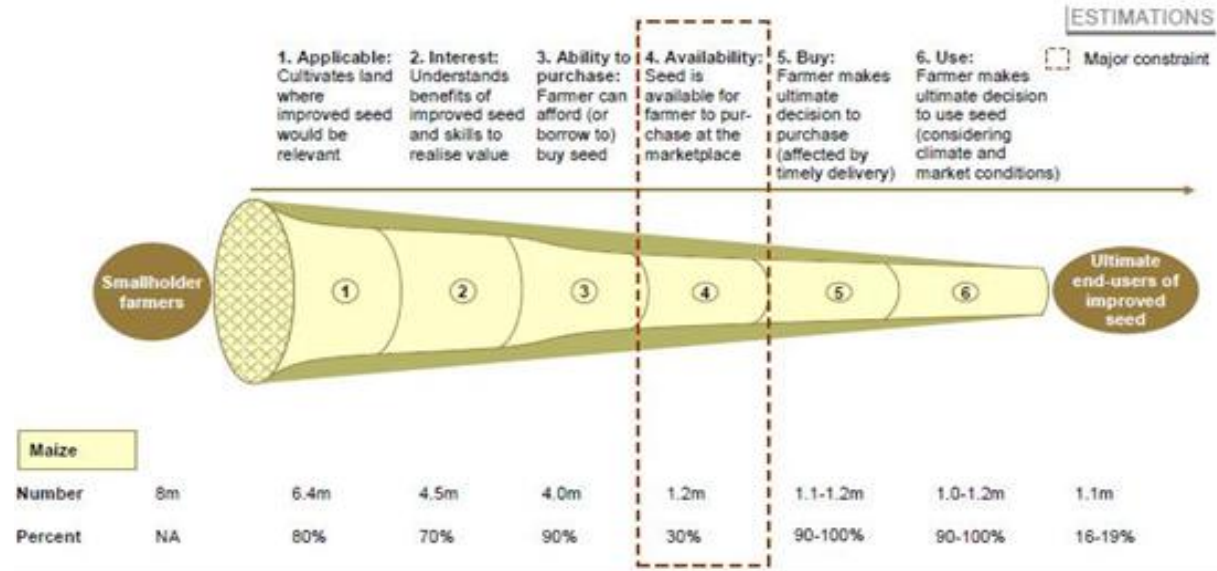
bulk cargo and only one of these was allocated for discharging fertilizer. Discussions were held for several weeks with port authorities to use the second berth for discharging the fertilizer but there was competition with other commodities including food grain and cement. A Steering Committee chaired by MoARD and including the Minister of Transport and Communication was established to address the problem. The Bank followed up with the Ethiopian Government that had committed to give priority to fertilizer import.²⁰

INADEQUATE AVAILABILITY OF IMPROVED SEEDS

2.8 The inadequate availability of improved seeds was a critical problem during the implementation period. Ethiopia currently faces a large gap between the country's production of commercial seeds and farmers' demand, knowledge, access and usage of these seeds (IFPRI 2010b). CSA estimates show that while the total quantity of improved seed supplied nationally has increased since 1996/97, farmer use of improved seeds covered an average of only 4.7 percent of cropped area in 2007/08 (Spielman and others 2010). Between fertilizers and seeds, the expansion of seed use has been much more limited, reflecting the government's greater focus on increasing the use of fertilizer as the key component of the new technology (World Bank 2006a). During project implementation supervision missions reported on the critical shortage of improved seeds, particularly maize (see Figure 4). Since the yield response of fertilizer depends to a large extent on the quality of seeds used this shortage potentially undermined the effectiveness of fertilizer use. Annex B Box B 1 notes the challenges in the seed sector.

²⁰ A consultant report (Hine 2009), based on a visit to Ethiopia and Djibouti between April 17th-24th 2009 notes that with multiple arrivals, fertilizer vessels were encountering major delays in securing berths. Typical fertilizer consignments ranged in size from 13,000 to 25,000 tons and they could be in the port from five days to three weeks. One of the two major fertilizer supply companies, Yara, complained that they faced about \$1 million in demurrage charges. With the Ethiopian government expressing a priority for fertilizer discharge over other cargoes Djibouti port allocated four berths for unloading fertilizers. A coordination committee to deal with the problem was set up in Addis Ababa together with a committee in Djibouti. Amongst other things the Addis office looked into delays and manning problems at receiving warehouses. The Djibouti committee was chaired by the Ethiopian Ambassador to Djibouti. To ensure sufficient trucks were available for fertilizers at the truck holding park (Pika Dus) outside the port trucks were issued with permits to enter the port and were directed to take the fertilizer. The report notes that the direction to trucks to load fertilizers, whether the driver and owner wants to or not (since higher rates are given for the other cargoes) may cause resentment in trucking companies and other interested parties and could slow down other sectors of the economy.

Figure 4. Estimates of Availability of Hybrid Maize Seeds for Farmers



Source: IFPRI 2010B

THE SAFEGUARD CHALLENGE

2.9 The project was an Environment Category B. It was to be implemented in accordance with an Environment and Social Management Plan (ESMP) which was to provide guidance for safe management of the fertilizer consignment expected to arrive in the country, relevant institutional capacity building measures as well as relevant environmental awareness creation and training programs. According to the Financing Agreement the ESMP was to be prepared and provided to the Bank no later than 2 months after the project effectiveness date. However, the Social Assessment (ESA) including the ESMP was not finalized till late in the year. Although the Bank’s non-objection to the hire of a consultant for the preparation of the ESA/ESMP was issued on December 10, 2008, the actual hiring process was delayed and distribution of fertilizers was started without the Plan. The finalized Assessment and Plan was sent to IDA only on 23 December 2009, and disclosed only in January, 2009. In reality, the ESMP came too late to allow for mitigation measures to be taken in distributing fertilizers. The ESMP report found that many of the fertilizer stores visited by the consultant did not observe the national standards and requirements for storage. The report showed that the health and safety situation got worse as one moved from main stores at urban centers to those held by cooperatives/unions at community level (i.e., primary cooperative stores).²¹

²¹ The footnote provides several examples from the project Environmental and Social Assessment:

“Most fertilizer stores do not comply with health and safety standards established by Ethiopian Standard (ES) for fertilizer products, thus resulting in to health and safety hazards to staffs and laborers working in them.” (page 42)

“During field assessment, the Consultant was able to observe that AISE main stores are built following international norms having acceptable size, structural fitness, roofing heights allowing enough aeration, etc. Most of these main stores contain only fertilizer products under their roof, thus separating storage of fertilizer from cereals or agrochemicals. However, the Adama main store (located within the branch office premises) contains some agrochemicals stored together with fertilizer,

FIDUCIARY CONCERN

2.10 Improper drawdown of the Designated Account (DA) was a significant financial management concern in the early months of implementation. As per the implementation arrangements, MoARD was to open a DA for the project at the NBE to be used for both the Fertilizer and the M&E components. The US \$250 million was credited to the Government's central treasury account. However, the entire amount was immediately made available to the CBE with the local currency equivalent transferred to the country's central treasury account. This was a violation of the Financing Agreement as the Commercial Bank and the treasury should have received funds only in line with actual need. The DA needed to hold the amount for the M&E Component and the US\$5,384,400 of unused balance for the Fertilizer Component, to be used for fertilizer import in 2010. The Bank followed up and the MOFED agreed to repay the money into the DA and to send a confirmation letter as to the use of funds and transfer of local currency equivalent into the central treasury account in keeping with the Financing Agreement. This issue was resolved only in October 2009.

3. Relevance

Relevance of Objectives

3.1 The foreign exchange support to the Government to import fertilizers came at a time when the country's reserves were at an extreme low (paragraph 1.8). There is no doubt that the country's ability to procure fertilizers would have been restricted without the support from the World Bank and other development partners. Given the shortage of foreign exchange the project objective of contributing to the government's efforts of ensuring an aggregate availability of supply of chemical fertilizers was *substantially* relevant. The program goal of increasing the likelihood that crop production remains near the growth trend of recent years was also *substantially* relevant. Increasing productivity of agriculture was a focus area for the 2008 CAS which recognized its importance both for strengthening the basis for growth of the economy and for reducing the food insecurity of the poor.

Relevance of Design

3.2 The project design was appropriately simple with two components—a large Fertilizer Component and a much smaller M&E one. It is creditable that even in an emergency response intervention the design gave considerable emphasis to M&E including tracking of

thus endangering health conditions of workers in the store. The Modjo main store compound also contains empty barrels of pesticide which according to the storekeepers have been left unattended for several years and as result bringing serious environmental as well as health risk to people working in the stores and the surrounding environment.” Page 18-19.

“Physical injuries and blackening of the shoulder on the laborers while loading and unloading fertilizer, respiratory ailments such as breathlessness, cough and whizzing (whistling) due to dust in the store and outside the store as a result of truck movements, and skin and eye allergies due to contact with fertilizer products. All these are happening because laborers are not provided with required protective gears and lack of training on safety and health precautions. These facts were revealed as result of interviews we had with laborers and store keepers at AISE central stores visited. However, in order to determine the exact magnitude of the problem, a detail study is required in the future.” Page 7. Project Environment and Social Assessment August 2009.

the quantity of fertilizer imported, its distribution, and timeliness of its availability to farmers.

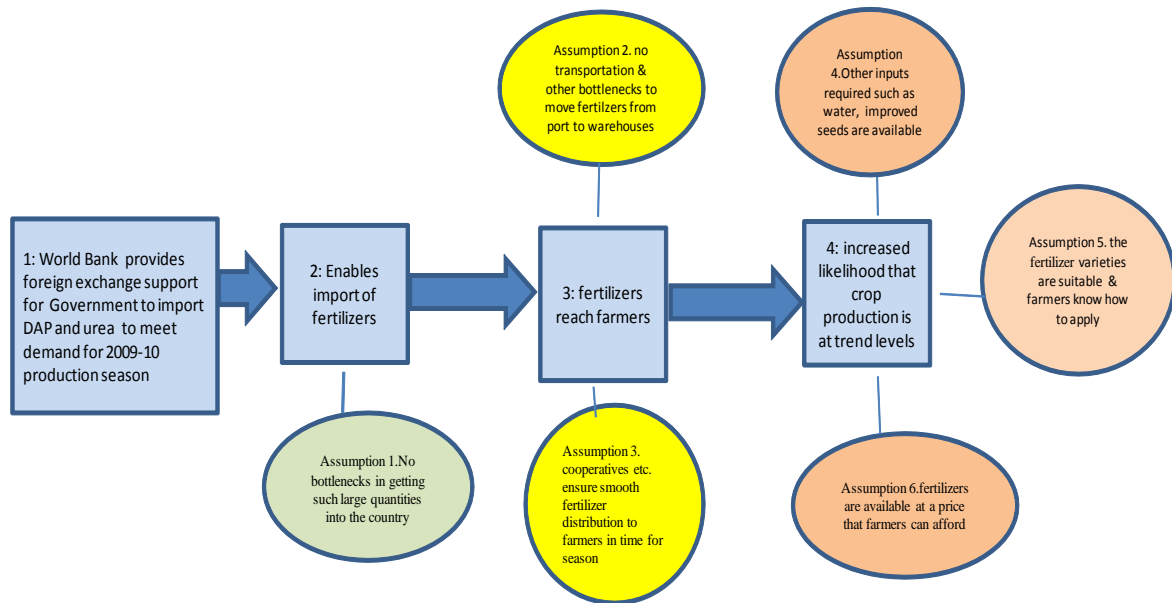
3.3 Figure 5 presents the assumed results chain for the project that shows several conditions which needed to hold for fertilizers to actually produce the desired production impact. These conditions include among others: availability of complementary inputs such as improved seeds that determine the yield response to fertilizers; adequacy of soil moisture; fertilizers available are the most suited to the kinds of soils; farmers have the technical know-how to apply fertilizers in appropriate quantities and at the right time in the crop cycle; there are no bottlenecks to actually getting the fertilizers into the country and distributing them to farmers; farmers are able to buy the fertilizers or have access to credit to pay for them.²² Many of these issues have been discussed and their importance recognized in the project document itself, and in the Bank's analytical work (e.g. World Bank 2006a and Christiaensen and Demery 2007).^{23 24} The Bank's analytical work also shows (Table 1) that yield loss can be substantial because of fertilizer application in a year of poor rainfall. But for various reasons the Borrower did not ask for support in all these areas.²⁵ FSP was an emergency response and a complex project with several components would not have been appropriate. The Government viewed support from the Bank for fertilizer procurement as most critical in the emergency.

²² Inadequate complementary inputs and access to water, credit, extension among other factors were, at the time of project approval, and continue to be a critical constraint to increasing agricultural production and productivity (see Annex B Box B2 for details). It is not surprising therefore, that despite a fivefold increase in fertilizer application (kg/ha), national cereal yields have only increased 10 percent since the 1980s, and relative benefits of chemical fertilizer application have decreased over time (IFPRI 2010).

²³ In fact, the Bank's draft report on Policies for Pro-Poor Agricultural Growth (World Bank 2006a) showed that based on current usage patterns fertilizer use did not appear to be profitable in Ethiopia. It demonstrated that "The returns to fertilizer use thus on average are less than the associated cost, implying inefficient use of fertilizer. Further analysis of the average net benefit at each of the five quintiles of fertilizer use intensity shows that in each group, the average farmer is not using fertilizer profitably."

²⁴ The program document while noting that extension had been significantly strengthened in recent years and the Government with support from other development partners such as FAO, GTZ and USAID has launched new initiatives to boost crop production through improved seeds, also acknowledges that "...improvements are needed in the rural credit system, the extension system, and the provision of seeds and other complementary inputs" pg. 20.

²⁵ For example, while recognizing the importance of seeds the program document noted (footnote 2 page 6) "... since the value of the seed sector is much smaller than that for fertilizer and since seeds are largely produced locally, many solutions are being found without major external assistance or importation."

Figure 5. Results Chain and Attendant Assumptions

Source: IEG

3.4 There were however, three serious design weaknesses that are discussed below.

LOGISTICAL CHALLENGE

3.5 The logistical and capacity constraints of importing both large quantities of fertilizers and food aid, through the Djibouti port were overlooked during preparation and appraisal. Consequently, congestion at the Djibouti port led to delays and higher costs of the World Food Program's (WFP's) response to the humanitarian crisis, arising from the poor rains in the same year (paragraph 1.10 and Box 3). The fact that coordination with WFP on this critical aspect was overlooked despite the importance given to it in the Program document for the GFRP (World Bank 2008) clearly indicates the enormous pressure on the Bank to act urgently in the emergency situation.²⁶ The logistical challenge delayed both fertilizers and food-aid (see also section on Unintended Outcomes in Chapter 6).²⁷

²⁶ "The proposed Global Food Crisis Response Program (GFRP) facilitates a rapid and flexible Bank response, while supporting the evolving coordination role of the United Nations Task Force on the Global Food Crisis established in late April 2008 in Berne and the World Food Programme (WFP)'s work on the emergency delivery of food and relief operations to the worst hit countries. It provides a framework for the Bank to coordinate its response to the crisis in partnership with other multilateral organizations and donor agencies." Paragraph 4 page (i)

[At the 2008 Spring Meetings] "The Governors also made clear that the World Bank needs to work pro-actively with other stakeholders, including the UN system, During the same meetings, the President of the World Bank Group emphasized the key emergency role of the World Food Programme (WFP) in distributing food aid and the need for donors to better support financial shortfalls for the WFP arising from rising food procurement costs." (Paragraph 2, page 1)

"World Food Programme (WFP) is the UN Agency whose mandate most directly addresses the food price crisis." (paragraph 44, page 12). World Bank 2008.

²⁷ To give some sense of magnitude according to the 2008 CAS, "The Bank's program for FY 2008 is based on an initial IDA allocation of SDR 391 million, equivalent to \$635 million at current exchange rates." CAS 2008. Though the FSP

Box 3. Djibouti Port: Conflict between Fertilizer Imports and Food Aid in 2009

Ethiopia is a land-locked country and 90 percent of its rapidly growing import requirements are met through the port at Djibouti. The port has modern discharge and loading facilities, but limited berth capacity, a shortage of trucks, and customs procedure delays can tax its capacity during busy times. Though Port Sudan and Port Berbera in Somaliland could also serve Ethiopia, they are used to a very limited extent. Port Sudan is only used for export of sesame and other oilseeds and Port Berbera, the smallest of the three, is a major livestock export point for the whole region. Ethiopia has been importing fertilizers for quite some time now through Djibouti and usually there is no conflict between fertilizer import and food aid that also comes in through that port. This is so because both commodities come in at different times in the year. For example, in 2008 fertilizer imports came in between January and May and about 80 percent of the food aid came in between June and December.

2009 was a difficult year with the high food and fuel prices and poor rains. Fertilizer imports were high because of the World Bank supported project and food aid requirements were also high. The number of people in need of emergency food assistance grew from 4.9 million in January to 5.3 million in May, then to 6.2 million in July. In 2009 food aid requirements increased to 740,000 tons from 413,000 tons in 2008. Unlike other years, because of the huge quantity imported, fertilizer imports continued well into August in 2009. As a result, not only was there competition between food aid and fertilizer imports for the facilities at the Djibouti port but also for inland storage facilities and trucks. However, fertilizer got preference in terms of ship discharge, handling, and haulage capacity over food imports.

In early September, WFP reported an ongoing break in the food relief pipeline. The break, initially reported in June, resulted from significant funding shortages and delays unloading and transporting food commodities from the Djibouti Port. Finally WFP had to initiate discussions with the government counterparts about opening corridors into Ethiopia using the ports of Berbera and Sudan for food aid. The Berbera corridor, which goes through Somaliland and the Somali Region of Ethiopia, was opened in April 2009. Port Sudan corridor was opened in May 2009 to serve the northwest of the country.

The Government has now set up the Maritime Affairs Authority to ensure better coordination but the events in 2009 could have been avoided had efforts been made upfront to coordinate activities for food and fertilizer import during a time when both were seen as necessities.

Source: USAID 2009, USAID 2010, WFP 2009, Humanitarian Requirements Document 2009, IFPRI 2011a and evaluation findings.

PROJECT SIZE

3.6 A second design weakness was related to project size. FSP was a large²⁸ intervention financed both by new and re-deployed resources at a time when foreign exchange reserves were critically low in the country. It was not a budget-support operation and its PDO was not linked to providing a specific quantity of foreign exchange. Instead, it was meant to ensure an “adequate” supply of fertilizers “to meet smallholder priority needs.” The project was originally conceived to help import about 400,000 MT of fertilizer. Given that other donors (AfDB, Japan) also provided support and there were over 82,000 MT fertilizers left from the previous year, this amount already appeared an over estimate relative to the consumption of

project amount of US\$250 million was not all new IDA, and came partly from portfolio restructuring nevertheless in terms of total IDA allocations to Ethiopia the Fertilizer project was very large.

²⁸ To give some sense of magnitude according to the 2008 CAS, “The Bank’s program for FY 2008 is based on an initial IDA allocation of SDR 391 million, equivalent to \$635 million at current exchange rates.” CAS 2008. Though the FSP project amount of US\$250 million was not all new IDA, and came partly from portfolio restructuring nevertheless in terms of total IDA allocations to Ethiopia the Fertilizer project was very large.

previous years. In fact, internal documents confirm that the fertilizer need for the 2009 *belg* season was largely met from available stocks from the previous year. FSP's design and size was conceived in mid-2008 when world fertilizer prices were at an all time high (Figure 3). Prices however, started dropping dramatically before the project was approved and became effective in December 2008, and in the event the Ethiopia Government procured about 510,000 MTs and had foreign resources left over to procure fertilizers in 2010. The total available amount of fertilizer in 2009—727,000 MTs from all sources (World Bank, AfDB, Japan and previous year left-over stocks)—turned out to be more than 70 percent in excess of the actual demand (the amount of fertilizer distributed) of 427,000 MTs. While high price volatility and uncertainties may have made it difficult to determine up front the exact amount of resources needed to cover the aspired import quantity, the project could have been designed around an agreed upon realistic quantity of needed imports, leaving flexibility to reallocate potential funding balances to more pressing needs.

THE SOLE IMPORTER ARRANGEMENT

3.7 The third design weakness was related to the arrangement under the FSP that allowed the public sector enterprise, AISE, to emerge as the sole importer. This arrangement may have contributed to more timely allocation of foreign exchange and procurement of fertilizers but, as noted by various stakeholders with whom IEG met and also confirmed by the findings of the DSA report (see paragraph 3.8 below), has set back the whole reform effort being supported by the Bank and other donors over more than a decade. Over the last decade, the Bank has been attempting to promote fertilizer marketing reform, including greater private sector participation, in Ethiopia but with limited success (Box 4). Furtado and Smith (2007) sum up well the divergent view of the donors and the Government in this area:

"Donors have been pushing for steps in liberalization for many years - essentially arguing that the government should not be in the fertilizer business. The view of the government is that the private sector distribution network is not adequate to ensure supply, and will take time to evolve; that the foreign exchange implications of fertilizer imports are too important for the government not to be involved. There is also a long-established central planning mind-set, that sees use of fertilizer in terms of publicly-set targets; but this is grounded in a deeper sense that something as critical to the country's food supply and economic performance is too important for the government not to be involved in."

3.8 Despite this divergence in views, just prior to FSP in 2008, several cooperative unions had begun playing a major role in fertilizer imports alongside AISE (see paragraph 1.8 and Annex B Table B1). The project document for FSP acknowledges that policies shaping the fertilizer market were changing and reforms over the last few years had contributed to, among other changes, reducing the direct role of the state and increasing that of the cooperatives. However, the arrangements for the implementation of the FSP led to reduction in the role of cooperatives eliminating them from the business of importing fertilizers. The DSA (2010) report notes:

"There have been two developments in 2009 that are of fundamental importance to fertilizer sector as it related to small farmers. The first is government made a decision to centralize international procurement of fertilizers. It meant that a single agency would be responsible for fertilizer importation [to meet] the country needs and shipments from Djibouti to central warehouses at strategic locations. The other is the impact of the first on development of cooperatives which have been playing a dominant role in the distribution and marketing of fertilizes at all stages of [the] fertilizer marketing

chain. Single-importer decision and the subsequent delegation of Agricultural Inputs Supply Enterprise (AISE) to be responsible for importation of fertilizer need for 2009/10 agricultural season eliminated fertilizer importing business for about ten cooperative unions that in prior years were engaged in international fertilizers procurement. It also made the unions and their members (primary cooperatives) a defacto single actor in the channeling [of] fertilizers from AISE to the end users.” Page 22-23.

3.9 Though the FSP design excluded any policy reform these developments were an unintended outcome of the project implementation arrangement as discussed in Chapter 6. They were a setback to the whole reform process and the risk of this happening should have been carefully assessed and a clear road map to bring the reform effort back on track once the emergency was over should have been identified when the Bank agreed to the single importer implementation arrangement.

Box 4. The World Bank and Fertilizer Marketing Reform in Ethiopia

Four development policy operations undertaken between 2001 and 2004 (the Economic Rehabilitation Support Credit (Credit 3512), Economic Structural Adjustment Credit 3666), First Poverty Reduction Support Credit (PRSCI) (Loan/Credit Ho730), Second Poverty Reduction Support Operation (PRSCII) (Loan JPN 51119, IDA H1350, JPN 5380) attempted to deal with fertilizer market reform, among other issues. A sector investment loan focused squarely on fertilizer marketing reform. The objective of the National Fertilizer Sector Project (NFSP) (FY95) was to *achieve accelerated and sustainable growth in agricultural production with a view to improving food security and reducing poverty*. Central to the project’s goal was its fertilizer policy reform component which comprised a group of policy actions intended to liberalize the fertilizer market, enabling fair competition for fertilizer importing, wholesaling and retailing between public and private actors.

Until mid-1992 fertilizer import and marketing was fully state controlled and managed by the Agricultural Inputs Supply Corporation (previously named AISCO now AISE), a monopolistic parastatal, in consultation with Ministry of Agriculture. The Central Government introduced a Fertilizer Policy in 1993. Among other issues the policy encouraged full participation of the private sector in importation, distribution, wholesale and retail trade of fertilizers and set up AISCO to operate in a free market in competition with the private sector and cooperatives. The strategy stated that the private sector should supplement existing market arrangements and ensure a level playing field for cooperatives and private traders while liberalizing access to credit. However, in 1995 when the NFSP became effective the government company was importing about 80 percent of the fertilizers. In response to the monopolistic government domination of fertilizer imports prevailing at the beginning of the NFSP, the Bank sought policy adjustments that would enable more open competition.

NFSP ultimately achieved little success in this area. The fertilizer sub-sector became less rather than more competitive under the project. The reasons for the poor outcome were the presence of constraints to the development of a competitive market that contributed to a non-level playing field in the fertilizer import market. Although these constraints were a major barrier to market entry during the project period, there were promising initiatives in the post-NFSP period. A workshop to discuss how to bring in the private sector was organized by the Government in October 2006 comprising representatives of all sector stakeholders, including AISE, the cooperatives, the private sector, and the trading houses. A number of ideas to improve the environment for full competition resulted.

Source: IEG 2007, IEG 2008, Project Documents and Evaluation Findings

3.10 On balance, relevance of design is considered *modest*.

4. Achievement of Objectives

4.1 This chapter first assesses the achievements on the specific PDO followed by the program goal.

To contribute to the Government’s efforts to ensure an aggregate availability of supply of chemical fertilizers for the 2009-2010 production seasons adequate to meet smallholder farmers’ priority demands. (Specific PDO)

4.2 Two issues are relevant in assessing the efficacy of the specific PDO: the amount of fertilizer that was imported because of the project support in relation to what was needed by smallholder farmers; and whether this fertilizer was distributed and available to smallholder farmers’ in time for the production seasons in the year.

4.3 **Total amount of fertilizer imported because of the project and needs of smallholder farmers:** The project succeeded in helping the government import 510,370 MTs of fertilizers, (about 420,000 MTs of DAP and 90,000 MTs of urea), the highest ever imported by the country in any year. Including imports financed by other sources (AfDB and Government of Japan) and fertilizer stocks carried over from 2008, a total of 727,637 MTs of fertilizer was available in the country against actual fertilizer sales (which would reflect smallholder farmers’ priority demands) of about 427,000 MTs. Hence an oversupply of about 70 percent. Ultimately, there was more than enough fertilizer available in the country in 2009/10. However, the question is whether it was available in time for the production seasons and how much of the fertilizer that was distributed to farmers in 2009/10 be attributed to Bank support. These issues are discussed next.

4.4 **Timely distribution and availability of fertilizers:** Ethiopia has been importing fertilizers for quite some time now and the timely delivery and availability of fertilizer to farmers has been a challenge every year (DSA 2010, Spielman and others 2010). The capacity of the cooperatives through which most of the fertilizer is distributed, remains limited (Bernard 2008).²⁹

4.5 In 2009 also, partly because of the sheer logistical challenge at Djibouti, the fertilizer imported through the Bank project came in too late to cover most of the need for the *belg* season which was mostly covered from available stocks.³⁰ Hence, while fertilizers were

²⁹ “Despite their rapid spread, only a third of the country’s rural kebeles had such an organization in 2005—usually kebeles with above-average access to markets and lower exposure to price and environmental risks. Further, where such an organization exists, farmers remain reluctant to participate, as only 17 percent are actual members. Overall, only 9 percent of farm households are cooperative members, (similar figures were uncovered in a 2008 national survey) with poorer farmers—in terms of landholding and education—less likely to participate (the average cooperative member holds 1.75 ha, as compared to 0.8 ha for the average Ethiopian farmer).” Bernard 2008.

³⁰ “Based on shipment records at Djibouti and subsequent clearing for inland transport, only 283,000 MT of DAP out of the procured 420,000 MT for the crop year was due at ultimate distribution centers across the country before June 1st 2009.” DSA 2010.

available to meet farmer demands during the *belg* season, attribution to the Bank's project is not possible. One of the main justifications for the rapid preparation of the project was to ensure that the imports supported through the project were available also for the *belg* season. The Program document observed:

“To show an impact the project has to become effective in early December, to allow minimum time for the logistics and distribution of fertilizers to farmers for the 2009 belg and meher season.” Page 7³¹

4.6 As Box 2 shows, for the *meher* season as a whole fertilizers should be available to farmers around May before the rain starts and road access becomes difficult. The delayed rain in 2009 (see Annex B Box B3) provided for some flexibility in delivery as farmers usually wait to buy fertilizers until the rains come in.³² The DSA evaluation reports (page 26) that “DAP delivery to unions was extended up to July 2009 according to interviewed unions in Amhara and Oromiya regions with obvious extension to primary cooperatives (PC). There were PCs that reported DAP delivery until July 2009.” That said, the report acknowledges that “unions admitted that DAP delivery in the FSP year was less efficient compared to 2008/09, and AISE is in agreement.”

4.7 Overall, though the project helped procure more than 510,000 MT of fertilizers there were significant shortcomings in it being available in time to meet the priority needs of farmers for both the seasons. This was true particularly for DAP which formed more than 80 percent (see paragraph 4.3) of the fertilizer imported through the Bank project. The DSA report notes:

“Household survey results show that 845 or 24 % of the interviewed farmers reported late delivery with some regional variation. Of these farmers 76 % reported the delayed delivery caused late planting the cost of which, according to some research results, could be as high as 0.7MT.ha very costly to small farmers. The second indicator is the duration of the delay. About 33% of the surveyed woredas said they had experienced delays longer than five days (FSP target), and also reported that DAP delivery in 2008-09 was relatively timelier. Urea delivery was relatively more efficient and it was as good as in the previous year. According to views obtained from AISE, regional bureaus of agriculture and rural development offices, and the union themselves efficiency and effectiveness of fertilizer distribution with unions was no better in 2009/10 than previous years. In fact, on two counts it could have been better. The first is distribution of DAP procured in early 2009 (February/March) was not adequately sensitive to farmers' cropping pattern and woreda level accessibility when impending Meher rains set in. Union connections and relationships with authorities of woredas and primary cooperatives dictated distribution rather than realities at the receiving ends. The second was unions had higher marketing cost compared to AISE where both were involved in fertilizer distribution to PCs in Tigray.” Page 26-27.

4.8 On balance efficacy of the PDO is rated *modest*.

³¹ The ICR also notes that “The project was prepared rapidly because its pace was dictated by the Ethiopian agricultural cycle: the project had to become effective in December 2008 to allow fertilizer to be purchased, distributed, and make an impact on production in 2009–10.” Page 1

³² Had it not been for erratic rainfall that held planting date on suspense, it could have been a chaotic supply situation in the second part of May and June, according to views of woreda officials and leaders of primary cooperatives in Amhara and Oromia.” DSA 2010.

To increase the likelihood that crop production in 2009-10 remains on or near the growth trends of recent years (the program goal)

4.9 The program goal was equally short-term as the PDO. Serious doubts have been raised about the quality of agricultural data in the country including by IEG's 2008 Country Assistance Evaluation (IEG 2008a).³³ FAO/WFP analysis (FAO/WFP 2006 and 2007) also shows the vast discrepancy in data reported by MoARD and the CSA, both government sources.³⁴

4.10 Estimates from the FAO/WFP Crop and Food Security Assessment mission suggest that there was a 4.9 percent decrease in aggregate grain production from 17.6 million MTs to 16.8 million MTs between 2008/09 and 2009/10 (FAO/WFP 2010). Comparing 2009/10 with the previous five-year average (calculated from various FAO/WFP reports at 17.7 million tons) also shows that the production in 2009/10 declined by about 5 percent.³⁵ FAO/WFP data does not really show a clear trend in production over the last few years.

4.11 Official data from CSA, however, suggests an increase in grain production of 5.2 percent during project implementation (from 17.2 million MTs to 18.4 million MTs). Comparing 2009/10 with the previous five year average (14.7 million MTs) the CSA data shows a 22 percent increase. CSA data also shows about an 11 percent annual increase in crop production (**Figure 6**) between 2003/08 and 2007/08. This was the trend level referred to in paragraph 1.4.

4.12 With such large differences in data between CSA and FAO/WFP it is difficult to make a conclusive judgment on whether production actually increased and whether the growth trend as per the program goal was achieved.

³³ "Changes over time in agricultural productivity, a key driver of pro-poor transformation of the sector, remain unclear because of inconsistent data sources." IEG 2008a.

"One of the challenges in the assessment of the recent growth and performance of the Ethiopian agriculture is the lack of adequate and independent database that helps to assess the performance." Adenew 2009.

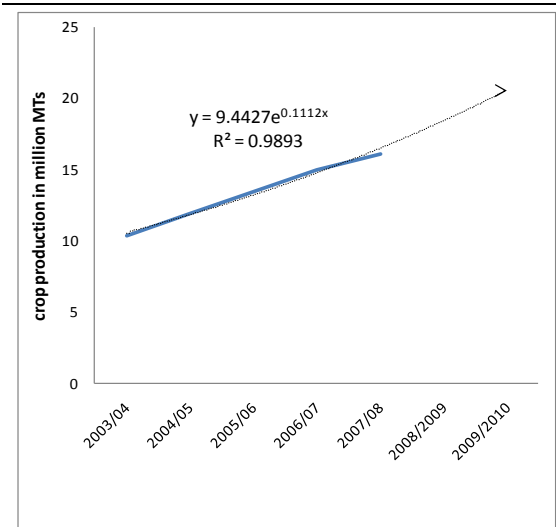
"An immediate concern is nevertheless for further inspection of the current database and the recent yield trends. Given that a crop-cutting method has been used, CSA data should in principle be superior. But in practice, they leave many questions unanswered. Even if we dismiss the alternative sources and the international evidence, the official yield data are not easily squared with the data on input use. A systematic review of how the CSA data are collected and collated as well as studies that aim to explain the yield increases are urgently needed." Dercon and Hill 2009.

"Data on national cereal production levels and trends are controversial. Changes in government and methodologies have coincided with distinct breaks in the data, making it difficult to distinguish between actual changes and statistical artefacts." IFPRI 2011

³⁴ The FAO analysis of FAO/WFP (2007 and 2006) shows that the data of land under cereals and pulses reported by the Ministry of Agriculture was 19.5% higher in 2006/7 and 45% higher in 2005/6 than the data reported by the CSA.

³⁵ According to the FAO/WFP report 2010 total grain production in 2007/08, 2008/09 and 2009/10 was 16.7, 17.6 and 16.8 million MTs respectively. To calculate the five-year average for previous years grain production figures for the years 2006/07, 2005/06 and 2004/05 were obtained from the FAO/WFP report 2007. These numbers were 20.4, 18.59 and 15.34 million MTs respectively. The five year average for the period 2004/05 to 2008/09 was 17.7 million MTs.

Figure 6: Trend level based on CSA data



Source: World Bank 2008c and IEG calculations

5. Efficiency

5.1 At appraisal the program paper provided evidence on profitability of fertilizer use (through fertilizer-grain price ratios and value-cost ratios (VCRs³⁶) in Ethiopia and noted that in the “without project” scenario about US\$250 million worth of fertilizers would not be available to farmers and would adversely affect production. The paper noted that studies have shown that fertilizer use has a significantly positive impact on agricultural production at the aggregate level. It quotes an unpublished World Bank 2006 Ethiopia Rural Development Review to show that in Ethiopia the intensity of chemical fertilizer use is statistically highly

significant with an aggregate production elasticity of about 0.12. With this as the background, it presents calculations to argue that with a conservative estimate of crop supply response, removal of US\$250 million worth of fertilizers would result in a reduction of about one million tons of cereal. The paper however, also presents risks associated with fertilizer use and draws on another Bank publication (Christiaensen and Demery 2007) to show that in years of poor rainfall the use of fertilizer can become uneconomic.

5.2 Table 1 below, presents returns to fertilizer in “normal” and “bad” rainfall years drawing on the Christiaensen and Demery paper referred to above. As the table demonstrates, the loss to farmers can be substantial in years of poor rainfall. Since most agricultural production in Ethiopia is carried out under rain-fed conditions farmers avoid or reduce fertilizer application in drought years or years with variable rainfall; often by 40 percent (World Bank 2007).

³⁶ “A value-cost ratio (VCR) equals the value of additional yield obtained from fertilizer use/cost of fertilizer used. The point at which the value/cost ratio is equal to one is, in principle, the same as the profit maximizing point when the value of the marginal product divided by the marginal factor cost is equal to one. There are, however, two important differences: (a) the value/cost ratio is a measure of average rather than marginal change in profitability because it does not examine incremental changes in returns as doses increase; and (b) the costs included in a value/cost ratio are generally limited to the expenditure on fertilizer rather than the full range of costs (including labor) associated with fertilizer use. To account for these differences in calculation and the fact that farmers do not have perfect knowledge of crop prices and yield response, analysts have established “rules-of-thumb” for interpreting these ratios. Most consider a ratio equal to two as the minimum requirement for a farmer to adopt fertilizer and a ratio of three or four to be necessary when production or price risk is high. (World Bank 2006).

Table 1. Fertilizer use Yield and Returns in Birr per Hectare Ethiopia 1999

	<i>All Cereals</i>	<i>Teff</i>	<i>Barley</i>	<i>Wheat</i>	<i>Maize</i>	<i>Sorghum</i>
YIELDS IN KILOGRAM PER HECTARE						
Normal year, no fertilizer	419	311	402	451	494	519
Bad year, no fertilizer	307	224	295	313	380	338
Normal year, fertilizer	602	447	579	648	711	747
Bad year, fertilizer	442	322	424	450	547	486
Likely yield loss because of weather if fertilizer is applied	-160	-125	-155	-198	-164	-261
RETURNS IN BIRR PER HECTARE						
Normal year, No fertilizer	837	622	804	901	988	1038
Bad year, No fertilizer	615	447	590	625	760	676
Normal year, fertilizer	847	512	770	928	1058	1144
Bad year, fertilizer	527	262	461	531	730	623
Likely loss because of weather if fertilizer is applied	-320	-250	-390	-397	-328	-521

Note: normal years are those with median rainfall and climatic conditions; bad years are those when the level of rainfall is equal to the 20th percentile in historical rainfall distribution. Yields were estimated by the authors using a production function and data from the 1999 Ethiopian Rural Household Survey. The return is the 1999 value of output minus any applicable fertilizer costs.

Source: presented in Christiaensen and Demery 2007. The shaded row calculations have been done by IEG.

5.3 The completion report undertakes an indicative benefit-cost analysis to assess project efficiency. Based on farm-level productivity analysis the report notes VCRs for three crops (teff, wheat and maize) that account for 90 percent of fertilizer use in Ethiopia. It calculates an average benefit-cost ratio of 3.78 and notes that the project most likely generated net economic benefits of US\$667 million. The VCRs used are those obtained from the DSA 2010 report as well as from survey data obtained from Sasakawa Global-2000 (SG-2000) and range from 1.4 for teff to 3.3 for wheat with an aggregate VCR of 2.4 that according to the completion report generates the project benefit-cost ratio of 3.78.

5.4 This project assessment has two major concerns with the analysis presented in the completion report on the basis of which the estimated benefit-cost ratio is unlikely to hold.

- First, the VCR calculations are based on some simple assumptions about reasonable rainfall and grain price patterns which did not hold. Though the ICR notes otherwise³⁷, the rainfall, as demonstrated in Annex B Box B3, was poor in 2009. The aide memoire for the third supervision mission (November-December 2009) raised concerns about the deterioration in the fertilizer-cereal price ratios that influence profitability of fertilizer use. The DSA evaluation (DSA 2010) also found that grain prices in 2009/10 stopped rising or even dropped compared to the previous year, particularly for teff causing widespread “grievance” among farmers in all region.³⁸ There were other problems also, such as inadequate availability of improved seeds

³⁷ ICR notes (page 13) “Therefore under reasonable rainfall and grain price patterns, such as those prevailing during the project’s implementation, fertilizer use in Ethiopia is profitable and can be economically efficient.”

³⁸ “The effect of price drop was felt hard by farmers because teff is a high value crop and the proceeds are set aside as guarantee for acquisition of fertilizer needs for the subsequent crop year.” DSA 2010.

that would not allow for the production increase due to the availability of fertilizers as noted in the calculation of the benefit stream.

- Second, the cost stream in the completion report (page 31) does not take into account transport costs. Data gathered by IEG in the field and reports on how fertilizer prices at the primary cooperative level are actually calculated as a part of aide memoires of supervision reports confirm the high level of these costs. Transport costs from Djibouti to central warehouses can be as high a nearly 10 percent of the total cost of fertilizers (Annex B Table B2 and B3 for example from Aide Memoire of the Second and Third Supervision mission on how retail prices are determined and the importance of transport costs). Further, the transport cost from the Nazareth central warehouse to the different warehouse of the primary cooperatives is additional and varies according to the distance and road type and quality. The Aide Memoire notes this cost to be an average of 77.15 ETB/Quintal³⁹, about 10 percent estimated for getting the fertilizers from Djibouti to the central warehouse. The literature (e.g. Rashid 2009) confirms the substantial costs of transporting fertilizers first to warehouses and then from warehouses to the cooperatives.

5.5 The completion report notes that even under conservative estimates the average benefit cost ratio would be 1.64 and the project would still generate net benefits of US\$154.8 million. However, there is a problem with this argument as this would imply that the VCR would drop to below 2 (as is clear from Annex 3 Table 3 of the ICR) and we already know from footnote 36 that at this level it will not be profitable for farmers to apply fertilizers. In fact, it is noted that *“Most consider a [VCR] ratio equal to two as the minimum requirement for a farmer to adopt fertilizer and a ratio of three or four to be necessary when production or price risk is high.”* (World Bank 2006).

5.6 Moving beyond the farm level productivity analysis, a broader question for determining project efficiency is that in a poor country such as Ethiopia, the more than 70 percent oversupply of fertilizer (paragraph 3.6) draws attention to the opportunity cost of scarce resources that the country could have utilized to meet the numerous other requirements for the development of the agriculture sector. For example, of the 12 projects from which resources were deployed to finance FSP, some, such as the Irrigation and Drainage (Cr. 4333) were supporting a critical agriculture need in the country and had just become effective (January 2008) and there is little evidence to show that it was a poorly performing project from which resources needed to be diverted.^{40 41}

³⁹ 1 Quintal is equal to a 100 Kilograms.

⁴⁰ One of the justifications for redeploying resources was that many of the projects in the portfolio were old or poorly performing and reallocation of resources from these would contribute to overall efficiency.

⁴¹ The Africa Region of the World Bank in its response to the project assessment notes that the resources used for fertilizer were only partially fungible, since they were available for crisis response, and not for other purposes.

IEG notes that US\$137.5 million was made available for this project through restructuring 12 projects as shown in Annex B Table B4 and could have been used for other purposes.

5.7 The procurement of fertilizers for 2010 (530, 000 MTs) took place early without taking into account the left over stocks of over 300, 000 MTs from the previous year.⁴² Were this available surplus taken into account in deciding the import requirements for 2010, at least in the next year valuable foreign exchange could have been saved to fulfill other competing demands rather than again being tied up in fertilizers. On the basis of the above overall project efficiency is rated *modest*.

6. Outcome

6.1 The *moderately unsatisfactory* outcome rating is derived from the ratings on relevance, efficacy and efficiency as shown in Table 2 below. While the Bank was responsive to the emergency situation in the country and designed a simple project which was implemented quite quickly, relevance of design was *modest*, given the weaknesses demonstrated in the logistical arrangements, in determining the size of the project and the sole importer arrangement that set back the whole reform effort being supported by the Bank and other donors over more than a decade. Efficacy of the PDO is rated *modest* as there were significant shortcomings in the fertilizer being available in time to meet the priority needs of farmers. Project efficiency is also *modest* because, among other reasons, scarce foreign exchange resources were locked up in fertilizer overstocks whereas these could have been used for meeting alternate pressing needs in a crisis situation.

Table 2. Derivation of Outcome Rating

<i>Rating Criteria</i>		<i>Rating</i>
A. Relevance	Objectives	Substantial
	Design	Modest
B. Efficacy	Project objective	Modest
C. Efficiency		Modest
Outcome		Moderately Unsatisfactory

Unintended Outcome

6.2 There were also two unintended negative outcomes. First, before the FSP, several farmers' cooperative unions were also importing fertilizers and meeting close to 40 percent of the national supply of DAP and urea—the two kinds of fertilizers imported. These unions were regulated by the MoARD through a guided procurement system. Aiming to improve its efficiency in the import of fertilizers, the Government decided to procure fertilizer in bulk in the project year rather than in batches of 25,000 tons as in previous years. Because of its size and capacity, AISE emerged as the sole importer and other importers instead of competing with AISE made contractual agreements with the public enterprise to import on their

⁴² As already noted in paragraph 2.4 ultimately the leftover Bank resources could not be utilized because the tender was not advertised internationally.

behalf.⁴³ The Bank went along with this arrangement given the emergency. The consequence was that this effectively eliminated about 10 cooperative unions that in prior years were engaged in international fertilizer procurement from the fertilizer importing business. At the time of the IEG mission in February-March 2011, AISE was still the sole importer and stakeholder interviews revealed that this arrangement may have come to stay. As acknowledged by the ICR itself, economies of scale from this approach may not be there in the medium term.⁴⁴

6.3 Second, the competition between fertilizer and food aid discussed in paragraph 3.5 and Box 3 led to not only delay in getting fertilizers to the farmers but also contributed to delay and higher costs of the WFP's response to the humanitarian crisis arising from the poor rains in the same year. The Humanitarian Requirements 2009 report noted

“The food security situation has been further impacted by the reduction in food aid distributions carried out, with only five of six planned rounds completed by the end of September 2009 with reduced ration size, due to shortage of resources. In addition to substantial funding shortfalls, the period under review was characterized by serious logistics-related challenges, especially delays in berthing and off-loading relief ships at Djibouti port and shortage of trucks for overland transportation of humanitarian food into and throughout the country” page 4.

7. Risk to Development Outcome

7.1 The project provided one time support to the Government for import of fertilizers to increase the likelihood that crop production in 2009/10 would remain on or near the growth trends of recent years, the program goal. During project implementation the risks that poor rains and inadequate availability of improved seeds, among other factors, would constrain crop production were substantially high and ultimately, these risks did play a role in keeping total crop production at levels lower than anticipated. Weather-related risks, particularly, have been and will continue to be a major factor in determining agricultural production and yields in Ethiopia as long as most cultivation is carried out under rain-fed conditions.^{45,46}

7.2 With a simple objective, and in the emergency context, the project was designed to be, and was, implemented in a short time. The fertilizer was procured, though its demand and

⁴³ The project document (footnote page 46 page 30) notes “AISE has the biggest capacity measured in terms of market share, warehouses, etc. The risk of losing by competing with AISE, especially given that AISE can procure larger batches, is high.”

⁴⁴ “.....economies of scale effects in the procurement and importation of fertilizer are small beyond certain amounts (50,000 tons) and therefore do not preclude multiple importers in the medium term.” (ICR page 19).

⁴⁵“While Ethiopia has abundant annual rainfall, the rainfall varies spatially (different parts of the country), temporally (different times of year) and inter-annually (yearly cycles). 80 percent of rainfall occurs between June and September, while yearly variability can also be significant (e.g., about 30 percent average variation year over year). Consequently, increasing rainwater storage capacity and improving water control and rainwater management techniques, especially rain water harvesting (RWH), are critical to ensure that Ethiopia gets maximum use of its rainfall.” IWMI 2010.

⁴⁶ For the existing cultivated area of about 15 million hectares, only about 4 to 5 percent is irrigated, with existing equipped irrigation schemes covering about 640,000 hectares (IWMI 2010). While some progress has been made in the last few years it has been modest. Hence, the quality and the quantity of the variable rains is still the major factor that determines the level of the annual harvest (Ethiopian Economics Association 2007/08).

use by farmers was much less than estimated for the 2009/10 production season.⁴⁷ The left-over fertilizer stock was available for use in the next production year. The DSA evaluation reported some problems with quality—caking, poor bagging—but not for the majority of the farmers who received the fertilizers.

7.3 Beyond the above noted problems, there are some concerns about the future of fertilizer distribution and marketing in Ethiopia arising from how the project was implemented. During project implementation, AISE emerged as the sole importer. Many of the cooperative unions that had been importing fertilizers are no longer doing so and are now engaged only in its distribution. To some extent, the unions now work as agents of MoARD and AISE in the distribution of fertilizers. The DSA evaluation notes the concern expressed by unions that the single importer approach could affect the capacity building of cooperatives because of loss of revenue and marketing experience (DSA 2010). The IEG mission also met with some cooperative unions staff and heard similar concerns. The profit margin for the unions in fertilizer distribution is set when MoARD sets the price of fertilizers to be charged at the primary cooperative level as demonstrated in Annex B Table B3. There is some risk that in the long-run the capacity of the unions may weaken and this could compromise the effectiveness of the fertilizer distribution system. The program goal was ultimately to keep production at or near the trend level in 2009/10 and these changes that have occurred in the fertilizer sector have increased the risk that such an outcome may not be maintained in the future. Further, going forward, with the single importer model, the lack of a competition may generate long term inefficiencies in fertilizer importation.⁴⁸

7.4 Overall the risk to development outcome is assessed as *moderate*.

8. Monitoring and Evaluation (M&E)

Design

8.1 As designed, both M&E were given considerable emphasis. Not only was monitoring to track actual fertilizer import and distribution under the project, but it was also intended to more broadly provide information on the fertilizer distribution system in the country so that weaknesses in it could be identified. The project was to help strengthen MoARD's existing system of tracking fertilizer distribution from imports to cooperatives and their unions. Given the importance of knowing actual demand at the farm level the Ministry also agreed to monitor on a regular basis the amount of fertilizer sold to farmers as well as the credit and credit guarantees provided. MoARD was to collect data about the status of sales and distribution from a sample of high and low potential *woredas* through a questionnaire.

⁴⁷ The DSA report (DSA 2010) found that the aggregate amount of fertilizer used by small farmers in 2009/10 decreased by 2.1 percent compared to the previous year. That evaluation also confirms that low sales of fertilizers in the FSP year were mainly due to erratic and uneven rains and lack of improved seeds.

⁴⁸ “The resulting dominance of the fertilizer market by state actors raises problems, not because the actors are parastatals rather than private actors; but because in such monopolistic and oligopolistic structures, it is crucial that there are competitive pressures on the firms operating. Competitive pressures ensure that the market chains remain sustainable overtime and keep on offering good prices to farmers” Dercon and Hill 2009

8.2 The project then was to be monitored through various sources: weekly updates of the fertilizer importation status, the monthly reports on sales to farmers, and the information provided through the sample *woredas*. An M&E consultant was to be hired to provide support during peak reporting period.

8.3 The performance indicators identified were as follows: (a) the quantity of fertilizer imported and distributed to farmers; (b) the timeliness of import and distribution of fertilizer and complementary inputs to end users; (c) fertilizer application as share of total cultivated areas; and (d) estimates of the costs and contribution of the fertilizer to production and economic welfare. These were appropriate indicators and the emphasis on tracking timeliness of availability of complementary inputs was particularly relevant given the issues discussed in paragraph 3.3. However, despite the fact that a project indicator was to monitor complementary inputs it was not monitored or reported on.

8.4 To assess project impact, at the end of the 2009 crop season, an independent consultant with a strong record in impact evaluation and knowledge of Ethiopia was to be hired to undertake a rural household survey. This survey would sample a cross section of *woredas* in high and lower potential regions of the country and collect data on farm level access to fertilizer in terms of source, timeliness and quality, use of fertilizer by crop, the major beneficiaries of fertilizer use by farm size and agricultural potential, and use of complementary inputs, particularly improved seed.

Implementation

8.5 The selection and contracting of the monitoring expert to provide support to MoARD was delayed. Since there were capacity limitations within the Ministry this delayed the actual tracking of fertilizer importation and distribution. By April 2009, the time of the first Implementation Status and Results Report (ISR), the first data for tracking fertilizer distribution was still not available. Bank supervision missions flagged their concerns with M&E and progress on the component was rated unsatisfactory for some time.

8.6 There was also delay in the finalization of the selection process for the consultancy for the impact evaluation. The evaluation was ultimately carried out and involved a household survey of some 3500 fertilizer using rural households from the four predominantly fertilizer consuming regions Tigray, Amhara, Oromia and SNNP. Both quantitative and qualitative methods were used to collect primary data on a number of variables for 2009/10 and the evaluation also draws on secondary data from MoARD and other relevant sources. However, there were problems with data comparability over time. There is no way to tell whether there were differences in the methodology used amongst the various sources of data. For some critical variables, such as change in fertilizer consumption overtime, the evaluation reports data for the years 2005/06 to 2009/10 from secondary sources only. Fertilizer consumption was assumed to be equal to fertilizer sales. Similarly, changes in grain production are reported primarily on the basis of CSA data. On other important variables such as fertilizer application rate, the evaluation does report data obtained from the household survey but the comparison of 2009/10 is made with a base-line of 2005/06 (constructed on the basis of farmers' recall ability) which is really too far back to assess the impact of a project approved in December 2008.

Utilization

8.7 Data from sample *woredas* that were selected to provide monitoring information, when it did become available, were of uneven quality but were nevertheless useful in providing information on fertilizer price variations across the country and their possible causes, on the time of availability of fertilizers across the main regions, quality of fertilizer distributed, among others. The monitoring was also useful in identifying the seriousness of the congestion problem in Djibouti and its possible negative impact in getting the fertilizers to farmers in time. The performance indicators were to also report on timeliness of availability of complementary inputs to end-users. However, the ISRs and the ICR only report on fertilizers timeliness and availability.

8.8 Even though there are weaknesses in methodology the DSA evaluation has provided useful information on various aspects of the project and its findings have been used throughout this assessment.

8.9 Overall M&E is rated *substantial*.

9. Bank and Borrower Performance

Bank Performance

QUALITY AT ENTRY

9.1 Given the urgency of the situation in the country, the Bank responded with alacrity to the Borrower's request for support, taking advantage of the flexibility in its procedures under Operational Policy/Best practice (OP/BP) 8.00 and the newly approved GFRP facility. The project went from concept review to approval in under three months and given the number of steps that are involved in getting approval, Bank staff must have worked under enormous time pressure. The timely availability of foreign exchange allowed the public enterprise, AISE, to issue tenders and arrange for the procurement of fertilizers in a judicious manner. It is also creditable that even in an emergency project considerable emphasis was given to M&E.

9.2 However, there were several shortcomings in quality at entry. Inadequate due-diligence in determining the size of the project was one. The demand estimation procedures for fertilizers in Ethiopia have been far from accurate and are discussed in Box 5. Since this was an emergency operation it would have been unrealistic to expect the Bank to carry out analytic work in this area before the project was designed. However, some due-diligence in determining the actual quantity of fertilizer required, and consequently the project size, was needed. A review of the demand estimation process from past years and whether it contributed to left-over stocks (as shown in Box 5) could have given some indication of the exaggeration in the demand estimates and possibly helped avoid the competition with food-aid and inefficient use of scarce resources. In fact, the GFRP program document clearly noted the Bank's ability to undertake pertinent analysis as its comparative advantage when it notes:

“The Bank’s engagement as proposed under the GFRP is based on a role distinct from its partner agencies. The Bank’s multi-sectoral expertise gives it a strong comparative advantage in providing integrated solutions to address food security concerns and effectively mitigate the adverse effects of rising food prices. In particular, the Bank is able to: (i) rapidly provide significant funds to countries at risk, (ii) undertake policy analysis drawing upon country, regional and global experience, (iii) provide access to a mix of innovative financial instruments to mitigate a portion of the increased food price risk, partially alleviating the need for costly physical remedies such as strategic grain reserves, (iv) design and deliver well-targeted social protection interventions to mitigate the effect of the price rise on the poor and vulnerable; and (v) support policy and programmatic responses over the medium and longer term including measures critical to improving the domestic agricultural supply response.” (page i)

Box 5. The Estimation of Demand for Fertilizer Imports

Only two kinds of fertilizers, DAP and urea, are available in Ethiopia. Since the market does not play a role in assessing demand and responding to it the amount of fertilizer imported depends on an estimation of demand by the Government for the coming season. Such demand estimation is carried out over a period of about six months every year. The process begins at the *kebele* (sub-district) level by development agents with the participation of farmers, and the outcomes are reported to higher *woreda* (district) and zonal offices. In making their calculations the development agents use standard or recommended application rates. The *woreda* level officials in turn deliberate on the results estimated and make adjustments before delivering their estimates to the regional bureaus of agriculture. The regional bureaus of agriculture in consultation with the Bureau of Finance and Economic Development relay the regional estimates to MoARD for final review and aggregation.

Farmer’s actual demand for fertilizers in a particular year can vary significantly from the estimated demand depending on a number of factors—the amount of rainfall, the prices of fertilizers, the availability of complementary inputs, among others. Farmers also seldom apply the recommended dosage and often combine chemical fertilizers with organic ones to reduce costs. The whole process of demand estimation leads to a certain level of exaggeration since there is a tendency to include a contingency amount at each level.

The Bank team while aware that there were shortcomings in the Ministry’s demand estimation process went along with the Ministry’s most conservative estimate. In hindsight, some rough projections on the estimated and actual demand and carryover stocks, including consideration of the amount being provided by AfDB and the Japanese government, could have perhaps yielded a much more realistic estimate of actual demand and could have contributed to more efficient decision making and allocation of scarce foreign exchange resources. Below are data obtained on fertilizer import, availability and sales by the IEG mission from the Agricultural Input Marketing Directorate of MoARD. It is easy to see that substantial stocks were left over each year. A systematic consideration of the costs of storage, loss in quality due to caking, versus benefits could contribute to assessment of a strategic level of fertilizer stocks needed in the country.

in Million Metric tons					
Year	Fertilizer Import	Fertilizer Availability	Fertilizer Sales	Left over stocks at end of year	stocks as a % of imports
2006	385576	521019	375717	145302	37.7
2007	276724	433315	388141	45174	16.3
2008	442105	487574	404756	82818	18.7
2009	626731	728202	426676	301526	48.1
2010	525277	806096	553885	252211	48.0

Source: DSA 2010, Project documents, data obtained from Agricultural Input Marketing Directorate by IEG mission

9.3 The Bank should have also given attention to the likely implication of AISE emerging as the sole importer on the long term effort that was being made to reform fertilizer marketing in the country. Lack of attention to the implications of large quantities of fertilizer import on food aid was also a significant shortcoming. Overall quality at entry is rated *moderately unsatisfactory*.

QUALITY OF SUPERVISION

9.4 The Bank asked for updates on the situation of shipment arrivals and transport to central warehouses and followed up diligently with the government on M&E and financial management compliance issues. The opportunity to coordinate fertilizer import with food-aid was missed during project design. However, during supervision, the Bank should have made an effort to coordinate with WFP while working with the Government to sort the logistical constraints at Djibouti. Instead, the Bank pushed to ensure that there was no interruption in fertilizer imports arrival and offloading at Djibouti and related fertilizer trucking. With Government prioritizing fertilizers, partly because of the pressure from the Bank, WFP was left to its own devices to find ways to ensure that food aid somehow did get into the country and reached the areas where it was needed.

9.5 The shortcomings on safeguards were also serious. While it is true that the Bank continued to urge the Borrower to accelerate the process on safeguards through its supervision missions, several of the findings from the ESMP (footnote 21) were not unusual and the Bank could have easily drawn on the experience of past projects that have supported agricultural inputs distribution and marketing to understand their environmental and social implications and ensured that basic health and safety mitigation measures were incorporated as part of project implementation.⁴⁹ Quality of Supervision is overall rated *moderately unsatisfactory*.

9.6 Overall Bank Performance is rated *moderately unsatisfactory*.

Borrower Performance

GOVERNMENT PERFORMANCE

9.7 For the Ethiopian Government, fertilizer import was a priority and commitment during preparation and implementation, particularly for the fertilizer component was strong. The Government took active steps to relieve the severe congestion and transport problems at the Djibouti port and followed up with port authorities and road and transport authorities as needed. However, the overall fertilizer demand was overestimated and the large quantity imported as a consequence led to tying up of scarce foreign exchange in fertilizer over-stocks which was inefficient.

⁴⁹ The Africa Region of the World Bank in its response notes that the private and cooperative sectors handled most of the distribution, and the training and regulatory enforcement to assure safe handling is neither quick nor easy. It is proceeding, however, under the rural capacity building project and other vehicles.

IEG notes however, that at least some arrangement to ensure compliance with health and safety standards established by Ethiopian Standard for fertilizer products was in order. As footnote 21 demonstrates even these standards were not met.

9.8 On safeguards there was a violation of the Financing Agreement and the ESMP report found several health and safety concerns. On the basis of the above, Government performance is rated *moderately unsatisfactory*.

IMPLEMENTING AGENCY PERFORMANCE

9.9 MoARD, through its Agricultural Products Market Promotion Department, was responsible for the overall management of the project. Despite the logistical challenges and the shortcomings discussed, the project made overall reasonably good progress on fertilizer import and distribution. However, performance lagged on several other aspects: M&E, financial management and compliance with safeguards. Part of the problem was that MoARD faced staff shortages and it gave greater priority to the fertilizer import and distribution aspects in comparison to the other issues which were seen more as procedural, small matters.

9.10 Supervision and reporting documents reveal that coordination was not easy among the various government departments involved and led to delays in reporting. For example, all procurement was made by AISE which had all the necessary financial documents but MoARD had the responsibility for submitting the reports to the Bank and timely submission of these reports was a concern. Implementing agency performance is rated *moderately unsatisfactory*.

9.11 On the basis of both Government and Implementing Agency performance Borrower Performance is rated *moderately unsatisfactory*.

10. Lessons

10.1 Building on the project experience this assessment identifies four major lessons:

10.2 **The risk of a short-run emergency response compromising a long term World Bank supported reform effort should be assessed at design. Steps to bring the reform effort back on track if needed after the emergency should be identified.** An emergency situation does not allow the time to do detailed analytical work in support of lending. Yet, it is always possible to do a quick review of past interventions, to understand the long term goals that the Bank has been pursuing in a sector and assess if there is a possible risk to them from the emergency response. Steps to bring the reform effort back on track if needed after the emergency should be identified. While the arrangements under the FSP that allowed AISE to emerge as the sole importer may have contributed to timely allocation of foreign exchange and procurement of fertilizers, it set back the whole reform process being supported by the Bank over the last decade with fertilizer marketing reform.

10.3 **Health safety and environmental implications need particular attention in emergency projects such as FSP since their rushed implementation schedule often does not allow for mitigation plans to be put in place before implementation.** In the FSP the ESMP was prepared long after most of the fertilizer had been distributed. However, the Bank could have easily drawn on the experience of past projects that have supported agricultural inputs distribution and marketing to understand their environmental and social implications

and ensured that basic health and safety mitigation measures were incorporated whether the ESMP was undertaken or not.

10.4 Inadequate attention to the limits of country capacity and effective coordination with agencies, such as WFP, that have traditionally been in the forefront in dealing with food crisis situations can hamper both the timeliness and effectiveness of the food crisis response. In Ethiopia import of fertilizers to contribute to agricultural production for the coming season supported through the FSP disrupted the import of food aid to avert a humanitarian crisis being undertaken by WFP. The conflict arose because of shortage of port capacity and transportation logistics. Better planning and coordination between the World Bank project and WFP and realism about the size of the project could have avoided the conflict between the two different kinds of support provided by the two organizations.

10.5 A more sophisticated system of estimating demand, including an estimate of the optimum level of strategic fertilizer reserves between one season and the next would be important for ensuring efficiency of resource use in Ethiopia which is entirely dependent on centralized imports for its fertilizers. The current demand estimation process for fertilizers is based on a cumbersome administrative process that involves a large number of actors at various levels of the government and little attention is paid to price sensitivity of demand which influences the rate of fertilizer application. Over the last several years demand has been over-estimated and has contributed to large over-stocks that fluctuate from year to year. Development both of a sound system of demand estimation and a strategic level of stocks based on economic analysis of all costs and benefits, including consideration of frequent delays caused by the congestion at the Djibouti port, could avoid wastage of scarce foreign exchange resources.

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Annex A. Basic Data Sheet

FERTILIZER SUPPORT PROJECT – P113156

Key Project Data (amounts in US\$ million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>	<i>Actual as % of appraisal estimate</i>
Total project costs	250.00	244.01	97.60
Loan amount	250.00	244.01	97.60
Cancellation	-	15.62	-

Note: Due to SDR appreciation vis-à-vis the US dollar during fertilizer project implementation, and additional US\$ 9.3 million was available to the Government of Ethiopia. Unused project funds of approximately US\$ 15.5 million were cancelled and are expected to be transferred to the Protection of Basic Service Project (source: ICR).

Cumulative Estimated and Actual Disbursements

	<i>FY09</i>	<i>FY10</i>	<i>FY11</i>
Appraisal estimate (US\$M)	250.00	250.00	250.00
Actual (US\$M)	250.00	259.63	244.01
Actual as % of appraisal	100	103.85	97.60
Date of Final Disbursement July 2010			

Project Dates

	<i>Original</i>	<i>Actual</i>
Concept Review	07/30/2008	09/18/2008
Board approval	09/30/2008	12/10/2008
Signing	12/12/2008	12/12/2008
Effectiveness	12/23/2008	12/23/2008
Closing date	06/30/2010	07/31/2010

Staff Inputs (staff weeks)

	<i>Staff Weeks</i>	<i>USD Thousands (including travel and consultant costs)</i>
Lending		
FY09	38	150.17
Total	38	150.17
Supervision		
FY09	12	70.69
FY10	21	80.31
FY11	12	67.79
Total	45	218.79

Task Team Members

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Annex B. Supporting Evidence

Table B 1: Shifting Roles of Public and Private Actors in the Fertilizer Market

<i>Period</i>	<i>Key Actors in Fertilizer Market</i>	<i>Events</i>	<i>Market Shares</i>
1971-1992	Complete Government Control		100 Percent
1992-1998	Government (AISCO) and Holding Company (1) Private company (1)	Partial liberalization of the fertilizer Market	Government (>60 percent) Private (<40)
1009-2002	Government & Holding company (4) Private Companies (4)	Fertilizer Price Liberalization in 1997-98 subsidies eliminated. Private fertilizer market in 2000	Holding companies from other regions enter market gradually claim majority share (more that 50%)
2003-2006	Government Plus Holding companies cooperatives		Government re-claims its dominance
2007-2008	Government Plus Cooperatives	Cooperative unions enter the market in 2005. Holding companies withdraw in 2007	Cooperatives claim 75 of the market share and also play a major role in imports
2008 -2009	Government Imports (100%)		Government imports for its own distribution and on behalf of the cooperatives

Source: adapted from Spielman and other 2010 and Rashid 2009.

Note: AISE was formally AISCO

Source: IFPRI 2010b

Box B 1. Challenges in the Seed System in Ethiopia

While the access and availability of seed has the potential to greatly improve smallholder productivity, there is currently a substantial gap between the country's production of commercial seeds and farmers' demand, knowledge, access and usage of these seeds. A series of constraints span both the hybrid maize and self pollinating seed systems.

Hybrid maize: The shortage of hybrid maize seed in Ethiopia is a national concern, and farmers are unable to access seed in the quantities that they demand. Supply shortages are a result of constraints faced by both public sector operations, which account for 60 percent of hybrid maize seed production, and private sector operations, which account for the remaining 40 percent of production.

The public sector faces: inconsistent and inaccurate demand planning; productivity gaps and financial constraints in contract grower schemes; misalignment of processing and delivery with major seed producing areas; unknown and poorly managed capacity; non-flexibility of distribution model in terms providing farmers with choices and information.

The private sector faces: a shortage of basic seed for private seed growers; public intervention in all commercial aspects of the seed delivery chain that prevents private companies from charging competitive prices or distributing through non-government channels; a business and regulatory environment that does not prioritize seed businesses in terms of resource allocation (e.g. access to foreign exchange to procure equipment,) and; insufficient support and start up funding for young seed companies.

Self-pollinated crops: Seed for self-pollinated crops face both demand-side and supply-side constraints. On the demand side, there is insignificant perceived advantage from seed in mass production over farmer-saved/traded options creating insufficient incentive to purchase seeds, as well as insufficient extension devoted to increasing farmer knowledge around varieties that deliver major improvements (e.g. yield increase, disease resistance). On the supply side, production of self-pollinated seed faces similar productivity gaps as hybrid maize; it is currently a loss-making enterprise for the public system, preventing ESE/RSEs from significantly expanding supply, and for the private sector companies that see little profit potential in such seeds.

Source: IFPRI 2010b

Box B 2. Assumptions in the Results Chain and Challenges	
Assumptions	Challenges
No bottlenecks in getting such large quantities into the country	Conflict with food-aid because of limited capacity at Djibouti port
No transportation & other bottlenecks to move fertilizers from port to warehouses	Limited infrastructure capacity in country. Transportation bottle necks as well as issues with getting fertilizers to farmers in time
Other inputs required such as water, and improved seeds are available	<p>Farmers have limited access to improved seed. In 2007/08, improved seeds were applied over about 5 percent of cereal acreage and only one percent of cereal acreage was irrigated (IFPRI 2011). Uncertain rainfall and very low levels of irrigation make intensive cultivation with fertilizers risky.</p> <p>“Ethiopia faces a wide set of issues in soil fertility that require approaches that include, but go beyond, the application of chemical fertilizers – the only practice applied at scale, to date. Core constraints include: topsoil erosion (some sources list Ethiopia among the most severely erosion-affected countries in the world, along with Lesotho and Haiti; rates estimated at 10-13 mm p.a. on average); acidity-affected soils covering over 40 percent of the country; significantly depleted organic matter due to widespread use of biomass and dung as fuel; depleted macro and micro-nutrients, and; depletion of soil physical properties, and salinity.” IFPRI 2010</p> <p>“The data shows that growth performance in agriculture is very much vulnerable to weather changes.” Adenew 2009.</p> <p>“agricultural output remains very variable and dependent on the climate” (ibid)</p>
the imported fertilizer varieties are suitable	<p>Only DAP and urea fertilizers were imported.</p> <p>“Current fertilizer recommendations deal with N and P dosage only, are at least 15 years old, and are largely standardized for the country—they are specified for major crop groups, but do not take into account agro-ecological variation.” IFPRI 2010</p> <p>“Ethiopia faces a wider set of issues in soil fertility beyond chemical fertilizer use, which has historically been the major focus for extension workers, researchers, policymakers and donors.”ibid</p>
fertilizers are available at a price that farmers can afford	high prices deterred farmers from buying the government-supported distribution of over 450,000 MT of fertilizer in 2008/09 (USAID 2010).

Box B3. Poor Rains in 2009

“Two major factors affected crop production in Ethiopia in 2009. The first was the virtual failure of the *belg* rains that not only reduced the 2009 *belg* harvest, but also delayed land preparation and prevented the planting of high-yielding long-cycle *meher* crops, such as maize and sorghum. These crops were often substituted by short-cycle crops such as teff, wheat and barley, which are inherently lower yielding. This shift contributed to reduce 2009 aggregate crop production. The second factor was inadequate performance of *meher* rains across the country, with late onset, erratic distribution and early cessation. This situation affected in particular central, south-eastern and southern Tigray, eastern Amhara (especially lowlands of North and South Wollo), Afar, Gambella, parts of Oromia (especially Illubabor, East and West Hararghe) and parts of Somali region and SNNPR. To a lesser extent, the poor performance of *meher* rains affected also some high-producing areas, such as North Shewa, East Shewa, Arsi and midlands and highlands of Bale in Oromia; Awi, East Gojam, West Gojam, North Gonder and South Gonder in Amhara; and Metekel and Pawe Special Woreda in Benishangul Gumuz. In these areas, the *meher* rainfall only began between the last week of June and mid-July instead of its normal start at the end of May/beginning of June. This caused delays in land preparation and there was a rush of jobs to be done all at once, such as ploughing, planting and weed control. Poor *meher* rainfall in pastoral and agro-pastoral lowlands of South Omo, Borena and lowlands of Bale and Guji reduced pasture and water availability, resulting in early migration of livestock.

As an example, the normal onset of the *meher* rains in Adigrat (eastern Tigray) takes place in the first week of June and the rains usually cease around September 20. In 2009, the *meher* rains began on June 22 and ended on August 22, almost a month too soon. There was also a break in rainfall from August 1 to 14 which resulted in the destruction of the pulse harvest and badly affected other crops. Then, once the rain resumed, there was good distribution until the first week of September, when there was a three-week dry period. This dry period coincided with the flowering and grain filling stages of both pulses and cereals and had an adverse effect on yields. Fortunately, the rain resumed again, beyond the normal season, at the end of September and saved many crops from total loss. However, yields and crop quality were both reduced because of this dry period at such a crucial growth stage in these high-potential zones.”

“Poor performance of the 2009 February to May *belg* rains, combined with several consecutive seasons of below-average rainfall, has resulted in water shortages, decreased pasture availability, and significantly reduced *belg* crop performance in southern and northeastern Ethiopia. The USAID-supported Famine Early Warning Systems Network (FEWS NET) reported that the *kiremt* rains started up to three weeks late in surplus-producing areas in Tigray, Afar, Amhara, and Oromiya regions. FEWS NET indicated that rainfall increased in August, but *kiremt* rains remained below normal as of August 25, increasing the likelihood of a significantly reduced *meher* harvest, the source of more than 90 percent of Ethiopia’s annual crop production. Farmers require adequate rainfall through September and early October to produce a normal crop. However, in early September, USAID/OFDA noted reports of slowing or early cessation of rains in some areas. As a result of poor rains and the exhaustion of coping strategies, USAID/OFDA staff anticipate a significant increase in the need for humanitarian assistance the remaining months of 2009 and into 2010.”

Note: About 68 percent of the farmers interviewed by the DSA evaluation responded that rainfall in 2009/10 was below normal in amount and distribution (DSA 2010).

Source: FAO/WFP 2010, USAID 2009

Table B 2. Estimation of Retail Price for Fertilizers

	cost element	Dap (Birr/quintal)	Dap US\$/MT	Urea (Birr/quintal)	Urea US\$/MT
1	c. & f.	592.47	537.72	404.85	367.44
2	Insurance	0.80	0.73	0.80	0.73
3	Clearing and transit	3.00	2.72	3.00	2.72
4	Bank charge (1.25% on c. & f. for 4 months)	2.47	2.24	5.06	4.59
5	Quality control and bagging (0.2 % on c. & f.)	1.18	1.08	0.81	0.73
6	Interest charge for 1 and 1/2 month (6.25 % on c. & f.)	4.63	4.20	25.30	22.97
7	Operating cost (8.4% on c. & f.)	49.77	45.17	34.01	30.87
8	Over head cost	0.75	0.68	0.75	0.68
9	Loss or spoilage	1.83	1.66	0.96	0.87
10	Distribution cost to warehouses	656.90	596.20		0.00
	Average inland transport to ware house (per kilometer per quintal is ETB .08)	20.90	18.97	9.16	8.31
	Unloading	1.50	1.36	1.50	1.36
11	selling price at		0.00		0.00
	Addis ababa warehouse	679.29	616.52	486.20	441.27
	Natherate warehouse	679.29	616.52	486.20	441.27
	shashemene	691.93	627.99	498.84	452.75
12	Transport cost from warehouse to cooperatives (per kilometer per quintal)	23.46	21.29	36.10	32.76
13	Loading and unloading	1.25	1.13	1.25	1.13
14	Administrative cost	2.50	2.27	2.50	2.27
15	Union selling price to primary cooperatives	719.14	652.69	526.05	477.44
16	Bank interest (8.5% on no. 15)	15.28	13.87	11.18	10.15
17	Administrative cost	2.00	1.82	2.00	1.82
18	Loading and unloading	2.50	2.27	2.50	2.27
19	service charge	5.00	4.54	5.00	4.54
20	Selling price of primary cooperatives to farmers	743.92	675.18	546.73	496.21

Source: Aide memoire November December Third Supervision Mission 2009

Table B 3. Estimated Sale Price of Merkeb Union at Bahir Dar and cost mark-ups

Cost component	Description	Cost in ETB / quintal	
		DAP	Urea
Central warehouse price	The price set for the different central warehouses. For Merkeb the price at Nazareth/Adama	686.32	493.23
Costs at central warehouse	These are costs related to warehouse rent, insurance, loading and unloading, staff cost at the warehouse (salary, per diem etc), and other miscellaneous cost	10.76	10.76
Transport cost	The transport cost from the Nazareth central warehouse to the different warehouse of the primary cooperatives, which varies according to the distance and road type and quality (average transport cost = 77.15 ETB/quintal)	77.15	77.15
Bank interest	The bank interest added each month	5.76	5.76
Profit Margin	The profit that will be retained for the union	5.00	5.00
Estimated price at Bahir Dar		784.99	591.9

Source: Aide memoire Second Supervision Mission May 2009

Table B 4. Cancellation of Resources from the 12 projects

No.	Project	Amount Cancelled (USD)	Amount Cancelled (SDR equivalent as at sept 30, 2008)
1	Cultural Heritage Project (Cr. 3632)	500,000.00	318,313.19
2	Capacity Building for Decentralized Service Delivery Project (Cr. 3698)	2,000,000.00	1,273,252.78
3	Public Sector Capacity Building Program Support Project (Cr. 3899)	20,000,000.00	12,732,527.79
4	Financial Sector Capacity Building Project (H. 2390)	7,000,000.00	4,456,384.73
5	Irrigation and Drainage Project (Cr. 4333)	10,000,000.00	6,366,263.89
6	Private Sector Capacity Building Project (Cr. 4027)	6,000,000.00	3,819,758.34
	Private Sector Capacity Building Project (H. 1410)	1,000,000.00	636,626.39
7	Water Supply and Sanitation Project (Cr. 3901)	11,000,000.00	7,002,890.28
	Water Supply and Sanitation Project (H. 0850)	2,000,000.00	1,273,252.78
8	Multi sectoral HIV/AIDS Phase II Project (H. 2790)	5,000,000.00	3,183,131.95
9	Food Security Project (Cr. 3646)	35,000,000.00	22,281,923.63
10	Rural Capacity Building Project (Cr. 42010)	13,000,000.00	8,276,143.06
11	Information and Communication Technologies (ICT) Assisted Development Project (Cr. 3985)	10,000,000.00	6,366,263.89
12	Post Secondary Education Project (Cr. 3984)	15,000,000.00	9,549,395.84
TOTAL		137,500,000.00	87,536,128.54

Annex C. Borrower Comments

From: Teshome Lakew <teshelak@yahoo.com>
To: Nkumar@worldbank.org
Cc: Mhuppi@worldbank.org
Date: 06/22/2011 02:58 AM
Subject: Comment on PPAR

Dear Ms. Nalini Kumar,

Attached here with please find the comment of Ministry of Agriculture on the draft PPAR.

We are expecting that our comment will be reflected on the final version of your report.

Thank You

Teshome Lakew

Director, Agricultural input directorate and Focal person for the FSP.



Comment on Project performance Assessment Report.docx

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Comment on Project performance Assessment Report Ethiopia Fertilizer support project

1 – General comment:

The IEG assessment report does not evaluate the project performance against the objectives of the project. That is “to increase the likelihood that crop production in 2009/10 would remain on or near the growth trends of recent years and to contribute to the government’s effort to ensure an aggregate availability of supply of chemical fertilizers for the 2009-2010 production season” which were successfully met. The report tried to evaluate the project which has specific objectives against the overall fertilizer market system and the availability of other productivity enhancing inputs such as seed and irrigation facilities, and finally come up with output rating which is not acceptable to Ministry of Agriculture.

2 – Specific comments

The draft assessment contains errors of fact and interpretation with material implications for the ratings. Please see our specific comments below.

- Rating of Outcome: U the intended outcome is restated for purposes of assessment in two dimensions: i) ensuring availability of supply of fertilizer adequate to meet demand, and ii) increasing the likelihood that production would remain on or near the growth trend, Outcome is rated in three dimensions (relevance, efficacy, and efficiency).

-Relevance: The author finds the project’s objectives substantially relevant, but the design only modestly so due to shortcomings in the results chain, the size of the project, and the arrangements for importation of fertilizer.

-Efficacy: the author finds efficacy to be modest due to late delivery of fertilizer and shortfall in production during the identified period.

-Efficiency: The author finds efficiency modest due to excess carryover of stocks.

Each of the points noted in the bulleted section above is addressed below,

- Results chain: The author notes that fertilizer is most effective when combined with improved seed, water, and technical advice, a point with which few would disagree, How project design should have been different to accommodate this is not clear, At several points (e.g., para 3.5) the author recognizes that under emergency conditions increased supply of seed, water, and advice could not have been accommodated within the same time frame as increased supply of fertilizer. A design that attempted to do so under emergency conditions would have been flawed. Seeds cannot be imported quickly in large quantities with assurance that they will be appropriate for a given agro-ecological zone. The importance of teff in the Ethiopian crop mix makes importation of seed even more difficult. Yet a more elaborated results chain (such as that in Figure 5) is presented with the suggestion that its inclusion in project design

“would have provided an opportunity to the Bank team to include discussion on these issues as a part of supervision missions and/ or as a part of policy dialogue and encourage the Borrower to give them greater attention..” The results chain presented in Figure 5 is not sufficiently informative to serve as a good vehicle for engagement with a client for the bank. The GOE in collaboration with development partners, including the WB, worked to improve problems of seeds, irrigation; management of land and water, and advisory services in the past several years, that contributed for the growth in production and productivity the agricultural sector. Thus, no need to address all these complicated issues with this very small and short period emergency project.

- **Size of the project:** The argument is presented in para 3.8 that the project was appropriately sized at the time of conception in mid-2008, but too large in light of the drop in fertilizer prices between September 2008 and January 2009, and that the project size should have been adjusted accordingly. “Since the drop in international prices came before the project had been actually approved, measures could have been explored to reduce the project size to match it with the amount of fertilizers needed.” The project size could not have been changed mid-stream without increasing risks of delay in approval, and hence delay delivery of the fertilizer. In para 9.1 the author notes, “The project went from concept review to approval in under three months and given the number of steps that are involved in getting approval, ministry of Agriculture and the Bank staff must have worked under enormous time pressure.” Had the project been resized mid-way through, many of those steps would have had to have been repeated. Were project size truly an impediment to the relevance of design, then the practical remedies would have been two: either start with a smaller size (and risk undersupply), or restructure after approval. As prices moved from peaks in August to lower prices in October, it was unknown whether they would remain low, and hence the risk of undersupply would have been substantial. In fact the project was not too large. Its size allowed objectives to be met in the target year, and stocks were carried over for use in the next season. The issue of carryover stocks is addressed below in the discussion of efficiency.
- **The sole importer arrangement:** The bulk fertilizer procurement arrangement through one nominated importer was not an outcome of the fertilizer support project as the IEG report mentioned. It was introduced based on the Abuja declaration of the African head of states. The objective is mainly to get price advantage due to economics of scale in fertilizer procurement. In this arrangement the importer of the fertilizer for the season is nominated by the other importers to purchase fertilizers on behalf of them. It should also be noted that the fertilizer was procured on ICB base and the distribution and retail price was not determined by Ministry of Agriculture, it was determined by fertilizer distributors and retailers. Thus the whole idea regarding the one importer/bulk purchase arrangement reflected on the report is far from the reality.
- **Late delivery of fertilizer:** The assertion that fertilizer was delivered late is not substantiated. Nor is a case well made that timing of delivery had an impact on the response to fertilizer. As noted in para 4.5., rains were delayed and farmers therefore

delayed purchases. The impact evaluation undertaken by DSA reports that in a sample of 550 farmers in four regions, 74% of respondents said that delivery was timely and 24% said that it was late. In the same study the group discussions participants agreed that fertilizer was supplied timely. This information is conveyed in footnote in the PPAR, with emphasis on the 24% reporting late delivery. The author implicitly judges 74% to be too low, but does not offer an alternative target that would have constituted adequate timeliness. No target is specified in the PAD. If a target is to be imposed by IEG after the fact as metric for rating, the justification for selection of that target should be included. The timeliness of delivery during the project period was at least as good as in the past, and according to qualitative responses in the impact evaluation, often better.

- **Shortfall in production:** The author acknowledges the well known ambiguities in Ethiopian production data. Given a choice between the FAO/WFP data that show a decline of production by 5 percent on a calendar year basis and CSA data showing an increase of about 5 percent on a crop year basis, she prefers the lower number. The author does not note that even if the choice is to use the FAO/WFP data, these data for 2009-10 represent an increase of 11% over the average level of production in the past five years. She further argues that if one accepts the CSA data showing an increase, either 5.2% or 7% depending on the basis chosen, growth is less than the 11% trend. The wording of the PDO; i.e., to increase the likelihood that production would remain on or near trend, “does not require achieving a specific quantitative target. If one had to define a metric for this, a plausible definition would be within the interval between the trend line and the average level of the past five years. No metric was included, however, by intent, since it would be highly risky to identify a point forecast of agricultural production in given year as a target for an output indicator for project performance. The wording captures the intent to avoid a domestic supply shock due to lack of fertilizer at a time of high international food prices. That intent was achieved; the fertilizer was delivered in quantities and largely on time to meet demand. It did increase the likelihood that production would be normal, and ex post it was.
- **Efficiency:** The author finds efficiency low because the quantity purchased was in excess of that used in one season, and the excess was carried over. “...scarce foreign exchange resources were locked up in fertilizer overstocks whereas these could have been used for meeting alternate pressing needs in a crisis situation.” Whether purchase and carryover was economically efficient depends on the physical depreciation during the period of storage, the price path, fungibility of resources, and carrying cost of finance. A landlocked country with less than fully certain supply and availability of foreign exchange would be expected to hold carryover stocks. Stocks were useful for supply during the first planting season, and were replenished after the imports under the project arrived. The resources used for fertilizer were only partially fungible, since they were available for crisis response, and not for other purposes. More could have been used for safety nets and less for fertilizer, but the optimal proportion was not known ex ante. No evidence of significant physical deterioration during storage is provided, and the author appears to agree that stocks were used in the next season (para 7.2). No evidence is presented to show that purchase and

storage was economically less advantageous than returning to the market at a later date. The author could have included information from the impact evaluation showing that use of fertilizer at the farm level was profitable. This information would have been relevant to the question of efficiency, but was omitted.

- The assignment of U for outcome is based, in addition to the above, on a number of ancillary points; e.g., logistical constraints (which were resolved within weeks and did not adversely affect outcomes), displacement of WFP shipments (resolved through the use of another port), and inadequate availability of seed (a chronic problem neither worsened nor addressed under the project).
- The project met its objective to supply fertilizer in sufficient quantities to support production at a critical period when the counterfactual would have led to enormous hardship and much greater cost of remediation. The rating for outcome should be revised to S.
- **Borrower Performances: Moderately Unsatisfactory** the Government's performance is rated moderately unsatisfactory due to overestimation of demand, an issue with financial management, and delay in implementation of safeguards. The Government routinely overestimates demand, and techniques for estimation should indeed be improved. The quantity of fertilizer provided under the project was less than the official estimate of demand; additional supplies financed by AfDB and the Government of Japan were approved after this project, and constituted the marginal amounts. Excess supply was effectively carried over and subsequently used. The financial management issue was corrected by the end of the project, and did not have an impact on results. The Government's performance should be rated satisfactory.
- **The implementing agency's** performance is rated moderately unsatisfactory due to lagged progress on M & E, safeguards, and fiduciary issues. Each of these was largely remedied by the end of the project, and the impact evaluation yielded useful information. The PPAR Correctly notes staff shortages in MOARD, and these are chronic. The performance of the implementing agency should be rated satisfactory.

The performance of Borrower overall should be rated Satisfactory.