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QUARTERLY REPORT #09 (JANUARY – MARCH 2013)

Capacity to Improve Agriculture and Food Security (USAID-CIAFS)

April 2013
This publication was produced by Fintrac Inc. for review by the United States Agency for International Development.

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Cover Photo: A trainee presenting the outcomes of a group discussion on the challenges and opportunities of the agriculture sector in Ethiopia

Photo by Fintrac Inc.

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States government.

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1. EXECUTIVE SUMMARY

This is the ninth quarterly report for the USAID Capacity to Improve Agriculture and Food Security (CIAFS) project for January to March 2013. USAID-CIAFS supports Ethiopia's efforts to transform its agricultural sector and improve food security for the Ethiopian people by providing targeted training and raising awareness of best practices in agricultural development. The project strives to empower leaders to catalyze change, drive growth, and reduce poverty.

Since its inception in 2011, the project has carried out needs assessments, and designed and implemented tailor-made training programs on leadership, entrepreneurship, and competitiveness to the public and private sectors and civil society leaders and professionals. The impact assessments the project conducted for both public- and private-sector trainings indicated the project's capacity building activities were achieving results. Trainees attributed increased incomes, streamlined administrative procedures and communications, and the development of innovative solutions to address bottlenecks directly to the project's interventions. During the quarter, USAID-CIAFS provided monitoring and evaluation support for Feed the Future (FTF) partners to track agricultural indicators critical to Ethiopian food security.

USAID-CIAFS implemented the following major activities this quarter:

- Delivered **leadership training to 66 (33 percent women) agents of change** from federal Ministry of Agriculture (MOA) and Tigray Bureau of Agriculture.
- Delivered **food and nutrition security leadership training to 54 CBO/NGO leaders** in collaboration with the International Orthodox Christian Charities and the USAID-ENGINE project.
- **Activated a network of CIAFS-trained agents of change** and other key stakeholders with the launch of the agents of change journal.
- Delivered **analysis of the seed certification process**, which is being used by the Agricultural Transformation Agency (ATA) and the MOA to improve and streamline seed development, multiplication, and distribution, under the January 2013 Seed Proclamation.
- **Disseminated contract farming study** to more than 400 agriculture sector stakeholders.
- Organized the fifth quarterly **FTF partner coordination meeting** focused on integrating nutrition into Feed the Future projects.
- Disseminated two installments of the **Tools for Transformation** series:
    - *Maize Production: Impact through Improved Agronomic Practices*
    - *Fertilizer: Impact through Boosting Soil Fertility*

2. BACKGROUND

USAID-CIAFS, a four-year project funded by the United States Agency for International Development (USAID) and based in Addis Ababa, builds the institutional capacity of government, trade associations, civil society, and other stakeholders to improve Ethiopia's agricultural production and productivity. The project also serves as a foundational platform to support other USAID/Ethiopia Feed the Future programs to achieve the ambitious targets of this US government initiative. Objectives of FTF include increasing agriculture productivity, preserving natural resources, improving agricultural marketing, increasing the purchasing power of vulnerable households, and maximizing food security. This strategy is in line with the L'Aquila Principles endorsed at the July 2009 G8 meeting, particularly the first two principles: "adopting a comprehensive approach to food security" and "investing in country-led plans."

USAID-CIAFS:

- Improves human and institutional capacity for sustainable agricultural productivity through strategic capacity building activities for key agents of change.
- Enhances technology and best practice dissemination, management, and implementation capacity through study tours.
- Contributes to improved agricultural policy environment through analytical studies and public-private dialogues.
- Enhances the monitoring and evaluation capacity of the Federal Ministry, Regional Bureaus of Agriculture, and other USAID-funded agricultural projects.

The project implements activities focused in four main technical components: strategic capacity building, analytical studies, technology and best practice dissemination, and M&E support. Its geographic coverage includes the Amhara, Oromia, SNNP, and Tigray regions.

Year three work plan activities include:

- Leadership training for the Ministry of Agriculture at federal and regional levels.
- Competitiveness training for agribusinesses.
- Leadership and entrepreneurship training targeted to women business owners.
- Identification and dissemination of Ethiopian and international best practices for climate change adaptation and agricultural transformation.
- Public and private forums on large-scale commercial agriculture and milk supply and consumption.
- Market analysis and competitiveness studies on chickpea, frozen meat, milk, cotton, and honey.
- Capacity building for community-based organizations (CBO) and local nongovernmental organizations on food security and nutrition.
- A targeted grants program for USAID-CIAFS agents of change to apply new ideas or educate the broader public about important agricultural policy issues.
- Training and ongoing mentoring to FTF implementing partners on the use of USAID/Ethiopia's FTF management system.
- Data quality assessments of FTF projects.
- Training and ongoing support of MOA and regional bureaus of agriculture, including data management, GIS, and bi-annual planning and M&E review process.

3. HIGHLIGHTS OF ACTIVITIES AND RESULTS

3.1 STRATEGIC CAPACITY BUILDING

USAID-CIAFS delivers leadership training to senior authorities from the MOA and Tigray Bureau of Agriculture

Training Ethiopian agents of change to advocate for policy reform to improve the enabling environment and lead transformation in the agriculture sector is integral to the USAID-CIAFS capacity building strategy. The project, in collaboration with the Ministry of Agriculture, delivered leadership training to 66 agents of change from federal MOA and Tigray Bureau of Agriculture (33 percent women) from January 10 to 13, in Adama. This training is part of the project's efforts to support the FTF objective of improving agricultural productivity through enhanced human and institutional capacity development for increased sustainable agriculture sector productivity. The goal of the training was to cultivate thoughtful, engaged leaders who will advocate for and catalyze agricultural transformation.

To link agricultural activities with food security during the training, USAID-CIAFS worked with USAID's Empowering New Generations in Improved Nutrition and Economic Opportunities (ENGINE) to integrate a new nutrition component (including how to recognize signs of nutrition and malnutrition; prevention of stunting and wasting; practical definitions of food and nutrition security) into its well-established leadership training curriculum. By incorporating nutrition information into agents of change training, USAID-CIAFS and ENGINE hope to strengthen the cross-sectoral institutionalization of nutrition concepts.

TRAINING TOPICS INCLUDED:

- Food security status in Ethiopia and Tigray
- Challenges to achieving food security in Ethiopia
- CAADP, Ethiopian agricultural policy, and the investment environment for agriculture
- The roles of agents of change in enhancing food security
- Opportunities and challenges in agricultural transformation
- Climate change
- Nutrition and malnutrition
- Prevention of stunting and wasting
- Practical definitions of food security and nutrition security
- Gender
- Leading and managing change
- Strategic thinking and planning
- Advocacy and messaging
- Emotional intelligence
- Managing human resources; managing conflict
- Customer care in the public sector
- Creating action plans to take the agenda forward

Since its inception in 2011, USAID-CIAFS has designed and implemented tailor-made training programs on leadership, entrepreneurship, and competitiveness to public, private, and civil society leaders and professionals. The **project has trained 608 public sector agents of change in Amhara, Oromia, Tigray, and the MOA** and an additional **281 agents of change from the private sector and civil society**. Participants surveyed in training impact assessments have cited the project's contributions to improving administrative procedures and communications between federal and regional offices of the Ministry of Agriculture.

Participants at the Federal and Tigray Leadership Training discussing the challenges and opportunities of agriculture sector

As part of a strategy to continuously update and improve USAID-CIAFS training programs, the project contacted 57 former public sector trainees in Amhara for feedback, as well as for information on the impact of the training on their day-to-day work. More than 60 percent report that they have applied their new skills to focus and streamline activities within their processes and directorates and agree that USAID-CIAFS training has improved their ability to provide information and services to agriculture sector clients. At the farm level, improvements in MoA service delivery translate into farmers receiving more timely information about disease and pest outbreaks, and quicker delivery of agricultural inputs and medications for livestock, preventing crop and animal losses. They also attribute improvements in their leadership style directly to USAID-CIAFS trainings.

> "The training will enable me to address Ethiopia's long standing problems, and continue delivering programs to reduce food insecurity."
> *Genene Tefera, PhD*
> *Institute of Biodiversity Conservation*

USAID-CIAFS delivers leadership training to senior staff from NGOs and CBOs

In recent years, local nongovernmental organizations (NGOs) and community-based **organizations (CBOs) have emerged in** Ethiopia in response to the overwhelming challenges of poverty, food and nutrition insecurity, and public health challenges such as HIV/AIDS. NGOs and CBOs play an important role for food and nutrition security in Ethiopia. They are well-positioned to influence agricultural production and health and nutrition decisions in the communities they serve and are often far more effective than international organizations given their comprehensive knowledge of local populations. They are also better placed to improve agricultural productivity in a sustainable way; they work in partnership with other local institutions and the government targeting women, men, and marginalized populations to participate in their programs. However, they often lack the capacity to develop and implement activities that achieve food security.

Photo by Fintrac Inc.

Dr. Habtamu of USAID-ENGINE, filling the African broken pot symbolizing the need for everyone's contribution to achieve food security

USAID-CIAFS, in collaboration with the International Orthodox Christian Charities (IOCC), and the USAID-ENGINE project, delivered food and nutrition security leadership training to 54 CBO and NGO leaders on March 14 to 16. The training provided participants with strategies to effectively link food and nutrition security with their activities. Trainees left the event equipped with the knowledge and skills to lead change: they learned about food and nutrition security issues; new advocacy tactics; how to analyze local challenges to agricultural growth and food security; and how to develop innovative actions to address them. Trainees learned strategies to identify problems and weaknesses before they become bigger issues, visualize the gap between the current situation and desired goals, and learned how to engage others in collaborative dialog and brainstorming to develop new solutions to long term challenges.

3.2 DISSEMINATION OF BEST PRACTICES, TECHNOLOGIES, AND INNOVATIONS

USAID-CIAFS disseminates Agents of Change Journal to its trainees in the public sector

Agents of change who participate in USAID-CIAFS training events return to their jobs energized and empowered with new knowledge and skills, but they still face significant challenges including a lack of opportunities to support and learn from each another. The USAID-CIAFS project is committed to providing trainees with ongoing support after training ends. This quarter, USAID-CIAFS published and disseminated the first edition of the Agents of Change Journal to former trainees and other key agriculture sector stakeholders. The journal contains articles by agents of change and profiles their accomplishments. It also supplements their knowledge by highlighting articles on leadership in an effort to provoke discussion among them, keeping them informed, energized, inspired, and committed to change.

USAID-CIAFS continues to reach out to agents of change for contributions to ensure the journal is a platform to exchange expertise and improve the effectiveness of their work. The project is currently drafting a second issue of the journal.

USAID-CIAFS continues to reach agriculture sector stakeholders with Tools for Transformation briefs

USAID-CIAFS continued distributing technical bulletins through the Tools for Transformation series to agriculture sector stakeholders and agents of change. The series promotes agricultural best practices that have proven effective in the Ethiopian context. They are distributed to stakeholders via email, as well as posted at www.ethiopia-ciafs.org. USAID-CIAFS has reached more than 200 stakeholders with 16 editions of the series to date. The *Tools for Transformation* briefs distributed in this quarter were:

- Maize Production: Impact through Improved Agronomic Practices
- Fertilizer: Impact through Boosting Soil Fertility

3.3 DEMAND-DRIVEN ANALYSES FOR POLICY DIALOGUE

USAID-CIAFS seed certification study submitted to the Ministry of Agriculture

The Ethiopian government recently reaffirmed its commitment to improving the enabling environment for agriculture at the G8 Summit in May 2012, where the New Alliance for Food Security and Nutrition was created. This alliance represents a commitment by G8 nations, African partner countries, and private-sector partners to lift 50 million people out of poverty over the next 10 years through inclusive and sustained agricultural growth. In line with this commitment USAID-CIAFS, in collaboration with the ATA and IFPRI, completed an analytical study on seed certification with specific recommendations to streamline seed development, multiplication, and distribution. The report, which was submitted to the Ministry of Agriculture in January, will inform the development of new guidelines and regulations to support the new seed proclamation, which was passed by the Ethiopian Parliament in early 2013. USAID-CIAFS continues to work with the ATA's seed program to support the MOA's agricultural transformation agenda by improving and streamlining current practices in seed development, multiplication, and distribution.

The study assessed current seed certification practices and identified areas where policy change is needed to increase the availability of certified seed to satisfy national demand. It examined critical policy challenges related to seed certification to support agriculture growth and poverty reduction and made recommendations that balance the regulatory interests of the Ethiopian government with the efficiency required by the private sector. The recommendations in the report included:

- Establish national standards for seed quality control and certification.
- Create an independent seed certification entity.
- Require seed laboratories to be accredited.

- Require certification of source seed according to clear standards.
- Improve testing of and certification of genetic purity.
- Allow certification of seed multiplied through informal (nongovernmental) programs.
- Centralize the tagging and labeling of certified seed to promote accountability and traceability.
- Ensure post-certification quality control at seed distribution and marketing levels.
- Promote higher education in seed technology.
- Build capacity of MOA and BOA staff involved in seed certification.
- Create channels for sector stakeholders to participate in ongoing review of seed quality control and certification regulations and procedures.

USAID-CIAFS distributes the findings on contract farming

USAID-CIAFS has distributed more than 400 copies of its contract farming study to individual and institutional stakeholders. Recipients of the report include investment agencies, the Ministry of Agriculture, chambers of commerce, universities, and bureaus of agriculture.

The Ethiopian government recognizes the potential of contract farming as an important means for technology diffusion and commercialization for smallholders. The government's Plan for Accelerated and Sustained Development to End Poverty describes contract farming as a strategy to shift smallholders from low-value crops to export commodities, simultaneously enhancing food security and increasing government revenue. Contract farming has been attempted in Ethiopia for seed production, milk processing, and production of tree crops, however, initial observations suggested that the absence of a legal framework for contract farming in Ethiopia undermines the potential benefits that smallholders and commercial farmers can obtain from such schemes, such as integrating smallholders into export value chains. USAID-CIAFS conducted a rigorous analysis of the topic to produce evidence-based recommendations for agricultural sector stakeholders. The study drew on field data collection, including visits to selected farms, and in-depth interviews with appropriate government departments (mainly in the Ministry of Agriculture), NGOs, and donors and researchers involved in contract farming in Ethiopia. .

Following the completion of the study, USAID-CIAFS organized a public-private dialogue workshop in December 2012 to provide a critical bridge between analysis and policy reform action. The project is working with relevant government institutions and partners to disseminate the report recommendations and develop next steps.

3.4 MONITORING AND EVALUATION SUPPORT

USAID-CIAFS MoA training impact assessment

As part of the effort to continuously improve its training program, USAID-CIAFS conducted training impact assessments of leadership training delivered to the Federal MoA and Amhara Regional MoA. The findings revealed that trained agents of change have begun to apply their new knowledge and skills to catalyze change in their regions.

Photo by Fintrac Inc.

MoA extension agent in Amhara shows the effects of applying bio-fertilizer to sesame plants.

One example from Amhara is a partnership that two trainees formed after the 2011 training. Collaboration between government laboratories is not the norm in rural Ethiopia. Laboratories that may only be a few kilometers away from each other are completely independent in terms of developing and implementing activities. When Dr. Nuria of the Bahir Dar

Animal Diseases Investigation and Diagnostic Laboratory and Dr. Tehona of the Soil Testing and Improvement Center attended USAID-CIAFS leadership training, they knew of each other but had never collaborated. During the course of the training, which emphasized collective approaches to problem-solving, Drs. Nuria and Dr. Tehona agreed to pool their resources to pilot the production of bio-fertilizer for use on food security crops. The pilot was success: smallholder farmers who applied the new bio-fertilizer to their sesame crops doubled their yields. Dr. Tehona quickly followed up proposing the construction of a new microbiology laboratory equipped and staffed to produce bio-fertilizer to offer this new product to farmers. The Amhara Regional Government approved Dr. Tehona's proposal, allocating approximately ETB 25 million to construct and equip a new laboratory that will produce bio-fertilizer for up to 500,000 farmers per year, under Dr. Tehona's leadership. Construction work for the laboratory is already underway.

USAID-CIAFS has distributed more than 500 copies of the report detailing this and other examples of how trainees are applying their leadership training. The project is using the findings of the assessments to acknowledge successes, give agents of change an opportunity to learn from each other, and to inform the design of future training events.

USAID-CIAFS private sector training impact assessment

USAID-CIAFS finalized the private sector training impact assessment report detailing the immediate impact of the trainings on participants' businesses. Over 90 percent of respondents reported that the training increased their capacity to assess the potential competitiveness of different products, thanks to the training. Of these respondents, 38 percent reported that applying their new skills has contributed to increased production and productivity to "a large extent," and 56 percent replied that it has contributed to increased production and productivity "to some extent." More than 85 percent of respondents report that they have already used the knowledge obtained from the training on entrepreneurship to expand their existing business.

The assessment also revealed ongoing challenges to agribusiness growth, some of which may be addressed through targeted follow-up trainings, analytical studies, and best practice dissemination These include:

- Limited access to land
- Scarcity and high cost of inputs
- Lack of extension services for some sub-sectors (i.e. dairy)
- Lack of access to technology for some sub-sectors (i.e. dairy)
- Informal markets for some products such as coffee
- Traceability issues related to commodities traded by the ECX, especially coffee
- Product shortages for value-added processing (scarcity of quality coffee beans for roasters)
- High price volatility in the coffee market
- Quality and food safety standards certification, especially for honey
- Lack of knowledge of meat quality standards
- Lack of incentives for private sector investment, especially for sesame
- Lack of access to Finance
- Inefficient service delivery on the part of public sector service providers

USAID-CIAFS and USAID/Ethiopia organizes FTF partner coordination workshop

USAID-CIAFS sponsored the fifth quarterly FTF implementing partner coordination meeting on March 19, 2013. The objectives of the meeting were to provide an update on the clear current status of nutrition in Ethiopia, outline the vision and strategy of the Ministry of Health and MOA to achieve

Millennium Development goals, introduce the MoH/MoA/USAID's Pathway from Agriculture to Nutrition (Ag-Nut Pathway) Framework, and review FTF implementing partner activities through a nutrition lens. Partners identified gaps in nutrition activities and agreed on next steps, including finalize nutrition components of their workplans, and for USAID to finalize indicators to monitor and evaluate nutrition outcomes and across FTF projects. USAID-CIAFS compiled the minutes of the meeting for circulation.

4. SUMMARY OF PLANNED ACTIVITIES FOR NEXT REPORTING PERIOD

4.1 STRATEGIC CAPACITY BUILDING

- Leadership training for SNNP, Oromia, and Amhara BOA staff.
- Train MOA public relations staff on video production.
- Award climate change curriculum development grants.

4.2 DISSEMINATION OF BEST PRACTICES, TECHNOLOGIES, AND INNOVATIONS

- Produce best practice communications tools (print and electronic).
- Conduct climate change adaptation study visit.
- Disseminate three editions of the *Tools for Transformation* series.
- Award climate change best practice dissemination grants.

4.3 DEMAND-DRIVEN ANALYSES FOR ENABLING ENVIRONMENT

- Competitiveness studies on chickpea, meat, milk, and cotton.
- Conduct public-private dialogue workshop on seed certification.

4.5 PLANNING, MONITORING AND EVALUATION

- Provide advanced data management training for Federal MOA M&E staff.
- Organize quarterly FTF partner coordination meeting.
- Conduct semi-annual planning workshop for the MOA.
- Provide FTF management system training to partners.

4.6 COMMUNICATIONS

- Produce and disseminate three success stories.
- Produce and disseminate next issue of Agents of Change Journal.
- Update website.

ANNEX 1:

TOOLS FOR TRANSFORMATION

Tools for Transformation | #15: Maize Production: Impact through Improved Agronomic Practices

Maize is a critical contributor to food security for Ethiopian households. More than 8 million smallholder farmers produced maize in 2008-2009, compared to 5.8 million for teff and 4.5 million for sorghum.[1] The demand for maize in Ethiopia is high because it is the least expensive cereal and a low-cost source of protein.

The Ethiopian government recognizes the importance of maize to the country's economic and social development, and has emphasized cereal production and marketing in its strategies and policies for agricultural transformation. Although it is Ethiopia's most cultivated crop, maize still has significant growth potential.

By using improved seeds, applying fertilizer, and adopting improved farm management practices such as crop rotation, maize production could more than double.[2] In addition, post-production handling and storage improvements could result in a greater percentage of farmers' yields reaching the marketplace, allowing farmers to reserve surpluses for sale when prices increase.

The implementation of good agricultural practices in maize production will help farmers in Ethiopia achieve high yields, boost incomes, improve food security, and significantly impact the nutritional status of families.

[1] Central Statistics Agency, http://www.csa.gov.et
[2] International Food Policy Research Institute, http://www.ifpri.org/sites/default/files/publications/ethiopianagsectorwp_maize.pdf

Maize in Ethiopia - Agronomic Lessons Learned

Identify suitable agro-ecology
Soil should be deep and loamy with a neutral pH, ideally between 6.3 and 6.5. Fields should be well drained and free of waterlogging. The climate should be warm and the zone should not be prone to frost.

Rotate crops and prepare the land
Crop rotation protects soil against nutrient loss and pest infestation. Rotate maize with legumes such as soybeans, haricot beans, and other pulses, which restore the soil's nitrogen levels. During the dry season, improve the soil's moisture-holding capacity by terracing or adding humus. A month before sowing, spread natural fertilizer to improve soil texture and reduce evaporation.

Use modern inputs
Choose improved hybrid seeds, such as the *wogere* local variety; apply lime or gypsum to correct soil pH; and apply chemical fertilizers appropriately. Fertilizer recommendations are location specific. Farmers should obtain a fertilization schedule from the development agents in their village.

Plant strategically
Plant at the beginning of the growing season to mitigate the risk of inadequate rainfall when the dry season begins. The exact time will depend on whether the climate is arid, humid, moist, or any variation in between. Row planting is recommended; plant density varies based on plant height and time to maturation. Thin and hoe when the crop grows four to six leaves.

Control pests and weeds
Implement a combination of cultural, biological, botanical, and chemical controls to address pests such as the maize stem borer and termites and weeds. Hand weeding, both practical and economical, should be done at least twice: 25-30 days after sowing and when plants reach knee height.

Harvest timely
The optimal harvest schedule is determined by corn type. For young corn, harvest 60 to 80 days after planting; for corn on the cob, harvest 80 to 105 days after planting; and for livestock feed, harvest 95 to 115 days after planting.

Minimize postharvest losses
Prevent losses due to improper handling, processing, and storing, all of which make crops susceptible to damage, by implementing integrated pest management, managing the crop's moisture level, and using airtight containers and improved storage structures.

Utilize extension services
Technical guidance and information is available from local development agents. Smallholders should be encouraged to take advantage of these resources.

The Tools for Transformation series promotes best practices for the agriculture sector that support the Ethiopian government's strategy to secure the long-term prosperity and food security of the Ethiopian people.

Tools for Transformation | #16: Fertilizer: Impact through Boosting Soil Fertility

When applied properly, fertilizer can increase yields and improve productivity. Ethiopia's Growth and Transformation Plan recognizes the importance of fertilizer for maintaining soil fertility and maximizing agricultural growth in the country. Although fertilizer consumption in Ethiopia more than doubled between 2006 and 2012, it has not kept pace with the expansion of cultivated land. In Oromia, for example, less than 40 percent of *teff*, less than 30 percent of wheat and maize, and less than 5 percent of other crops are produced under fertilization. To increase usage, a strategy that addresses the major constraints to supply and demand must be implemented. Competitive pricing and better availability will make fertilizers more accessible for smallholders, and demand can be strengthened through extension programs that focus on technical education, access to credit and improved seeds, and better links to market.

Currently, the Ministry of Agriculture (MoA) assesses the total annual demand for fertilizer in each region and plans imports based on that information. However, the MoAs assumption that all farmers will use the same amount of fertilizer for all crops, without studying the type of soil, crops sown, and other factors, has led to inaccurate estimates.

Private sector suppliers face similar difficulties in estimating demand for fertilizers, as well as challenges in transporting their product inland. There is a shortage of trucks and storage capacity in the country, aggravated by delays in communicating price information. Demand is also limited by the lack of capacity in and knowledge of appropriate nutrient mixes and applications that maximize yields.

Essential to the Ethiopian government's current fertilizer policy are the establishment of 20 regional soil labs that test soil to determine the fertilizer needs and the allocation of MoA extension agents to train farmers in proper application and the benefits of balanced fertilizer use. Additionally, the National Fertilizer Blending Program will provide facilities that produce fertilizer blends tailored to the unique needs of Ethiopian soil. These programs will greatly improve the efficiency of fertilizer and further encourage its use.

In addition to testing soil, the following steps are needed to achieve a sustained increase in fertilizer use in Ethiopia:

- Establishment of quality standards and regulations across regions
- Testing of fertilizer samples and law enforcement against adulterated fertilizer
- Investment in transportation infrastructure, storage, and distribution channels
- Sale of fertilizer in smaller packages (e.g., 12, 25, or 50 kilograms)
- Reduction of restrictions on private-sector imports
- Participation of cooperatives in policy development
- Implementation of a planning and information system that includes data collection and monitoring
- Increased access to financing across the value chain

These reforms can reduce supply chain costs, improve timelines for fertilizer delivery, facilitate competitive pricing, and help suppliers achieve economies of scale. This integrated approach will ultimately have a quantifiable impact on Ethiopia's soil fertility and long-term food security.

Ingredients for Growth: Determining the Best Nutrient Mix

The goal of a fertilizer program is to correct nutritional deficiencies in soil, maximize plant growth, and minimize pollution or unwanted changes in soil. The proper nutrient blend and effective application are essential to increasing crop yields. The ideal fertilizer mix is determined on a case by case basis depending on the crop, soil nutrient requirements, soil structure and chemistry, and climate.

Farmers in Ethiopia follow blanket fertilizer recommendations for Urea, a fertilizer with high nitrogen content, and diammonium phosphate (DAP), a fertilizer with high phosphate content –the two most frequently used fertilizers in Ethiopia. However, because farmers use different combinations and concentrations of the two types of fertilizers, there is a concern that application may deplete the soil of other important elements such as potassium, magnesium, calcium, and other micro-nutrients.

Of the 18 nutrients necessary for plant growth, nitrogen, phosphorous, and potassium are the primary elements and those most likely to be lacking in the soil. The proper fertilizer blend should reflect the amounts of the three main elements needed in the soil.

If the exact fertilizer formula is not available and cannot be made, the application of fertilizer should be determined by the nitrogen requirements.

Helpful hint: Nitrogen fertilizers generally promote leafy top growth, phosphorous is used for root and fruit production, and potassium improves disease resistance and durability.

Types of Fertilizers:

- *Complete*: Contains all three primary elements.
- *Incomplete*: Lacks at least one of the major components.
- *Slow Release*: Provides plants with a continuous supply of nutrients as they develop.
- *Organic*: Nutrients are derived from a once-living organism.
- *Liquid*: Various formulas, all should be diluted with water.

Types of Application Methods:

- *Broadcasting*: Apply fertilizer evenly over growing area and leave to filter into soil.
- *Branding*: Apply thin bands of fertilizer about five centimeters deeper than the seed.
- *Fertigation*: Distribute fertilizer to roots through drip irrigation.
- *Side Dressing*: Apply dry fertilizer on both sides of the row after plants are growing. Rake and water.

The Tools for Transformation series promotes practices for the agriculture sector that support the Ethiopian government's strategy to secure the long-term prosperity and food security of the Ethiopian people.