

Coffee Value Chain Assessment - Ethiopia

February 24 – March 6, 2016

Executive Summary

Ethiopia holds the richest genetic diversity for coffee in the world and forms a critical part of the national economy. Cultivated, semi-wild and wild Arabica varieties can provide unique disease resistance, environmental adaptation and quality traits needed to confront global climate change.¹ According to the latest Government of Ethiopia (GoE) agriculture census, more than 4 million smallholder farmers are involved in coffee farming and the International Coffee Organization reported 397,500 MT of production during 2014/2015.² The crop earns critical foreign exchange comprises 6 percent of the total agriculture economy of the country and 21.9 percent of total exports.³ Expansion of plantation coffee in forest and semi-forest areas is raising concern that genetic resources may be irretrievably lost.⁴ At the same time, overall yields and smallholder farmer share of income have not increased. This assessment recommends a new approach that links smallholder farmers to innovative direct marketing initiatives of both coffee cooperative unions and commercial coffee farms.

An analysis of the value chain indicates lack of transparency in marketing and limited profit margins create disincentives for farmers. Focus group interviews of farmers highlighted their belief that it is unprofitable to invest in coffee without higher prices for their production.⁵ Finding ways to link farmers to high value markets in a transparent, sustainable and equitable manner will create incentives needed to increase productivity and quality. Increased productivity, improved plant breeding research, and the development and dissemination of new coffee varieties that are better adapted to warmer temperatures, erratic weather and new disease and pest threats should be a priority. But these efforts to increase yield, quality, and access to higher value markets must be done sustainably through win/win relationships among smallholder producers, cooperatives and commercial farmers.

This proposal provides an assessment of the Ethiopia coffee value chain, identifies constraints, and recommends a Push Pull strategy in which both the capacity to produce high quality coffee and create linkages to premium markets is combined with activities to strengthen all participants. The Direct Trade market, according to the Agriculture Transformation Agency (ATA) has averaged approximately 20,000 MT annual trade volume the last three years and represents an excellent opportunity to support smallholder farmer participation in out grower (contract farming) agreements with commercial coffee farms and cooperative unions.

This approach can create synergy linking the efforts of innovative firms to access high value markets in a way that ensures equitable returns to smallholder producers. The program will support 3,500 smallholder farmers to improve coffee productivity, reduce costs, and create more effective and competitive value chains with a focus on increased food security, inclusive growth, a strong enabling environment for agricultural transformation, more efficient markets. Working together Ethiopia's coffee sector participants can create a sustainable and equitable coffee sector that benefits a wide range of value chain participants.

¹ Origin and Genetic Diversity of Coffea Arabica L. Based on DNA Molecular Markers. P. Lashermes¹, M. C. Combes¹, J. Cros¹, R. Trouslot², A. Charrier¹. 1 - ORSTOM, 911Av. Agropolis BP 5045, F-34032, Montpellier Cedex, France. 2 - CATIE, 7170 Turrialba, Costa Rica.

² The USDA Ethiopia Coffee Report dated May 26, 2015 reported national production at 388,500 MT.

³ According to the National Bank of Ethiopia Annual Report 2013/2014, agriculture comprises 40% of the national GDP (\$40 billion) or \$16 billion while coffee exports are \$714 million (21.9% of total exports). International Coffee Organization historical data (see Attachment One) puts the value of internal consumption at US\$367 million (farmer price of coffee times total consumption). Value of export and consumption is \$1.082 billion or 6% of ag. GDP.

⁴ Ethiopia Coffee Industry Value Chain Analysis. USAID COMPETE – East Africa Trade Hub. June 2010.

⁵ AGP-AMDe - Best Practices on Oversight Coffee Bodies.

Introduction

Coffee is cultivated primarily by smallholder farmers in over 50 countries, has an annual value of \$170 billion and generates \$23 billion in annual export earnings.⁶ The crop provides critical income in subsistence economies and provides an important source of rural employment for both men and women. More than 100 million people gain at least part of their livelihood from coffee and 25 million farmers grow the crop worldwide.⁷ Nowhere does coffee have a more storied tradition or impact on the national economy than in Ethiopia, the birthplace of *Coffea arabica*, and the repository of the most diverse genetic material of this species on the planet.⁸

While Africa has seen negative growth in coffee production over the last 50 years going from an overall share of world output of 25 percent down to 14 percent, Ethiopia, in contrast, has seen dynamic expansion of its coffee sector averaging an annual growth rate of 2.6 percent.⁹ This growth was fueled by an expansion of growing area and more intense harvesting while yields on average stayed relatively constant.¹⁰ Ethiopian coffee exports, fueled by high prices, grew by four-fold between 2003 – 2012. However, the latest information on trends in the coffee sector point to a potential oversupply of commodity grade Arabica coffee for the 2015/2016 season.¹¹ Without a clear strategy to expand its market share of differentiated high quality premium coffee, Ethiopia may be at risk of losing critical foreign exchange as well as disproportionately hurting smallholder coffee farmers through lower coffee prices.

The good news is that Ethiopia has the potential to increase exports of high quality (Grade 1 and 2), washed coffee that is traceable and meets the criteria for specialty coffee. While 30 percent of current exports of Ethiopian coffee is washed and the country has begun to penetrate the specialty market, more efforts are needed expand this market and help smallholder farmers realize greater returns for their production.¹² For an explanation of the difference between Natural and Washed coffee please see Attachment One.

The key to this approach is finding ways to bring smallholder farmers into equitable relationships with commercial coffee growers and cooperative unions under an out grower system that targets key markets and effectively competes in the specialty coffee sector. The returns from this sector can provide the resources needed to revitalize Ethiopia coffee production areas and create a virtuous cycle of greater income leading to greater investment and further greater returns. The future is in the hands of those that can satisfy a changing and more differential coffee consumer who understands quality and is willing to pay a premium for it. Many dynamic commercial coffee farms and cooperative unions are focused on this sector – the key will be in determining how to help create a sustained and mutually beneficial relationship between these entities and smallholder farmers.

⁶ World coffee trade (1963 – 2013): A review of the markets, challenges and opportunities facing the sector. International Coffee Council, 112th Session 3 – 7 March 2014 London, United Kingdom Note: Coffee value calculated based on 142 million 60kg bags per year converted to roasted coffee by dividing by 1.19 with average cost per cup estimated at \$2 in traditional markets and \$1.50 per cup. <http://www.ico.org/news/icc-111-5-r1e-world-coffee-outlook.pdf>

⁷ “The Economics of Quality in the Specialty Coffee Industry Insights from the Cup of Excellence Auction Program” Adam P. Wilson, Thrive Farmers International, and Norbert L. W. Wilson, Dept. of Agricultural Economics and Rural Sociology, Auburn University. *Agricultural Economics* 45(2014) Supplement 1-15.

⁸ “Uncommon Grounds” – The Story of Global Coffee Market.

⁹ “World Coffee Trade (1963 – 2013) A Review of the Markets, Challenges and Opportunities Facing the Sector. International Coffee Organization. February 2014

¹⁰ The Structure and Performance of Ethiopia’s Coffee Export Sector. Working Paper 66. June 2014. Ethiopia Strategy Program. Ethiopian Development Research Institute (EDRI) and the International Food Policy Research Institute (IFPRI).

¹¹ USDA Report – Coffee: World Markets and Trade. December 2015 Record levels forecast for both production and export.

¹² Ethiopia Coffee Industry Value Chain Analysis. USAID COMPETE – East Africa Trade Hub. 2010.

Relevance of Coffee Sector

Genetic Diversity - Plant genetics research identifies Ethiopia as the birthplace of Arabica coffee and the repository of its largest genetic diversity. Originating over 1,400 years ago through a natural hybridization of *Coffea canephora* (Robusta coffee) with *Coffea eugenioides* in Uganda, *Coffea arabica* forms the basis for a global market valued at more than \$170 billion. This unique diversity is sustained in wild coffee types found in Ethiopia forest areas in the south west highlands (Kaffa) and south east and south west (Sidama and Harar).¹³

Economic Importance – The agriculture sector makes up 40 percent of Gross Domestic Product according to the National Bank of Ethiopia’s 2014 annual report. Coffee is one of the most mainstays of the sector with foreign exchange earnings of \$715 million in 2014 representing 22 percent of exports.



Livelihood and Food Security – More than 4 million smallholder coffee farmers participate in the sector and over 20 million citizens earn at least part of their livelihood there. A survey of 1,600 coffee producers by the Ethiopian Development Research Institute using statistically valid survey methodology found that 50 percent of an average coffee grower annual income from agriculture comes from the sale and personal use of coffee. Average annual income from coffee in 2013 amounted to EBT 9,737 (or US\$510).¹⁴

The 2014 European Union Coffee Sector Study indicated that the specialty coffee sector could provide 25 to 30 percent premiums if traceability and sustainability are incorporated into the value chain. The Agricultural Transformation Agency (ATA) analysis found even higher margins for high sensory quality, certification and direct trade coffees.¹⁵

¹³ Identifying Potential Areas of Understorey Coffee in Ethiopia’s Highlands Using Predictive Modelling. Binyam Tesfaw Hailu, Eduardo Eiji Maeda, Petri Pellikka & Marion Pfeifer (2015), International Journal of Remote Sensing, 36:11, 2898-2919.

¹⁴ Coffee Value Chains on the Move. Ethiopia Strategy Support Program. Working Paper 76.

¹⁵ Agricultural Transition Agency Presentation – “Smallholder Access to Specialty Coffee Market via Cooperative and Commercial Out Grower Schemes. Regional Stakeholder Workshop to Develop Initial Program Design. February 11. 2016.

Types of Coffee Production Systems

The ATA analysis categorized specialty coffee as having high intrinsic quality with a fine or unique cup, largely washed but also some unwashed, with a cupping score of 80 or above with limited to no defects. For a description of the difference between Sun-dried Natural Processing and Washed Processing see Attachment One. Combining these quality characteristics with direct trade increased value significantly. These types of coffees can, with increased productivity, provide premiums from 25 percent to 164 percent above New York C contract prices.¹⁶

Coffee production in Ethiopia is categorized under four different systems: Forest, Semi-Forest, Garden, and Plantation coffees.¹⁷

Forest Coffee: Harvesting is done directly from wild populations of under-story coffee plants grown in rainforests of west and south-western Ethiopia. Total area represents 9 percent of coffee acreage and 10 percent of total coffee production. Minimal investment is made with only a single weeding followed by harvesting. Smallholder farmers with forest access rights based on communal tradition in the area harvest coffee by climbing the trees for higher branches and pulling lower branches within region to harvest from the ground. Both dry and wet processed, forest coffee has an average yield of 200-250 kg/ha.

Semi-Forest Coffee: Coffee production in thinned forest area where ground vegetation has been removed. Semi-forest coffee represents 25 percent of total coffee acreage and contributes about 35 percent of the total coffee production. Tree shade is normally from indigenous tree species with a relatively open canopy. Management is minimal with two weeding's per year. This coffee system is normally not as intensively managed as Garden or Plantation coffee. The harvesting and processing methods are similar to Forest Coffee production system and yield is estimated to be 300-400 kg/ha.

Garden Coffee: The majority of coffee in Ethiopia is Garden coffee which makes up approximately 60 percent of both total coffee area and production. Garden coffee is produced in both intercropped and non-intercropped systems under either open, medium or heavy shade with inter-cropping of annual or perennial crops that include grain, fruit, vegetable, "khat," oilseed and spice crops. Total area is approximately half of all coffee production. Garden coffee farms are regularly weeded and cultivated, occasionally fertilized with manure. Average yield is estimated at 400-500 kg/ha.

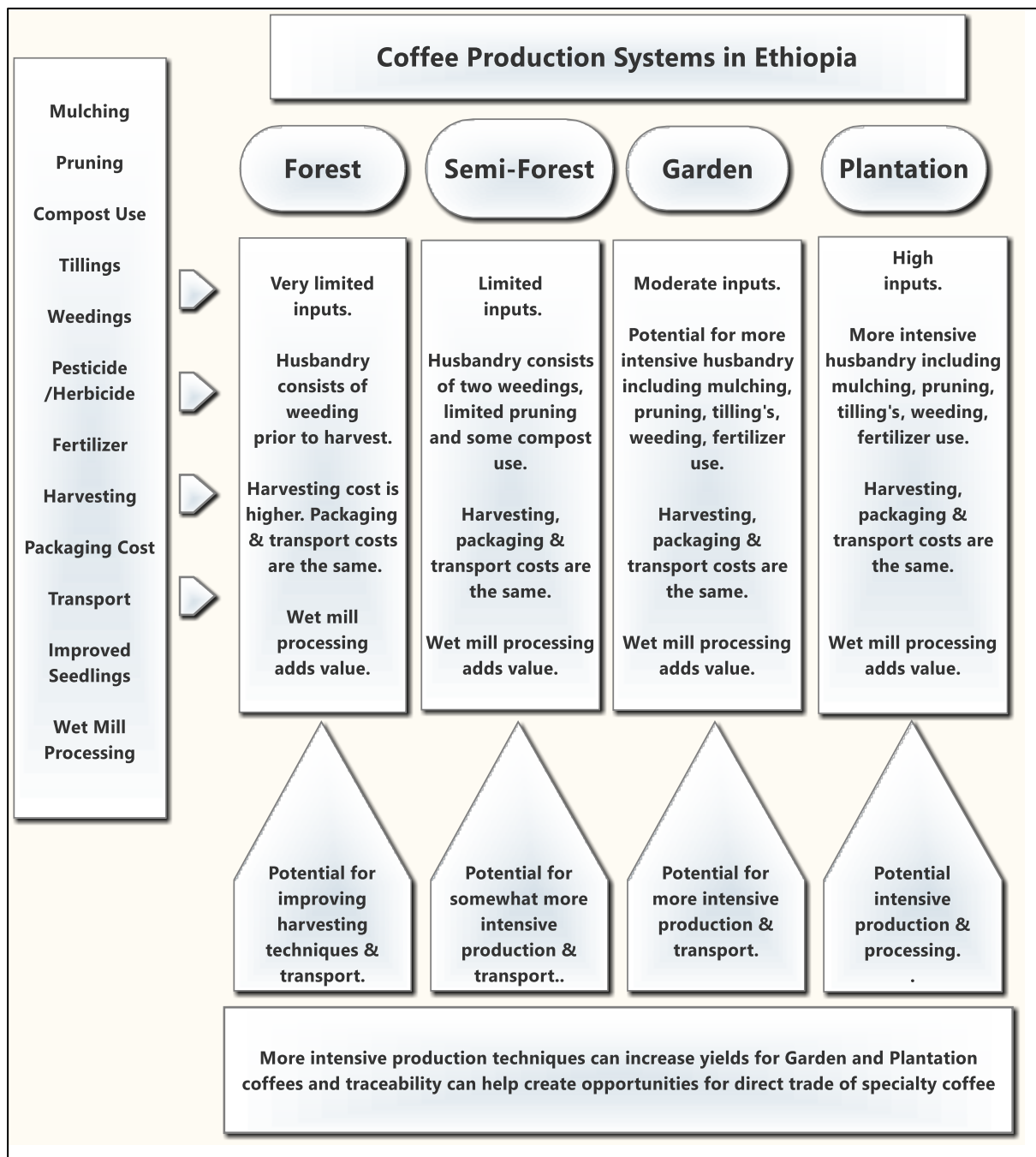
Plantation Coffee: This production system represents 5 percent of the total area and 10 percent of the total coffee production. Yields are sometimes twice as high as Garden coffee improved technologies. Coffees in this system have a higher percentage of Grade 1 and 2 coffees which classifies them as specialty coffee. GoE efforts to promote investment have encouraged the expansion of commercial farms. Average yield while low in the past are estimated to be significantly increasing (in the range of 900 – 1,200 kg per hectare).¹⁸

¹⁶ Source: Agricultural Transition Agency Presentation – “Smallholder Access to Specialty Coffee Market” Regional Stakeholder Workshop to Develop Initial Program Design. Slide No. 11. February 11. 2016

¹⁷ EU Coffee Sector Study 2014 Vol. 1, p. 19-20.

¹⁸ Coffee production practices include the use of improved varieties, irrigation, raising seedlings, nursery management and post-planting operations such as shade tree regulation, cultivation, fertilization, harvesting, disease, pest and weed control, as well as processing and storage facilities.

This graphic provides a comparison of these four coffee production systems and highlights potential for interventions to increase productivity and smallholder coffee farmer income.



Two types of production systems lend themselves to more intensive commercial production methods aimed at high value markets: Garden Coffee which represents over 60 percent of total production and Plantation Coffee which is a relatively small share of national production but is a product that has been successfully differentiated as a high value coffee in the Direct Trade sector. The goal would be to increase coffee yields and gross margins of Garden Coffee growers through their participation in an out grower or contract farming system with commercial coffee farms and cooperative unions. While Semi-Forest coffee can be included, its potential to increase productivity and income for smallholder producers appears more limited than the more intensively cultivated Garden coffee..

Grades of Coffee

Ethiopian coffees are given a geographical designation and a grade 1 through 9. Even cooperative or commercial coffee farmer coffee not passing through Ethiopia Commodity Exchange (ECX) system is still required to be graded and receive a designated geographic code. Coffee graded 1 or 2 is considered specialty coffee; twenty percent of Ethiopia's coffee exports in 2013/2014 were classified as specialty coffee.¹⁹ While coffee graded 3 through 9 is considered commercial. A geographic designation is given along with a letter identifying the sub-region where it was produced. Four broad categories are used to classify Ethiopian coffee and a summary of each grade is provided with a listing of production areas. For more detail on specialty coffee grades see the ECX Contracts Summary dated September 2015 in Attachment Two (also online at <http://www.ecx.com.et/downloads/contracts/Coffee/CoffeeContracts.pdf>).

1. Export - Specialty - Washed: GRADE 1 & 2 - Yirgacheffe A, Wenago A, Kochere A, Gelena Abaya A, Yirgacheffe B, Wenago B, Kochere B., Gelena Abaya B, Guji, Sidama A, Sidama B, Sidama C, Sidama D, Sidama E, Limmu A, Limmu B, Kaffa, Godere, Yeki, Anderacha, Bench Maji, Bebeke, Kelem Welega, East Welega and Gimbi.
2. Export - Specialty - Unwashed: GRADE 1 & 2 - Yirgacheffe A, Wenago A, Kochere A, Gelena Abaya A, Yirgacheffe B, Wenago B, Kochere B., Gelena Abaya B, Guji, Sidama A, Sidama B, Sidama C, Sidama D, Sidama E, Jimma A, Jimma B, Harar A, Harar B, Harar C, Bale, Harar E, Kelem Welega, East Welega, Gimbi, Godere, Yeki, Anderacha, Forest A, Bench Maji, Kaffa.
3. Export - Commercial - Washed: GRADE 3,4 & 5 -Yirgacheffe A, Yirgacheffe B, Sidama A, Sidama B, Sidama C, Limmu A, Limmu B, Kaffa, Tepi, Bebeke, Lekempti.
4. Export - Commercial - Unwashed: GRADE 3, 4 & 5 - Yirgacheffe A, Yirgacheffe B, Jimma A, Jimma B, Sidama A, Sidama B, Sidama C, Sidama D, Sidama E, Harar A, Harar B, Bale, Nekempti, Forest A, Bench Maji, Kaffa.
5. Local – Washed: Sidama, Jimma, Wellega, Forest A, By-Product.
6. Local – Unwashed: Sidama, Jimma, Wellega, Forest A, Harar, Bale, By Product – Addis, By Product – Dire Dawa.

A study by the Ethiopian Development Research Institute found that washed coffee grades earned higher premiums throughout all grades with an export price premium of 20 percent on average. Yirgacheffe showing the highest premium with a 51 percent differential over lowest premium for Jimma coffee. By controlling for washing, coffee originating from Harar was shown to be the most expensive in the country, with an average price premium of 20 percent over Sidama. An analysis of the grades within each segment show significantly different premiums linked to higher quality grades. Within each grade, washed coffee sold at a significantly higher price than unwashed coffees of the same grade.²⁰

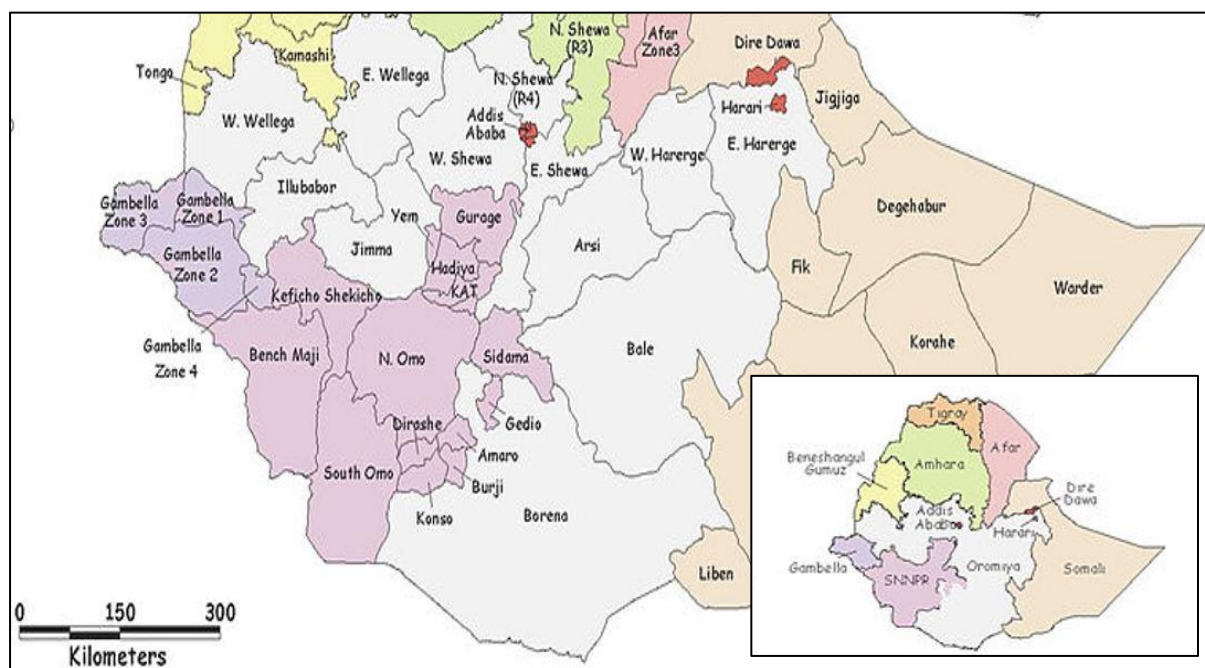
¹⁹ Something is Brewing in Ethiopia. Robert Sauers. USAID Frontlines. March/April 2015.

²⁰ Structure and performance of Ethiopia's coffee export sector. Ethiopian Development Research Institute. IFPRI. Working Paper 66. June 2014, Bart Minten, Seneshaw Tamru, Tadesse Kuma, and Yaw Nyarko – Section 7.3 – Quality Premiums Offered for Ethiopian Coffees.

Geographic Focus

The geographic zones identified in the proposed USAID Ethiopia Agriculture Value Chain Project include 154 woredas prioritized by AGP II. Coffee producing woredas, primarily in Oromia and Southern Nations and Nationalities, Peoples (SNNP) Region, but also including Harar and Gimbella, contain many of the production areas identified as commercial clusters by the Agriculture Transformation Agency (ATA).²¹ The strategic approach is to coordinate efforts with ATA and focus on high value market which requires targeting woredas that are primarily known for Grade 1 and Grade 2 washed coffees and higher end Dry Processed Naturals (e.g., Harar).²² This approach would require focusing on the following woredas which correspond with the AGP II geographic focus area.²³

Export Grade – Specialty – Washed Coffee - Yirgacheffe, Wenago, Kochere, Gelena/Abaya, Oddo Shakiso, Addola Redi, Uruga, Kercha, Bule Hora, Borena, Benssa, Chire, Bona zaira, Arroressa, Arbigona, Alet Wendo, Dale, Chuko, Dara, Shebedino, Wensho, Loko Abaya, Amaro, Dilla zuria, Kembata and Timbaro, Wollaita, West Arsi (Nansebo), Arsi (Chole), Bale, S. Ari, N. Ari, Melo, Denba gofa, Geze gofa, Arbaminch zuria, B asketo, Derashe, Konson, Konta, Gena bosa, Esera, Limmu Seka, Limmu Kossa, Manna, Gomma, Gummay, Seka Chekoressa, Kersa, Shebe, Gera, Bedelle, Noppa, Chorra, Yayo, Alle, Didu, Dedssa, Gimbo, Gewata, Chena, Tilo, Bita, Cheta, Gesha, Mezenger (Godere), Yekio, Anderacha, Sheko, S. Bench, N. Bench, Gura ferda, Bero, Bebeke, Kelem Wollega, East Wollega, and West Wollega.



Oromia and Southern Nations, Nationalities and Peoples (SNNP) Region

²¹ Interviews with Ethiopian Coffee Growers, Producers and Exporters Association provided information on SNNP region – over one third of their members are from SNNR area.

²² Focusing on specific coffee origins are an important as certain cup qualities appear strongly correlated to geographic location: (1) Sidama – spicy; (2) Wollega (Nekempt) – fruity; (3) Yirgacheffe – floral; (4) Limu and Jimma– winey; and (5) Harar - mocha.

²³ Structure and performance of Ethiopia's coffee export sector. Ethiopian Development Research Institute. IFPRI. Working Paper 66. June 2014, Bart Minten, Seneshaw Tamru, Tadesse Kuma, and Yaw Nyarko.

Value Chain Analysis

In reviewing the coffee value chain in Ethiopia and taking into account the guidance provided under the USAID Request for Proposal SOL-663-16-000002 for the Feed the Future Value Chain Project, the most appropriate approach is to work in the Agriculture Transformation Agency (ATA) regions identified as “commercial clusters” for coffee. ATA stakeholder meetings identified the following constraints and gaps. These constraint areas were corroborated by a European Union Coffee Sector study conducted in December 2014.

Primary Constraints

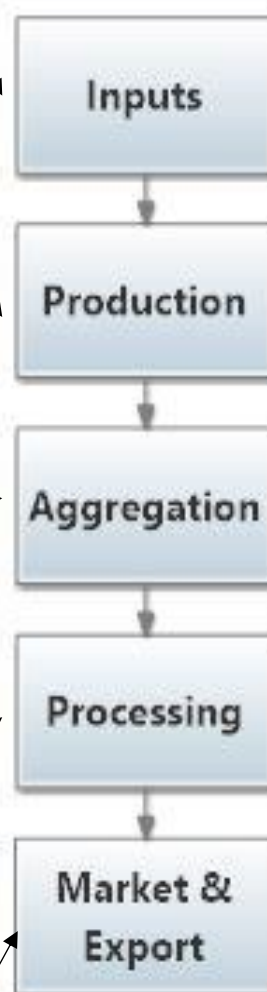
Inputs - Limited amount of improved variety seedlings. Weak capacity of public and private nurseries. Lack of tissue-culture based seedling multiplication. Need for promotion, awareness and use of natural fertilizers. Lack of investment in inputs due to relatively low returns to farmers.

Production - Limited knowledge on high-quality production (tree mgmt., pre- and post- harvest mgmt.) at farmer and Development Agent (DA) level due to lack of public and private specialized extension, inadequate local coffee and quality experts and DAs. Limited awareness and high cost of certification/verification. Lack of strategy and effective institutional arrangements to support growth and development of specialty coffee sector.

Aggregation - Deterioration in quality and contamination and lower share of washed coffees due to lengthy transportation and/or storage times. Lack of premiums for quality due to mixing at wet and dry processing. Lack of premiums for quality due to more focus on quantity at primary marketing center level, proliferation of market centers, and blending. Low use of jute bags by farmers for aggregation due to high cost

Processing - Limited capacity of cooperatives to source high quality coffee due to challenges in storage, transport, finance, membership / participation, and quality coffee expertise. Limited wet and dry processing capacity of cooperatives due to old, lower-capacity machines, lack of drying beds, and limited access to finance. Low quality of sundried coffee due to processing at farmer-level. Limited water management and waste disposal system. Limited coffee labs, technicians and quality/cupping expertise in producing areas.

Marketing & Export - Limited export marketing, customer management, and business plan development capabilities of cooperatives. Lack of market knowledge and expertise in producing areas. Lack of national marketing, branding and promotion. Lack of financial capacity of unions to export, including in bulk containers. Inability of farmers to participate directly in direct trade.



Constraint Analysis

The constraints facing smallholder coffee farmers are significant and require support at each step of the value chain. To achieve the objectives of increased productivity and higher returns to smallholder farmers there will need to be direct support to a farmer base that can demonstrate impact and create models for replication across Ethiopia. Support mechanisms need to be put in place to train farmers in improved coffee production techniques including mulching, stumping, pruning, compost use, tillings, weedings, and fertilizer application. Training is needed in proper harvesting of red cherries, appropriate packaging and rapid delivery to a wet processing station. Farmers also need to be empowered to negotiate and have an equitable relationship with commercial coffee growers and cooperative unions to access higher value, direct trade markets for specialty coffee. Both farmers and commercial growers and cooperative unions need additional capacity for wet processing coffee in order to obtain higher premiums. They also need support in seeking investment, creating linkages to specialty coffee buyers, and building sustainable relationships with consumers in high value markets.

USAID Ethiopia seeks to increase productivity and incomes for smallholder coffee farmers as indicated in the table below.

Coffee Value Chain							
Indicator Baseline and Target			Annual Target Achievements				
Indicator	Baseline	Target	1	2	3	4	5
Gross Margins	744	855	744	781	818	833	855
Yield per HA Metric Tons	1.05	1.28	1.05	1.1	1.16	1.2	1.28
Incremental Sales – US \$ Millions	15.2	18.2	15.5	15.9	16.7	17.4	18.2
Post-Harvest Loss at Farm Gate	13.7%	13%	12%	10%	5%	3%	<3%
Increase in Exports US\$ Millions	15.2	18.2	15.5	15.9	16.7	17.4	18.2

Source: Request for Proposal No. SOL-663-16-000002 – Feed the Future Ethiopia Value Chain Activity.

USAID is requiring an incremental increase in sales revenue and exports of \$3 million (going from a base of \$15.2 million to \$18.2 million by the end of the project). In calculating the number of farmers to be targeted as beneficiaries, it was estimated that a Garden Coffee farmer produces 1 hectare, of coffee per year with a yield of 750 kg of green coffee and, based on Agricultural Transformation Agency analysis, receives a red cherry price of ETB 8.5 per kg with 6 kgs required to produce 1 kg of green coffee which translates into a farmgate price of \$2.43 per kg (this price was also confirmed in the IFPRI study). Based on a gross revenue of US\$1,822.50 (750 kgs times \$2.43) minus production costs of \$646 leaves a Gross Margin of \$1,177. While significantly above the USAID calculation of a Gross Margin of \$744, the production costs were confirmed with field sources in Ethiopia.

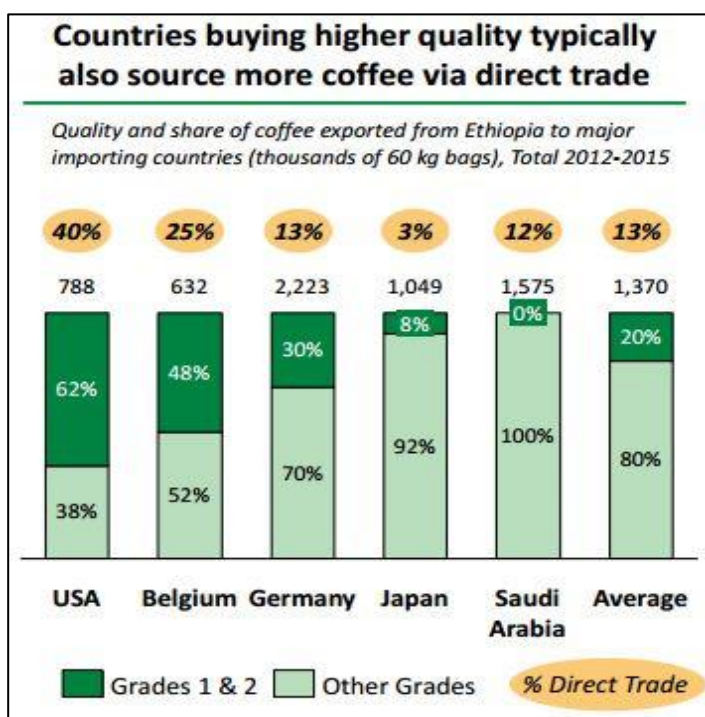
The primary metric for determining how many coffee farmers to include in the project was that number which will allow the program to reach the Incremental Sales and Export Goal of \$3 million over the life of the program. By focusing on increased productivity and higher value washed coffee, gross revenue is \$2,723 per hectare due to a 15% increase in premium for higher quality coffee for direct trade market plus a 30% increase in yield from fertilizer use. The difference between Garden Coffee gross revenue with the project (\$2,723) versus without the project (\$1,823) is \$900.

An incremental increase in sales of \$900 per hectare would mean the project would need a production base of (\$3 million divided by \$900/ha) of 3,500 farmers with 1 hectare of coffee production each. Finding ways to organize and link these 3,500 farmers to high value markets through out grower systems could provide the market access and incentive to achieved the levels of quality and yield required to effectively compete in this market.and reach the \$3 million incremental sales and export goal by Year Five of the program.

Gross Margin – Different Coffee Production Systems					
Production System	<u>Garden</u>	<u>Garden w/Project</u>	<u>Semi-Forest</u>	<u>Semi-Forest w/Project</u>	<u>Plantation</u>
No. of Trees per Hectare	1,500 trees per hectare	1,500 trees per hectare	1,000 trees per hectare	1,000 trees per hectare	2,500 trees per hectare
Estimated Yield per Tree In Green Coffee	0.5 kg per tree	0.5 kg per tree	0.4 kg per tree	0.4 kg per tree	0.6 kg per tree
Total Yield	750 kgs/hectare	975 kgs/hectare	400 kgs/hectare	400 kgs/hectare	1,500 kgs/hectare
Price per Kg of Green Coffee	\$2.43 per Kg	\$3.14 per Kg	\$2.43 per Kg	\$3.06 per Kg	\$3.80 per Kg
Gross Revenue	\$1,822.50	\$2,723.04	\$971.43	\$1,263	\$5,700
Direct Costs	\$645.83	\$863.43	\$296	\$285	\$2692.66
Gross Margin	\$1,177	\$1,859.61	\$675	\$978	\$2,692.66
Net Income	\$1,166	\$1,995	\$664	\$879	\$2,574.98

Market Strategy

In order to create the “pull” effect needed for a successful smallholder farmer production system, there must be a strong market. The direct export of coffee strategy could provide this type of effect -- the following factors are driving this market: (1) consumer demand for higher quality, unique coffee that “comes with a story” is a rising star market with 20 percent of the annual coffee trade; (2) buyers are looking for direct from origin coffees and other countries that have facilitated this type of trade are selling their coffee at higher premiums than Ethiopia; and (3) the GoE has prioritized “value addition for coffee” as part of its strategic development plans. The approach to support this sector will focus on higher quality coffee through improved inputs, more effective agricultural extension, better husbandry, product aggregation and processing. Verification to ensure traceability to support this effort will be done in order to complement direct trade. The key to this approach will be to focus on cooperatives and commercial farmer-based out grower schemes to achieve economy of scale for high quality coffee. The potential levels of productivity, quality and gross margin that could be realized by linking smallholder coffee farmers to the specialty coffee market are high.²⁴ Verified coffee origins through a direct marketing strategy can result in productivity and income increases that can meet USAID targets.



Direct trade is between Cooperative Unions and commercial farmers in Ethiopia with green coffee importers in the United States, Belgium, Germany, Japan and Saudi Arabia. Total direct trade between 2012/2013 and 2014/2015 amounted to 58,959 MT for average of 19,653 MT per year.

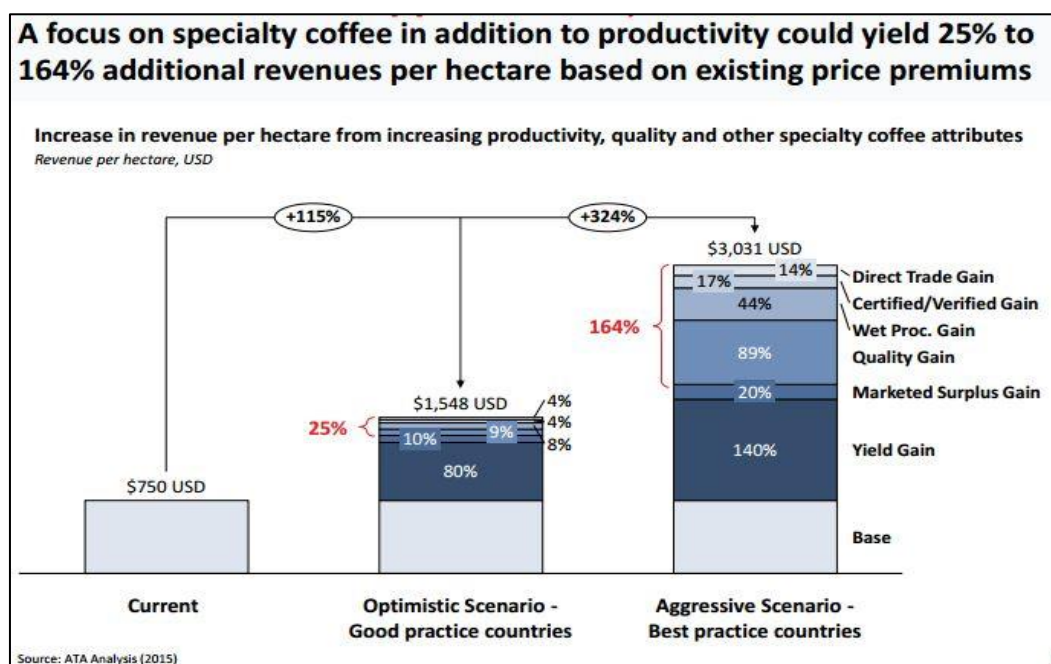
Source: Agricultural Transition Agency Presentation – “Smallholder Access to Specialty Coffee Market via Cooperative and Commercial Out Grower Schemes. Regional Stakeholder Workshop to Develop Initial Program Design. Slide No. 13. February 11, 2016.

Direct trade can take advantage of a changing global coffee sector driven by quality and sustainable sourcing of verified specialty coffee that links back to origin, comes with a story and provides equitable returns to

²⁴ EU Coffee Sector Study, Vol. 1, p. 41 – “The specialty coffee market for Ethiopia ... presents a huge potential for Ethiopia. What makes this relative small quantity proportionally important is that specialty coffees drive the overall global coffee market. This phenomenon is well known in all coffee producing countries. On a worldwide scale, the specialty market has seen significant growth rates, estimated at 15% of the total market with a tendency to grow even further and faster as the topic of sustainability is gaining more momentum. Europe now trades roughly 500,000 and the North American market another 500,000 bags of specialty trade by IAC alone. This market segment still shows double digit growth rates per annum, paying premiums of as much as the value of the “C” itself or even bypassing it. Specialty coffees are still a minority, but due to their nature, are an ideal market segment to be targeted by Ethiopian producers and their associated exporters. Currently, Ethiopia sells around 25% of its coffees as specialty, meaning with a substantial premium over ICE. This is mostly washed coffees, but is not restricted to them.”

smallholder farmers. Examples of the global reach of this trend can be found in the Sustainable Coffee Challenge initiated by Starbucks and Conservation International and their decision to join forces with the International Coffee Organization (ICO) and c&c (Climate and Coffee Initiative). See Attachment Three . A global, public-private sector collaboration of diverse stakeholders, this initiative will focus on social, environmental and economic benefits for farmers by setting collective farm level goals and increasing investments in sustainable coffee. Its objectives are to (1) create a farmer-centric approach, (2) focus on systemic issues, (3) encourage multi-stakeholder involvement, (4) focus on transformation, (5) promote non-competitive collaboration and (6) focus on market needs.²⁵ As sustainability drives quality and equity aspects of the coffee sector there will be an increased demand for high quality coffee that is sourced in a socially responsible manner and provides a fair return to smallholder farmers. Direct trade provides a clear market mechanism for linking consumers to origin and ensuring that their concerns for equity, quality and sustainability are met.²⁶

Direct trade in specialty coffee is a rising star market and one that ATA analysis indicates can provide premiums ranging from 25 to 164 percent.²⁷ This market segment is expected to grow at 4% annually among small roasters and coffee bars in the US and with the impetus of the Starbucks led Sustainable Coffee Challenge there will be greater awareness and increased demand. In terms of market segment, the objective will be to increase current levels of direct trade by 25 percent over the five-year life of the program.



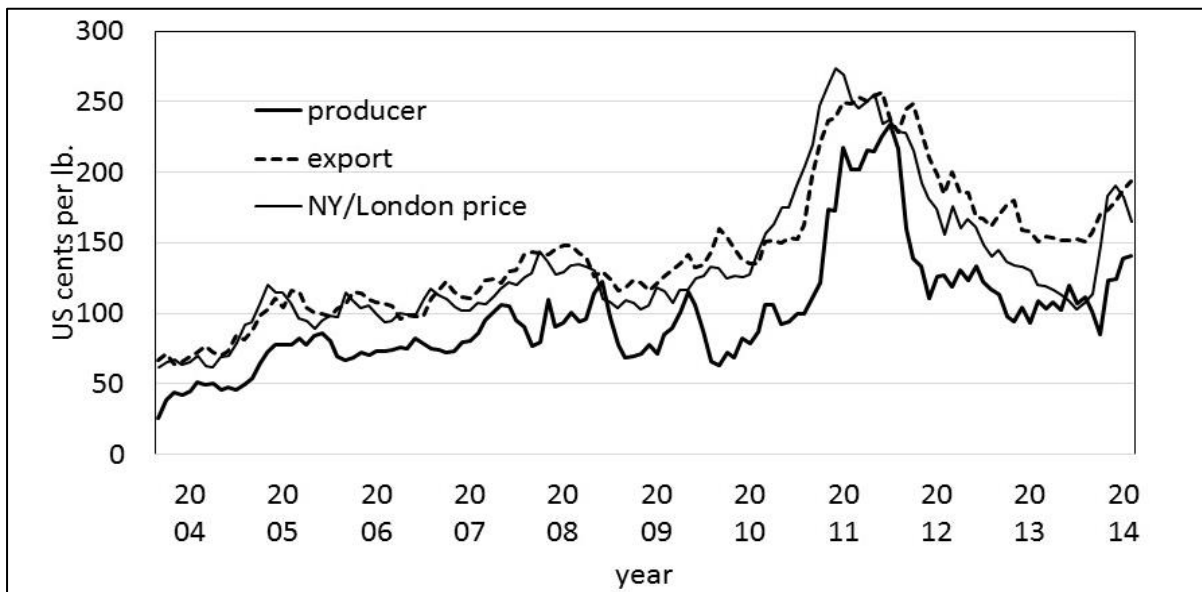
The impact of penetrating higher value markets, if managed in an equitable manner, can significantly increase smallfarmer income. In the graph below, the producer price follows the

²⁵ A major announcement highlighting the scope of this effort was announced at the 2016 World Coffee Conference in Addis Ababa, Ethiopia.

²⁶ ATA analysis of direct trade indicated the following for the period 2012 – 2015: (1) US – 47,280 MT w/40% as direct trade – 18,912 MT; (2) Belgium – 37,920 MT w/25% as direct trade – 9,480 MT; (3) Germany – 133,380 MT w/13% as direct trade – 17,339 MT; Japan – 62,940 MT w/3% as direct trade – 1,885 MT; and Saudi Arabia – 94,500 MT /12% as direct trade – 11,340 MT. Total direct trade coffee over the 3-year period of 2012/2013 – 2014/2015 was 58,959 MT.

²⁷ Agricultural Transition Agency Presentation – “Smallholder Access to Specialty Coffee Market via Cooperative and Commercial Out Grower Schemes. Regional Stakeholder Workshop to Develop Initial Program Design. Slide No. 13. February 11. 2016.

export price although there is a lag and at some points major differences. The goal is to create closer working relationships between farmers and direct trade firms (private commercial growers and coffee cooperative unions) so that farmers have less of a lag in the price they receive and to move away from a direct link to the world commodity price of coffee. A 2014 study by the Ethiopia Strategy Support Program stated that the average price received by exporters during the period 2006 – 2013 was \$1.73 per pound. Using the export price, an average price paid to farmers was calculated to be 65% of the export price. This appears to be the historical percentage that a smallholder farmer receives and matches with the price reported by ATA where 6 kgs of red cherries at ETB 8.5 per kg is needed to produce 1 kg of green coffee -- \$2.43 per kg.



Source: "Coffee Value Chains on the Move: Evidence from Smallholder Coffee Farmers in Ethiopia"

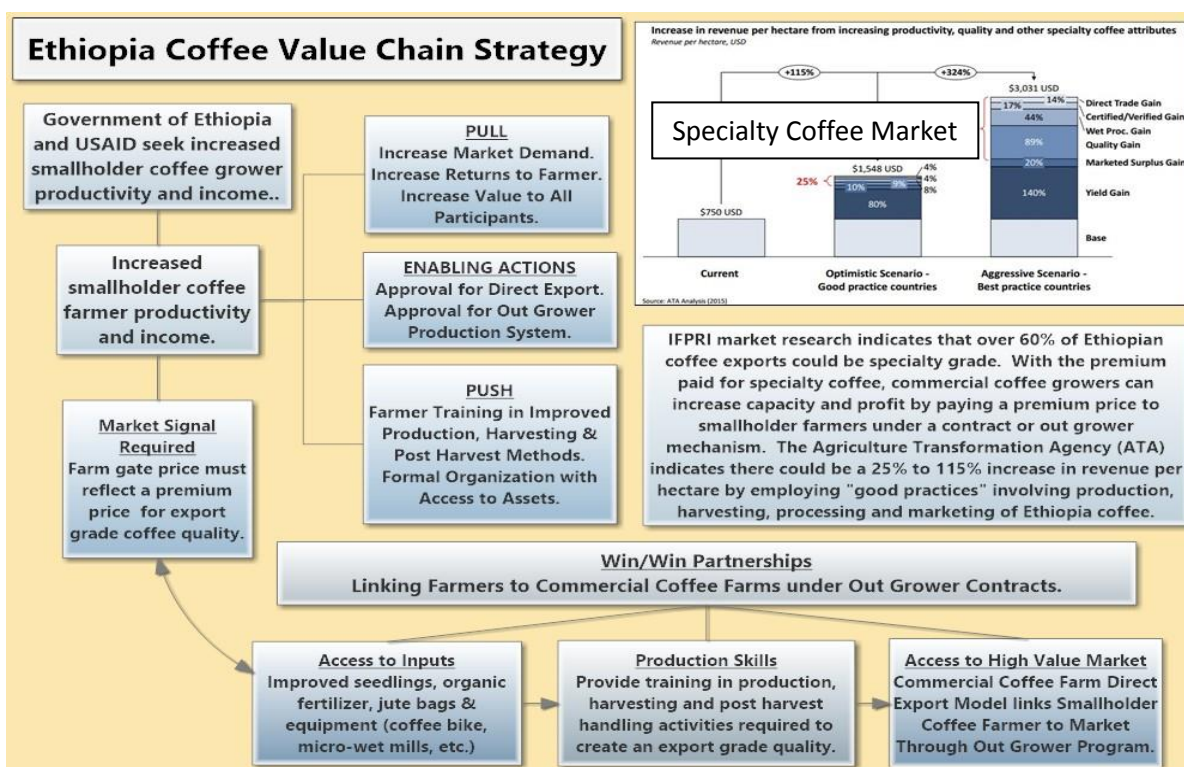
While the focus will be on penetrating high value market segments, there will be a need to help smallholder farmers 'have a seat at the table' with private investor coffee farmers and cooperative union initiatives. The use of small scale business packages that include an ecological wet mill, training and technical support can empower farmer enterprises to overcome constraints preventing them from receiving a higher premium for their coffee. These enterprise units will be provided technical support that over the life of the project will be increasingly provided by the commercial coffee farm or cooperative union.

Creating Effective Models

The Ethiopian coffee sector is going through a process of change with the establishment of a new Coffee Agency that was approved by decree in early March 2016 at the Ministry of Agriculture and Natural Resources. An important part of the transformation of the coffee sector will, according to the European Union technical unit in Ethiopia, be a renewed focus on helping farmers receive a premium for quality coffee. The impact of this approach can best be demonstrated through a direct trade coffee system that incorporates smallholder farmers as partners with an equitable distribution of revenue.

Strategic Approach

Starting with a focus on the market, the project will create a strong “pull” of higher prices that come with Grade 1 and 2 Washed coffees. Using the potential of these markets, the program will work back through the value chain to support activities required to successfully “push” production and quality sufficiently to compete in these markets on a sustained basis. As part of this approach, farmers will be brought together in enterprise units to receive business, financial management and administrative training so they can enter into partnerships with commercial coffee farms and cooperative unions as equal partners in an out grower or contract farming arrangement that creates synergy, expands market potential for both groups and generates higher returns. Commercial coffee farms and cooperative unions will be supported in creating market linkages for specific grades and origins of Ethiopian coffee.



Step 1 – Draft a national marketing strategy with the Ministry of Agriculture and Natural Resources and the newly established Coffee Agency that creates a 5,000 smallholder coffee farmer pilot marketing initiative to link commercial coffee farms and cooperative unions in order to produce Grade 1 and 2 specialty coffees for the direct trade market. This pilot effort represents approximately 1 percent of Ethiopia’s coffee production base.²⁸

Step 2 – Announce a call for declarations of interest from commercial coffee farms, cooperative unions and specialty coffee buyers in the United States, Euopre and Asia. Target the woredas that are classified as “Specialty – Washed Coffee” by the Ethiopian Commodity Exchange (ECX). In the call for interest, the project will define how it will support production, mitigate risk and provide supporting services to create market relationships linking smallholder farmers to value concious and socially aware consumers in hgih value markets.

²⁸ Ethiopia’s Central Statistics Agency (CSA) estimates that there are 561,761 hectares in production with an average holding per farmer of 748 kgs per hectare.

Step 3 – Work with selected commercial farms and cooperative unions to identify a smallholder coffee production base that would be part of their supply chain in participating in the high value market pilot. Focus on creating cup profile, story of the coffee being developed and benefits to be achieved in terms of sustainability.

Step 4 – Organize these farmer groups into business enterprises (20 enterprises with 175 farmers each – 3,500 farmers total) that would be trained and supported in how to manage a coffee production and marketing system. Training would include financial management, administration and accountability as well as team building with a focus on creating synergy and commitment of shareholders (participating smallholder farmers).

Step 5 – Finance an ecological wet mill (\$35,000) and provide training in its use. Negotiate agreement with the commercial farm or cooperative union of how the wet mill would be operated. Goal would be to operate the mill efficiently as part of the business model for direct trade and also have it form a critical part of farmer enterprise equity.

Step 6 – Provide technical support, training and financing for inputs to smallholder farmers that are shareholders in the farm enterprise. Goal would be to increase their productivity and quality to a level that allows them to effectively participate in the direct trade supply chain managed by the commercial farm or cooperative union.

Step 7 – Facilitate negotiations between the farmer enterprise and the commercial farm or cooperative union for contract production of a set quantity and quality of coffee needed to supply direct trade contracts with specialty coffee buyers in the US, Europe and Asia. Support negotiations with specialty coffee buyers, facilitate deal making through due diligence services and marketing support.

Step 8 – Negotiate an agreement between the project and the commercial coffee or cooperative union to transfer costs of training and technical assistance of the farmer enterprise gradually over the life of the project so that by Year Five, the commercial coffee farm or cooperative union is providing 100 percent of the support needed to maintain quality and quantity of coffee for the direct trade supply chain.

Step 9 – This can be done concurrently with the other activities but the GoE must be exchanged through the Ministry of Agriculture and Natural Resources, Ministry of Trade, and Coffee Agency to discuss ways to expand the current ability of investors that have commercial coffee farms and cooperative unions to participate in direct trade. The potential to set up a direct “specialty coffee” trade platform should be pursued. See Attachment Four.²⁹

Step 10 – Another concurrent action is to support the establishment of a traceability system for the coffee sector in conjunction with the Ethiopian Coffee Exchange. The ability to verify origin will be important to the expansion of direct trade. Having the project’s 20 farmer enterprises connected to a larger verification system will create clarity and allow the positive impact of the system to be felt sector wide.

Step 11 – Supporting cup profile mapping, quality assessment and training in identifying quality is also a sector wide activity that should be continued. An independent entity with a global reputation should be contracted to continue this work. See Attachment Five.

²⁹ This approach was recommended by FINTRAC in 2011. It is still a valid approach and one that should be pursued with the new Coffee Agency.

The success of this approach will be a combination of creating the capacity among the smallholder base to produce high quality coffees while simultaneously developing market systems to effectively identify and market not only our farmers' unique coffees but the many other heirloom coffee types in Ethiopia. In order to make that happen on a national scale, two things need to happen (1) a traceability system for coffee needs to be fully implemented that identifies origin and provides an auditable chain of custody and (2) a direct specialty coffee trade platform should be established to showcase Ethiopia's unique coffees and have their origins become an intrinsic part of their market value. With these two systems in place, Ethiopia's specialty coffee exports could increase significantly as more coffees are identified for that market and as the value of those coffees increase in value due to the unique story associated with them. Specialty coffee has value in Ethiopia and is a natural market for its unique coffee types.³⁰

“Coffee has been growing in Ethiopia for thousands of years, in the forests of southeastern Ethiopia. It is perfectly adapted to the climate. This is the immense advantage that Ethiopia has over all other coffee-producing countries. As the “origin of all origins,” Ethiopia has another unique feature: hundreds of heirloom varieties. In many cases, farmers grow their own unique heirloom varieties, the majority of which grow nowhere else in the world.”

Willem Boot

<https://bootcoffee.com/wp-content/uploads/2013/01/Ethiopian-Coffee-Buying-Guide.pdf>

So, the approach recommended is to focus on the high value, direct trade market and create production and marketing partnerships between a smallholder production and commercial coffee farms and cooperative unions. The project would organize the farmers into enterprise units (20 units of 175 famers each) partnered with an commercial enterprise that has the expertise and capital to export directly. In supporting increased yield and quality, the project will enable smallholder farmers to access higher value markets and increase their incomes. The successful establishment and operation of these enterprises will create models that can be replicated across the entire span of Ethiopia's coffee sector.

A series of interviews were conducted in Addis Ababa to provide information for this report. A list of the person interviewed and a summary of the discussions that took place are attached. See Attachment Six. A map showing the overlap of AGP II and ATA focus areas in coffee is presented in Attachment Seven. Various other attachments present a schematic of the ECX coffee trading system, information on a cargo bike for transporting coffee, production statistics for Ethiopia based on International Coffee Organization historical data, a summary of the European Union coffee study, and ATA information on Commercial Cluster areas for coffee as well as a map on the woredas with highest production levels of coffee. The last attachment is Attachment Sixteen – it contains a set of Excel spreadsheets for calculating Gross Margin and other financial aspects of various project scenarios.

³⁰ Ethiopia Coffee Industry Value Chain Analysis, June 18, 2010. USAID COMPETE, East Africa Trade Hub. p. 11 – Opportunities in the Ethiopia Coffee Industry. “Volumes for Specialty Coffee – Ethiopian has a natural abundance of indigenous coffee varieties, numbering in the thousands and bred over millennia of natural and human cultivation. This makes Ethiopia the recognized home of specialty coffee, where more market differentiation exists than possibly anywhere on the planet. It can be said that Ethiopian is endowed with a ‘specialty advantage.’” “... an estimated 50,000 MT of specialty out of a total production of 285,000 MT.”

Types of Coffee Processing in Ethiopia

Ethiopian Coffee Buying Manual: Practical Guidelines for Purchasing and Importing
Ethiopian Specialty Coffee Beans. Willem Boot. Fintrac. USAID 2011, pp 5-6

https://bootcoffee.com/wp-content/uploads/2013/01/Ethiopian_Coffee_Buying_Guide.pdf

“Sun-dried Natural Processing – In the dry or “natural” process, coffee cherries are dried whole. In Ethiopia, this is usually done using raised drying beds, though some coffees are also dried on the ground, especially coffees for the local market. Raised beds made out of wood posts, about waist-high, are covered in a material like burlap or nylon netting. Producers lay the coffee cherries, skin and all, out to dry on the beds. Over time, the skin and sticky juices of the cherries dry out in the sun. This process can take several days to a few weeks, depending on the temperature and the intensity of the sun. At night, or in case of rain, the coffee is covered up. During the drying process, the cherries shrink in size and eventually become hard and completely dry. Once the process is completed, sacks of dried cherries are taken to a hulling station for the removal of the outer cherry. Care must be taken to ensure even drying of cherries, and to avoid any contact between the cherries and contaminating substances, like direct contact with soil. Insufficient attention to these details can lead to muddy, dirty, or fermented flavors in the cup. Natural processing does not require any water, nor any elaborate machinery. As a result, one finds more naturally processed coffees in drier, poorer or more remote areas. Generally, as the result of prolonged contact with the cherry’s own natural sugars, sun-dried natural coffees have a sweet, fruity character with a creamy mouthfeel. The best, most-carefully cared-for sun-dried natural coffees can have intense berry flavors, tropical fruit aromatics, and chocolaty undertones. Natural-process green coffee beans often have a yellowish or orange-like tinge to them. This comes from prolonged contact with the sugars as they “cook” into the bean in the sunlight.”

“Washed Processing – In the washed or “fully washed” style of processing, the outer skin of the coffee cherry is removed immediately after harvesting, usually the same day the cherries were picked. This is done using machines which “pick” or scrape away just the very outer layer of the cherry, leaving behind the parchment coffee covered in sticky mucilage. The “washed” designation refers to what happens to the coffee next. The mucilage-coated beans are then fermented with water in large tanks, usually cement. The process of fermentation breaks down the sugars in the mucilage and frees it from the parchment. Fermentation usually takes around 24 hours, though shorter or longer fermentation times are possible, depending on the local climate, altitude, and other factors. Once fermentation is complete, the coffee is released from the fermentation tank and pushed manually, with the help of some flowing water, down long channels. This agitation frees up any remaining mucilage and separates it from the parchment coffee. At the end of the channels, the coffee enters another tank where it is rinsed with fresh water. The result is wet coffee in parchment, free of the sticky mucilage. From the final washing tank, the wet parchment coffee is taken to dry in the sun, usually on raised beds. This process of drying happens quickly because there is no skin or mucilage between the sun and the parchment. After one or two days in the sun, the coffee is removed from the beds and stored in sacks in a warehouse. When it is to be exported, the coffee is usually taken to a larger central mill where the parchment is removed, and the coffee is sorted and bagged for export. The disadvantage of the washed process is that it requires large quantities of water and more infrastructure. In many locales, it is simply not feasible to do the washed process. Washed coffee tends to have a clarity of flavor and aroma that is often lacking in natural coffees. Many cuppers assert it is easier to taste the influence of soil and varietal in washed coffees. Acidity comes through more clearly, and the cup is generally cleaner. The cleanest, highest quality, high-altitude washed coffees can have an intensely refreshing character.”

ECX Contracts Summary Specialty Washed Coffee

ECX COFFEE CONTRACTS				
1. CONTRACT CLASSIFICATIONS AND DELIVERY CENTRES				
1.1. EXPORT - SPECIALTY - WASHED				
Coffee Contract	Origin (Woreda or Zone)	Symbol	Grades	Delivery Centre
YIRGACHEFE A*	Yirgachefe	WYCA	Q1, Q2	Dilla
WENAGO A*	Wenago	WWNA	Q1, Q2	Dilla
KOCHERE A*	Kochere	WKCA	Q1, Q2	Dilla
GELENA ABAYA A*	Gelena/Abaya	WGAA	Q1, Q2	Dilla
YIRGACHEFE B**	Yirgachefe	WYCB	Q1, Q2	Dilla
WENAGO B**	Wenago	WWNB	Q1, Q2	Dilla
KOCHERE B**	Kochere	WKCB	Q1, Q2	Dilla
GELENA ABAYA B**	Gelena/Abaya	WGAB	Q1, Q2	Dilla
GUJI	Oddo Shakiso, Addola Redi, Uruga, Kercha, Bule Hora	WGJ	Q1, Q2	Hawassa
SIDAMA A	Borena except Gelena/Abaya, Benssa, Chire, Bona zuria, Arroressa, Arbigona	WSDA	Q1, Q2	Hawassa
SIDAMA B	Aleta Wendo, Dale, Chuko, Dara, Shebedino, Wensho, Loko Abaya, Amaro, Dilla zuria	WSDB	Q1, Q2	Hawassa
SIDAMA C	Kembata & Timbaro, Wollaita	WSDC	Q1, Q2	Soddo
SIDAMA D	West Arsi (Nansebo), Arsi (Chole), Bale	WSDD	Q1, Q2	Hawassa
SIDAMA E	S.Ari, N.Ari, Melo, Denba gofa, Geze gofa, Arbaminch zuria, Basketo, Derashe, Konso, Konta, Gena bosa, Esera	WSE	Q1, Q2	Soddo
LIMMU A	Limmu Seka, Limmu Kossa, Manna, Gomma, Gummay, Seka Chekoressa, Kersa, Shebe, Gera	WLMA	Q1, Q2	Jimma
LIMMU B	Bedelle, Noppa, Chorra, Yayo, Alle, didu, Dedessa	WLMB	Q1, Q2	Bedelle
KAFFA	Gimbo, Gewata, Chena, Tilo, Bitu, Cheta, Gesha	WKF	Q1, Q2	Bonga
GODERE	Mezenger(Godere)	WGD	Q1, Q2	Bonga
YEKI	Yeki	WYK	Q1, Q2	Bonga
ANDERACHA	Anderacha	WAN	Q1, Q2	Bonga
BENCH MAJI	Sheko, S.Bench, N.Bench, Gura ferda, Bero	WBM	Q1, Q2	Bonga
BEBEKA	Bebeka	WBB	Q1, Q2	Bonga
KELEM WELEGA	Kelem Wollega	WKW	Q1, Q2	Gimbi
EAST WELLEGA	East Wollega	WEW	Q1, Q2	Gimbi
GIMBI	West Wollega	WGM	Q1, Q2	Gimbi

ECX COFFEE CONTRACTS									
2.1 Grading Factors for Washed Commercial Coffee									
2.1.1 Washed coffee raw value assessment									
RAW VALUE 40%									
Defects (20%)			Shape & Make 5%		Color 5%		Odor 10%		
Primary (count) (10%)	Point	Secondary (Weight) (10%)	Point	Quality	Point	Quality	Point	Quality	Point
1	10	≤ 5 %	10	Very good	5	Bluish	5	Clean	10
2-5	8	≤ 8%	8	Good	4	Grayish	4	Fairly clean	8
6-10	6	≤ 10%	6	Fair good	3	Greenish	3	Trace	6
11-15	4	≤ 12%	4	Average	2	Coated	2	Light	4
15- 20	2	≤ 14%	2	Small	1	Faded	1	Moderate	2
>20	1	>14%	1					Strong	1

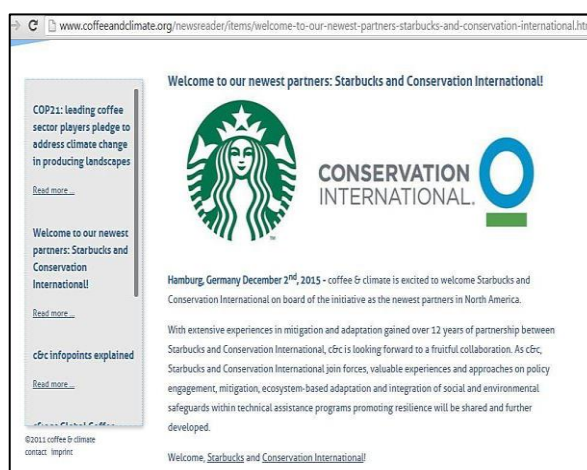
2.1.2. Washed coffee cup value assessment									
CUP QUALITY VALUE (60%)									
Cup Cleaness 15%		Acidity 15%		Body 15%		Flavor 15%			
Quality	Point	Quality	Point	Quality	Point	Quality	Point		
Clean	15	Pointed	15	Full	15	Good	15		
Fairly clean	12	Medium Pointed	12	Medium full	12	Fairly good	12		
1 cup defect	9	Medium	9	Medium	9	Average	9		
2 cup defect	6	Light	6	Light	6	Fair	6		
3 cup defect	3	Lacking	3	Thin	3	Commonish	3		
>3 cup defect	1	Not Detected	1	Not Detected	1	Not Detected	1		

2.1.3. GRADING OF WASHED COMMERCIAL COFFEE	
Grade	Total Value (Raw Value + Cup Quality Value)
Grade 1	≥ 85
Grade 2	75 – 84
Grade 3	63 – 74
Grade 4	47 – 62
Grade 5	31 – 46
UG (p)	15 – 30
UG (N P)	15 – 30

Attachment Three

Status of Coffee Sustainability Initiatives – December 2016

Starbucks and Conservation International are moving forward with a Sustainable Coffee Challenge that aims to transform coffee production by moving both specialty and mainstream producers toward sustainability. They are forming partnerships with the International Coffee Organization and the Climate and Coffee Initiative (c&c). An initial action plan was presented at World Coffee Conference scheduled for March 6 – 11, 2016 in Addis Ababa, Ethiopia.



As of December 2, 2015, Starbucks and Conservation International are joined the c&c as its newest North American representatives. With Starbucks purchasing power in the Arabica green coffee supply chain there is a strong push for sustainability throughout the specialty coffee value chain with this partnership. The International Coffee Organization (ICO) continues its Vision 20/20 program which a public-private sector collaboration for the coffee sector where takeholders can participate with the aim to realize long-term collective impact on large-scale challenges for the benefit of the coffee farming community and the entire sector.

In 2010, the Neumann Foundation and other players from the private, the development and the research sector joined forces to address challenges posed by changing climatic conditions to the entire coffee value chain. They founded the initiative for coffee & climate (c&c) as a development partnership with the vision to enable all coffee-farming families worldwide to effectively respond to climate change. The c&c approach is currently implemented in pilot projects in Brazil, Tanzania, Trifinio (Guatemala, Honduras, El Salvador) and Vietnam. These regions have been chosen mainly because of their strategic relevance as key coffee producing areas, representing Arabica and Robusta production, intensive and diverse growing system as well as wet and dry processing. Their vision is to enable coffee farmers worldwide to effectively respond to changing climatic conditions by combining state of the art climate change science and proven farming methods offering suitable hands-on tools forming a network of all relevant stakeholders.

The International Coffee Organization, the Neumann Foundation, C4 and other entities have put together a globally recognized climate and coffee initiative that has now garnered support from Starbucks and Conservation International under a parallel effort – the Sustainable Coffee Challenge. Starbucks and Conservation International have signed on as partners with the Neumann Foundation to implement the c&c initiative (climate and coffee initiative). In fact, Conservation International is now named as a co-implementer of c&c with the Neumann Foundation (see <http://www.coffeeandclimate.org/who-we-are.html>).¹ An MoU signed in May 2015 evolved from the Vision 2020 dialogues initiated by the 4C Association in 2013, and is, according to the ICO, a significant milestone in further scaling and coordinating the efforts of NGOs, donors and country specific research initiatives to improve coffee farmers' agricultural practices and livelihoods.

Attachment Four

Ethiopian Coffee Buying Manual: Practical Guidelines for Purchasing and Importing
Ethiopian Specialty Coffee Beans. Willem Boot. Fintrac. USAID 2011
https://bootcoffee.com/wp-content/uploads/2013/01/Ethiopian_Coffee_Buying_Guide.pdf

Direct Specialty Trade (DST) Platform A Proposal by Willem Boot

“The introduction of the Direct Specialty Trade (DST) platform is a response to the emerging important trends in the international coffee market. As noted above, tracing the coffee to given attributes is an important means of adding value in the market. These attributes can be: identity of the grower, social/community, economic, or environmental factors. DST is a mechanism to provide the benefits of the organized ECX marketplace –where the integrity of the product, the integrity of the transaction, and the integrity of the actors are maintained – while enabling traceability to market-desired attributes.

Ethiopian laws governing the trade of coffee allow producers to directly export the coffee produced on their own farm without having to sell it to suppliers who then sell it to exporters. However, due to the small scale and weak capacity of most Ethiopian coffee producers and their geographic dispersion, there is a coordination failure in the market in that it is costly and risky for small farmers and international buyers to find each other and directly transact. An ECX Direct Specialty Trade could address this problem.

Producers could use the platform as a way to grade and store specialty coffees they intend to offer directly to the international market. The difference with the existing ECX system is that under the DST the identity of the producer is maintained throughout the transaction, while providing the usual services of quality certification and inventory management. The other difference is that the actual sales contract is not executed as part of DST, because the transaction between producer and buyer is an international trade conducted in dollar, not ETB. Thus, beyond quality control and inventory management, ECX would conduct a DST bidding session where sellers (producers) and international buyers meet to bid on prices.

However, once a price is agreed, the international sales contract would be concluded bilaterally, registered with the appropriate authorities (National Bank of Ethiopia) and executed outside of ECX. The role of ECX would thus be to coordinate the price discovery without engaging in the payment and clearing, as is the case in the existing ECX system. Finally, ECX market data dissemination would enable all market players to be informed about the prices and qualities discovered in the DST bidding session. Thus, although different in significant aspects from the existing ECX model, the DST represents an important value addition to the market in that it redresses a coordination and information failure. It creates an incentive for buyers interested in traceable and thus certified coffees to source supply directly from Ethiopian farmers. As shown above, this is likely to be a rapidly growing market segment and one in which Ethiopia has the potential to be a global market leader. For producers, DST is a means to empower themselves by directly accessing the international market and negotiating better prices for specialty coffee that has a recognized value premium.

DST would be a flexible platform in that, in addition to specialty quality certification currently developed using the international “Q” cupping standard, ECX may also recognize internationally accredited certifications such as Rainforest Alliance, Organic, FairTrade, Utz, and other certifications, as part of the DST platform. This enables the capturing of significant value back directly to Ethiopian small farmers, within an organized and regulated marketplace, which is transparent and freely accessible to all producers and all buyers.

Finally, the DST model also introduces the concept of an “Export Service Provider” to address the

concern that weak or non-existent capacity of small scale producers (or cooperatives) may prevent them from actually carrying out the full export operation. Global best practice suggests a role for an export service provider, which is an entity licensed and experienced in exporting, to provide export services on a fee basis to help the producers actually do the exporting. Thus, while the owner and exporter is legally the producer, the export service provider has an important role to play in coordinating the various activities involved in export processing and preparation, freight handling and logistics, etc., in addition to providing credibility to the buyer. To protect the integrity of the DST, ECX would require the use of a standard ECX designed “Export Service Provider Agreement” which would be registered with the Exchange as part of the qualification to participate in DST. This Agreement is intended to protect the sellers, or producers, in their relationship with the export service provider, as well as to ensure transparency to the buyer on the various actors involved in the DST and their various roles and liabilities.

Deposit and Delivery of Specialty Coffee under DST - To participate in DST, an interested producer, either a cooperative society, a cooperative union, or a commercial grower, would bring the coffee to the Exchange and is required to obtain a specialty grade as either pre-export processed or export ready coffee. The producer would deposit the coffee at the designated warehouse and obtain a DST Warehouse Receipt. There would be a minimum lot size for deposit of 30 bags, or as specified by the Exchange. The Exchange DST warehouse receipt specifies the quality, producer identity and other special attributes of the commodity, such as various certifications obtained from a recognized third party that has established a partnership with the Exchange. The DST inventory management would be based on the identity of the producer and the actual lot.

Traceability and Transparency on Returns to Farmers - Clearly, a core objective of DST is to allow traceability based trading through ECX. However, in addition, DST can also offer transparency in the pricing and returns to growers, which is also of interest to the market. However, because transparency also comes at the cost of losing valuable business information to the seller, and may enable the raising of the final price to the consumer, there is an additional premium that should be priced into the sale when such financial disclosure is made.

Thus, the DST Operational Agreement annexed to the international sales contract also contains an optional Transparency Clause, in which the fee paid to the service provider and the average price of the cherry offered to the specific farmers would be disclosed. This allows the buyer to impute the returns to the grower out of the final FOB price. To avail this information, the buyer would be required to add a fixed “transparency premium” established in advance by the Exchange, to the agreed bid price.

Enabling Environment & Coffee Quality

Ethiopia's coffee sector is undergoing a restructuring and the project will work closely with a new entity, the Ethiopian Coffee Development Agency, and other local stakeholder partners to strengthen required capacities.³¹ Support will be provided in six functional areas:

Training and Standards: Through a comprehensive training curriculum, the upgrading of standards and grading techniques and the deployment of a cadre of specialized international and local experts, the project will support international benchmarking of coffee quality across Ethiopia that is understood by the global market.³² The programs to deliver these results, in coordination with Minister of Trade include: (1) Updating Standards and Grading Techniques – More closely align Q grading system with market categories; and (2) Sensory Training – Expand use of the Q system and Ethiopia certified Q trainers throughout production and processing to enhance coffee quality.

Quality Training: Focus on training for processing and marketing of high quality natural processed coffees to access new market segment in the international market. Utilizing expertise from best practice countries, the project will continue to build local capacity in quality improvement. (1) Quality & Good Agricultural Practices – Support training in sensory evaluation and quality management of coffee value chain in conjunction with a traceability program ensures high quality coffee produced in a sustainable manner; (2) National Sensory Grading System – Expand use of Q grading system nationally through the coffee value; (3) Domestic Market Training - Improve local skills to increase coffee related jobs and overall perception of Ethiopia coffees domestic and tourism sector.

Market Development: Market connections and higher value sales will result from the successful implementation of the following activities: (1) Enabling Environment – Support stronger enabling environment by helping policy makers and coffee sector stakeholders understand specialty coffee sector and support positive changes to the sector; (2) Market Linkages - Participate in relevant international trade shows and Ethiopia Coffee Conference, with a focus on building market linkage for higher value coffees and responding to buyer needs; and (3) Business Development - Targeted face-to-face meetings bring together potential trading partners (across the spectrum) to enhance business dealings for the long-term; (4) Quality Standards – Expand local awareness and use of Q Certified coffees for the growing global market for these coffees.

Business Development: Work with local stakeholders to improve business environment including: (1) Traceability - collaboration with ECX and specialty coffee buyers focused on links to origin to demonstrate market value of system; (2) Institutional Strengthening – Support to Ethiopia's primary coffee sector associations to build capacity, foster professionalism, and financial sustainability strategies; (3) Quality Assessment – Assess and upgrade sensory labs to Q grade standards throughout the coffee value chain; (4) Training – Support local partners to develop and implement centralized database of Q grading system.

Brand Development: Focus on Ethiopia's coffee reputation and brand by implementing the following: (1) Coffee Types /Quality Mapping - Promote the distinctiveness of Ethiopia coffee by creating a Coffee Marketing Map for Ethiopia, showing the prominent coffee growing regions linked to traceability methods, clear cupping data at the regional level, and a national marketing strategy; and (2) Build Brand Awareness – Support regional and international competitions (Taste of Harvest or Cup of Excellence) in conjunction with specialty coffee auctions (previous experience with AFCA resulted in 40 container lots selling over double the world price average).

³¹ These partners include the Ethiopian Coffee Exporters Association (ECEA) and the Ethiopian Coffee Growers, Producers and Exporters Association (ECGPEA), the Ethiopian Commodity Exchange (ECX), farmer cooperative unions, Ministries of Trade, Agriculture and Foreign Affairs, and private growers, exporters and businesses, among others.

³² Focus will be market needs for readily recognized quality standards to support discriminating specialty coffee buyers and commodity traders understanding of Ethiopia coffee value proposition resulting better prices for Ethiopian coffee producers and exporters.

Accelerate Gender Equity and Integrate Youth in the Coffee Value Chain

Ethiopia has an important opportunity to link to the growing market interest for coffees sourced in ways that benefit women and foster more resilient coffee communities through gender equity. Youth engagement is a critical link, and project activities at all levels will engage and empower male and female youth in order to foster a generation of coffee farmers who support gender equity. The project interventions will work at three interconnected levels to drive significant sector transformation:

Industry Level: buyer-driven incentives: At the end-market level, work with industry partners (e.g., exporters, importers, roasters) to put in place incentives for their producer organization suppliers to invest in gender equitable policies and processes. Ultimately, these buyer-led incentives will enable producer organizations to lead change in gender norms and power relations among their members so that both male and female farmers are able to benefit from and influence the organization’s resources and opportunities.

Institutionalizing Gender Equity at the Producer Organization Level: Workshops at this level will focus on improving overall management and efficiency of producer organizations, including training on traditional business skills, and workshops aimed at internalizing gender-equity and improving upon organizational culture. Technical assistance will complement the buyer incentives to enable producer organizations to successfully adopt identified practices and access the corresponding incentives offered to institutionalize gender equity.

Farmer Household Level: While the focus is on coffee-producing communities, the project takes a “whole farm approach”, meaning that many best practices can and should apply to entire farms; additional technical assistance may be provided in support of crops other than coffee that are of primary import to women’s livelihoods. Additional tools, such as on-farm mentoring, illustrated pamphlets, or short cell-phone video demonstrations, which can be referenced on an ongoing basis, may be incorporated to complement workshop trainings and in-person demonstrations, thus facilitating continuous learning and uptake of best practices. Technical capacity building will cover three main areas: Coffee quality, Climate Smart Agriculture (CSA) and Financial and business management.

Gender Aware Engagement and Education at the Sector Level: At the sector level, the project will integrate gender awareness training into key activities, conferences and programs. The project will explore opportunities to support the newly created network of women in coffee to raise their profile, access training and resources and to better connect to the international market. Overall, the project will actively encourage the inclusion of women in all trainings, and the development of market linkages for women.

Interviews – February 25 – March 4, 2016

1	Ethiopia Commodity Exchange (ECX)	State Enterprise	Mr. Alemshet Tassew	00251 911 880972	alemshet.tassew@ecx.com
			Mrs. Niyat		
2	Ethiopian Agricultural Commodities Warehousing Service Enterprise	State Enterprise	Mikru Dinku	00251 966 215728	
			Mr. Daniel Anberbir	00251 938 063135	danielanberbir@gmail.com
3	GIZ	NGO	Mr. Kinfe Mamo	00251 911 457124	kinfe.mamo@giz.de
4	Tadi GG Highland Coffee	Private	Mr. Tesfaye Bakele	00251 911 476127	tesfayebge@gmail.com
5	Cooperative Bank of Oromia (CBO)	Private Bank	Mr. Belete Wakbeka	00251 943 099533	chalawaqa@yahoo.com
6	Ministry of Agriculture, Coffee Quality Inspection Center	Government office	Mr. Asnake Kassa	00251 920 948123	asne2012@gmail.com
			Mr. Duguma Ereje	00251 924865259	
7	Ethiopia Coffee Growers, Producers and Exporters Association	Association	Mr. Yilma Gebre-Kidan	00251 913 537114	yilmagk@yahoo.com
8	METAD Agricultural Development PLC	Private	Mr. Aman Adnew	00251 911 519196	aman.adnew@metadplc.com
9	Coffee Traceability Project	ECX	Mr. Solomon Idossa	00251 911 511350	solomon@dessinc.com
10	Yirgachefe Coffee Farmers Cooperative Union	FCU	Mr. Jabo Wokineh	0251 921 452538	jebow2006@gmail.com yirgacheffeunion@gmail.com
11	Agricultural Transformation Agency	GoE	Shaan Mavani	251-115-570-678 Ext. 106	Shaan.Mavani@ata.gov.et
			Melon Adamou	251-115-570-678	Melon.Adamou@ata.gov.et
12	Robera Coffee Company	Private	Robera Abraham Teressa	251-11-645-0041	rteressa@gmu.edu
			Dega Gurmessa	251-11-645-3581	robera@ethionet.et
13	Amaro Gayo Coffee	Private	Asnakech Thomas	251-11-552-4082	amarogayocoffee@gmail.com
14	Typica Coffee General Trading	Private	Minilik Habtu	251-911-517-976	typicacoffee@yahoo.com
15	European Union	Donor	Dr. Eshetu Mulatu	251-116-612-511	Eshetu.mulatu@eeas.europa.eu

Ethiopian Commodity Exchange

General Manager – Ethiopian Agricultural Commodities Warehousing Service Enterprise (EACWSE) – Mikru Dinku - Obtained a detailed explanation of coffee price discovery and

marketing through the Ethiopian Coffee Exchange (ECX). Provided a summary of the functions of EACWSE and its status as separate entity from ECX. Walked me through the entire procedure from coffee producer first engagement with the marketing value chain until the final export or sale of product in the domestic market. Helped create a schematic of the marketing operations managed by ECX and EACWSE. Responded to questions on traceability and shared copies of warehouse receipt documents.

Market Data Manager - Alemshet Tassew - Provided an overview of ECX data collection for coffee marketing in Ethiopia. Explained how coffee is traced through the marketing system and its identity to specific geographic areas is maintained. When questioned about how individual groups can have coffee traced back to their organization he indicated that was a constraint. He said the traceability goes only to the specific washing station where coffee was first processed. These washing stations service specific geographic regions and allow for coffee to be geo-located to a specific area, elevation and (depending on area production practices) type.

ECX Trading Pit Representative – Mrs. Niyat - Provided an explanation of how the trading pit functions, who the different groups were involved in the actual sales that were ongoing during our visit. Described the transactions that took place as an actual trade was taking place on the trading pit floor. Electronic display named the commodity being sold and listed the volume, grade and price. Buyers would indicate by “shout out” of their willingness to buy the commodity being offered. When a seller and buyer agreed they would do a “high five” to demonstrate agreement on the trade. The ECX representative responded to our questions regarding documentation in terms of bank deposit requirements, warehouse pick up receipt and final delivery of commodity.

Ethiopian Coffee Growers, Producers and Exporters Association (ECGPEA)

Board Member – Discussed coffee value chain with an ECGPEA board member. I asked him where he saw the greatest constraint and opportunity for the sector. He indicated that productivity was a primary constraint but that it was driven by incentives or lack of incentives to the producer and that this was related to the market. The key he highlighted was the market – with appropriate market access there would be the returns necessary to make investment in inputs, post-harvest processing, and marketing that is required to sustainably compete in high value markets.

Forest Coffee Producer – Met with a Forest Coffee Producer from the Limmu area. Harvesting of coffee in his area is done by local people collecting coffee from the forest. These coffee trees are tall and present issues in terms of how to effectively harvest the coffee. He described some of the techniques used and indicated equipment for harvesting and processing was needed to increase efficiency and improve quality. When asked about the primary constraint to the coffee value chain, he responded that a lack of inputs and lack of financing were the two greatest problems. (Note: I need a full description of the forest coffee production, harvesting, processing and marketing system. Also need more information on land tenure in forest coffee areas).

Ethiopian Coffee Growers, Producers and Exporters Association (ECGPEA) - Ato Yilma G/Kidan, General Manager - Ayalew and I met briefly with two of the association's board members on February 25th and then followed up with a comprehensive meeting with the General Manager. The ECGPEA was established on December 6, 2007, by investors on large scale coffee farms. It is a premier representative of the coffee sector in Ethiopia as witnessed

by their being named one of the key members of the organizing committee for the upcoming International Coffee Organization World Coffee Conference to be held here in a couple of weeks. They have good access to GoE representatives. The Minister of Agriculture was at their conference yesterday as were key players in the national coffee value chain. The ECGPEA has partnered with previous coffee sector implementers (FINTRAC, ACDI-VOCA and Technoserve). They bring access to over 70 commercial coffee growers, many of whom are developing or already using contract purchasing of smallholder coffee through an out grower system. It was the ECGPEA meeting yesterday that we briefly met with the METAD CEO who has developed an extensive out grower system which he is expanding. They have worked with many development entities in the past and are being contacted by these same groups. They said they would be open to working with CNFA.

METAD Coffee Farms - Aman Adinew, Chief Executive Officer - METAD is a very dynamic coffee enterprise that is operating two farms with a production area of over 500 hectares and is contract purchasing product from 3,600 smallholder coffee farmers or "out growers" (average area of production of each out grower is 1 hectare). METAD has established comprehensive links with the specialty coffee sector and has direct relations with the Specialty Coffee Association of America (SCAA), Coffee Quality Institute and a wide range of buyers. Over 80 specialty coffee buyers and industry representatives stayed at their farm's guest houses this last season and were able to witness METAD's entire operation including outreach to the communities for support to schools, health services and employment for women. Their goal is to expand to three more farms and significantly increase their contract purchasing arrangements. They established the first SCAA certified cupping lab in Africa. METAD also wants to move into a potentially high growth "value added" market by establishing a coffee roasting company to diversify into the domestic market. This is critical given that 50% of Ethiopia's production is consumed domestically. Finding a way to support smallholder coffee farmers through a link to commercial farms like METAD under an out grower arrangement with traceability and accountability is an important way forward for a sustainable Ethiopian coffee sector. Also, METAD's business model is one that is focused on the long-term and built on sustained relationships with farmers, buyers and key players in the sector. Many groups will be courting them for letters of support.

Coffee Traceability DESS Inc. - Solomon Edossa, Chief Executive Officer - The ongoing activity traceability activity in the coffee sector led by the Ethiopia Coffee Exchange is being implemented by DESS Inc. We met with their CEO who is under contract with ACDI-VOCA but works in ECX establishing an IBM based system that depends on a mobile app, a central information repository (IRIS) and an analytics software system (Tableu). The system works on a bar code mechanism scanned by the mobile app at each transaction point and for each 60 kg bag of coffee. The bags are traced showing a timeline of all the transactions from a specific coffee washing or drying station (currently 1,500 stations are registered but another 2,500 will be in the system next year) to final delivery to the coffee importer. USAID Ethiopia is, apparently, very excited about the potential of this system to (1) ensure product safety and differentiation for specific market segments by tracing coffee from origin to the consumer, (2) allowing stakeholders to assess impact on smallholder farmers of different programs, events, etc based on the quality of product traced from their washing stations specific geographic location (this can help target support to the most critical areas -- or can alert policy makers of ongoing problems that need further investigation), and (3) provide a wide range of tailored metrics to development agencies, private sector entities and government policy makers on the state of the coffee value chain down to a small geographic area (flow through can be measured, bottle necks identified, and production, post-harvest

processing and final grading, sale and export certification constraints readily identified). The USAID Ethiopia Mission Director is quoted as having said that the Agency is --"very excited about the launch of this innovative traceability initiative [as] USAID has been supporting the coffee industry in Ethiopia, from farm-gate to final market, for many years." Keeping this initiative moving forward may have been one of the reasons for the last minute decision by USAID to include the coffee value chain.

Cooperative Bank of Oromia – Ato Belete Wakbeka - Has more than 400,000 customers served through its 130 branches spread throughout the country. The bank has worked with ACDI-VOCA in the past and has a DCA facility (\$4 million credit guarantee ceiling) for working capital and investment loans in the coffee sector. The bank has not used the full DCA ceiling due to costs and the availability of cheaper credit from other sources. Also, in reviewing the bank's website and related information, there appears to be some issues with foreign currency exchange which I am not sure have been resolved. Credit is clearly important and having this bank as a potential partner may be worthwhile. Let me know if you want Ayalew and me to get more information.

Agricultural Transformation Agency (ATA) – Shaan Mavani and Melon Adamou – We met with Shaan, the Team Leader for Core Analytics and his associate Melon. They provided an overview of the work in coffee. We discussed the conference that ATA staged last week and Shaan indicated this was the first time that ATA had focused on coffee. They are interested in promoting direct trade coffee linking smallholder farmers to commercial coffee farms as out growers. The out grower system is sanctioned by the GoE (coffee is one of five commodities in which the out growers are allowed – the others are cotton, milk, sesame and tea). ATA wants to promote partnerships between commercial coffee farms that have registered as investments and obtained permits for direct export. The EU helped the Ministry of Agriculture (MoA), in concert with the Ministry of Trade (MoT) has finalize a Coffee Development Strategy that will be used to boost coffee production in the second Growth and Transformation Plan (GTP II) over the next five years. The goal is to increase coffee production by 400 percent. Structural reforms were recommended such as coffee having its own Ministry; loans facilitated for the coffee farmers and traders; marketing of coffee by quality rather than quantity; and changes at the Ethiopian Commodity Exchange (ECX) to allow international buyers to directly contact the farmers and buy the coffee from the farmers themselves. The GoE did not agree to changing the ECX procedures but there was agreement to consider direct exports on a case by case basis. Loan authorization evidently can be given for out growing systems. There is also the potential for a Nordic approach (where donors provide farmers and farmer groups equipment such as a wet mill which is used in coordination with commercial growers to access direct trade markets).

Robera Coffee – Robera Abraham Teressa – Chief Operating Officer – We met with the leadership of Robera Coffee and discussed the coffee value chain. They expressed concern with business as usual in Ethiopia's coffee sector. They indicated that had invested in a 300 hectare coffee farm in Wellega and obtained a permit for direct export as an investment venture. They plan to do an out grower system and are very interested in working with donors to move this venture forward. We briefly discussed different scenarios of how to make sure farmers have "a seat at the table" – one example was a donor financed wet mill owned by farmers but operated in coordination with a commercial coffee farm under a contract and guaranteed premium on quality. It is worth mentioning that Robera Abraham Teressa is a recent graduate of George Mason University seems very dynamic and is clearly interested creating sustainable production and marketing systems for the future. Very encouraging meeting that highlighted good potential for a win/win partnership between them and a farmer out grower group.

Amaro Gayo Coffee - Asnakech Thomas – We met with Asnakech. She is the founder and general manager of Amaro Gayo Coffee which has developed an extensive out grower system in Amaro region of Oromia that includes over 10,000 smallholder farmers. She has put together an impressive coffee program that regularly produces outstanding Arabica coffee. A lot of Amaro Gayo coffee cupped at 94.5 on the Q grading scale which is phenomenal. She showed us the trophies for coffee quality her company has won – very impressive. Asnakech is a phenomenal force and she will be sought by many groups as a partner. She indicated she would be willing to sign a letter of support with CNFA. Working with a woman commercial farmer with a successful contract farming model is critical.

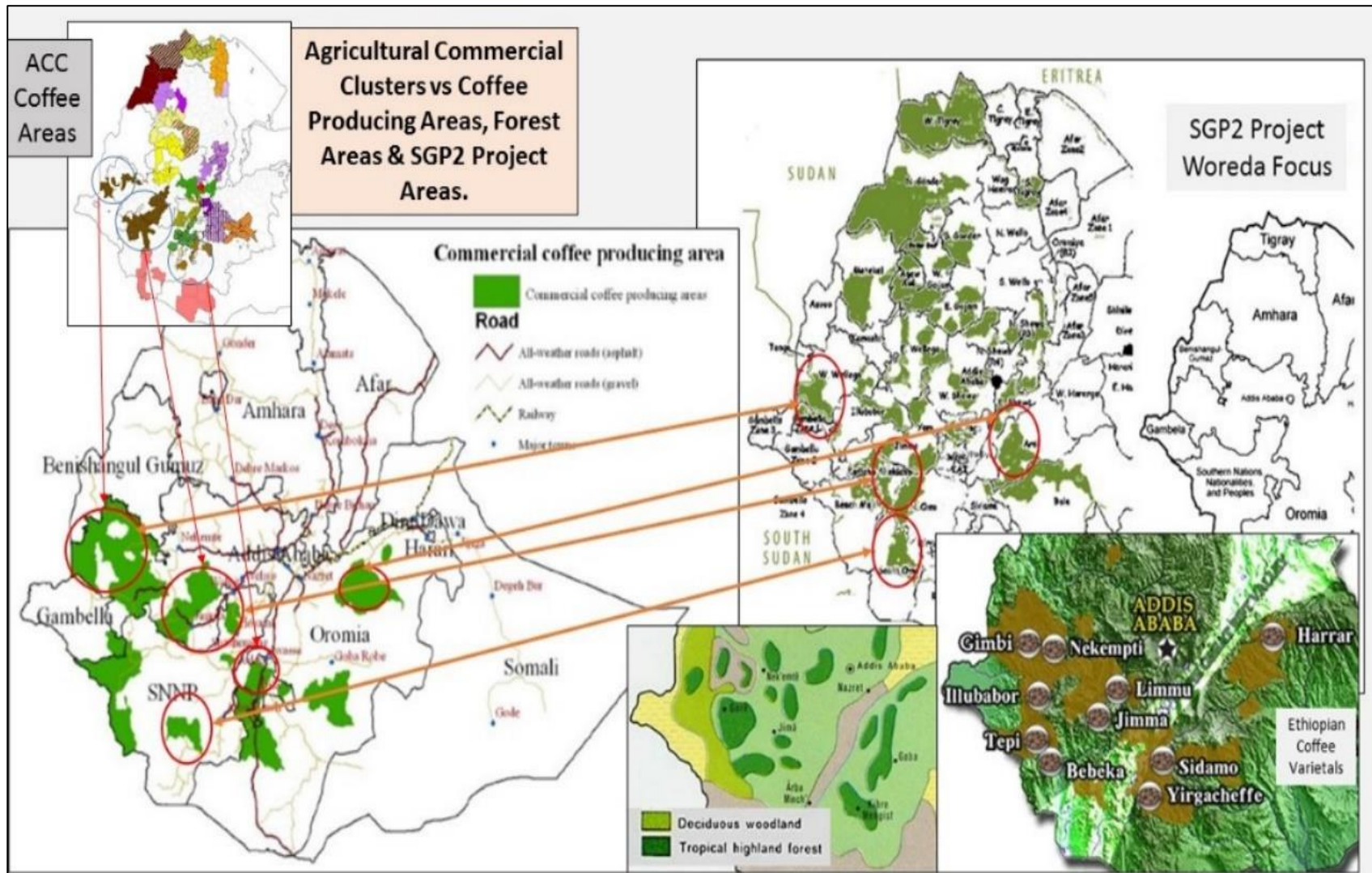
Typica General Trading Co. – Minilik Habtu – Managing Director – We met with Minilik who is also the president of the Ethiopia Roasting Association. He provided an overview of the national roasting sector, the challenges faced in obtaining export grade coffee from the local coffees purchased through the ECX. Minilik explained that under the new General Transformation Plan II, the GoE is supporting growth of domestic coffee roasting with loans and support for export initiatives. We asked about the possibility of linking smallholder farmers to domestic roasting. Minilik explained that this is not legal at this point but he believed there was going to be more exceptions made by the Ministry of Trade to allow it.

European Union – Met with Dr. Eshetu Mulatu and reviewed the status of the key objectives contained in the Ethiopian Coffee Sector Strategy. Status of institutional arrangements for the sector? Proclamation was announced by the Ministry of Agriculture and Natural Resources last week establishing a Coffee Agency that will support development of the sector. Director General is being named as our candidates for Director of Coffee Development and Director of Coffee Marketing. Office space is being sought and the Agency should be operational soon. Status of increased coffee productivity, sustainability and traceability? EU is requesting funding (11 million euros) under the 11th EU Development Fund to support increased coffee productivity, traceability and market access. First step will be to set up flavor profiles linked to specific geographic areas and then work with farmers in those areas to bring them together in “enterprise units” to aggregate and market their coffee through direct trade with commercial growers and cooperative unions.

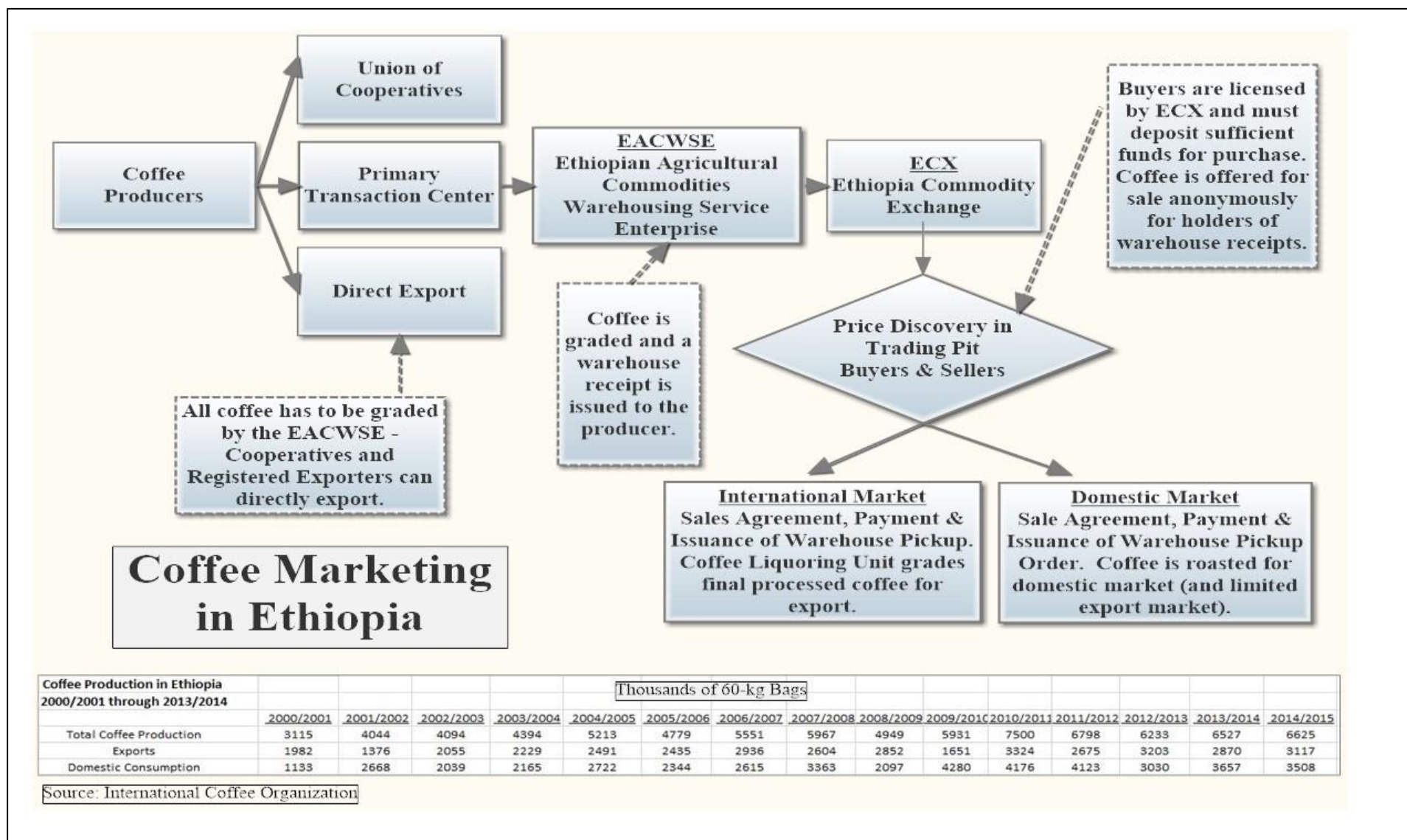
Establish an efficient, effective and transparent based marketing system? Key will be to establish “quality based pricing” – this can only be done by engaging the market, creating traceability back to origin and focusing on higher value markets. We see increased productivity and a focus on higher value markets as key to moving forward in Ethiopia. Without price incentives farmers will not respond with the types of investments needed to increase yield and quality. Is the GoE in agreement to focus on traceability and geographic identity for high quality coffee production? Yes, we believe we have government approval of the strategy – in fact, we believe this is the government’s strategy. While there has not been a full endorsement of the strategy, the government’s tacit approval and the moves that are taking place now – the establishment of the Coffee Agency – are positive signs. We will have to work with government counterparts on how to actually achieve the geographic identify focus we believe is necessary. What about conservation of genetic resources in coffee? We are going to focus on this with the Jimma Research Station. This is absolutely essential. What about Climate Change monitoring in coffee? We need to further develop how this will be done. It is a crosscutting issue but we need to develop a clear strategy. Any help in this area would be welcome. It is critical that we develop synergy among the different aid organizations, private sector, NGOs and the government to properly address the problems faced by Ethiopia in the coffee sector.

Attachment Seven Map of Congruence among ATA Agricultural Commercial Clusters (Oromia & SNNP)

SGP2 Project Woredas, Coffee Production Areas, and Forest/Semi-Forest Areas.

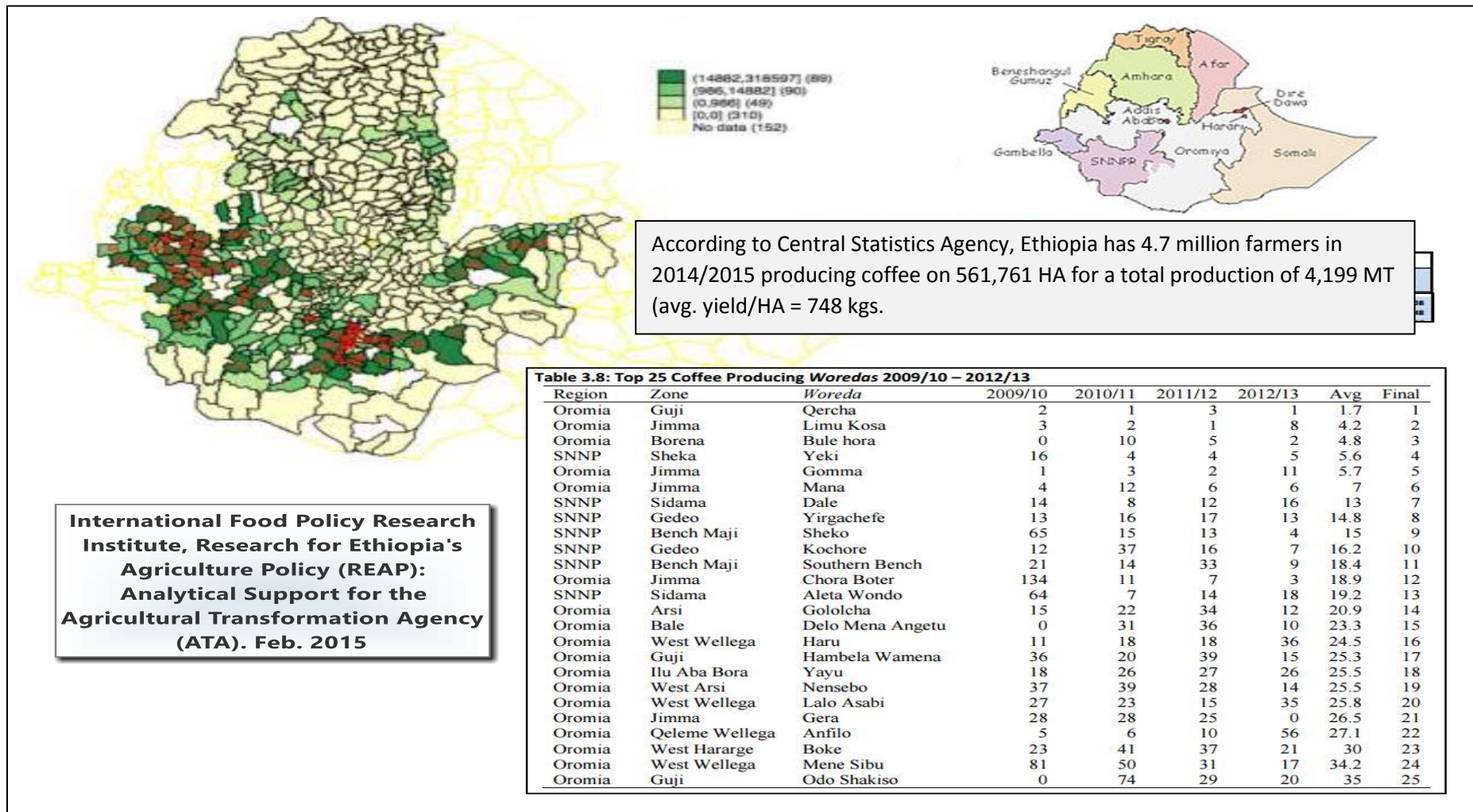


Attachment Eight



Attachment Nine

IFPRI REAP Study &
Ethiopia Central Statistics Agency
Agriculture Census 2013 Table



International Food Policy Research Institute, Research for Ethiopia's Agriculture Policy (REAP): Analytical Support for the Agricultural Transformation Agency (ATA). Feb. 2015

International Coffee Organization – Ethiopia Production, Export & Domestic Consumption

Historical Statistics – see http://www.ico.org/new_historical.asp.

Coffee Production in Ethiopia															
2000/2001 through 2013/2014															
	<u>2000/2001</u>	<u>2001/2002</u>	<u>2002/2003</u>	<u>2003/2004</u>	<u>2004/2005</u>	<u>2005/2006</u>	<u>2006/2007</u>	<u>2007/2008</u>	<u>2008/2009</u>	<u>2009/2010</u>	<u>2010/2011</u>	<u>2011/2012</u>	<u>2012/2013</u>	<u>2013/2014</u>	<u>2014/2015</u>
Total Coffee Production	3115	4044	4094	4394	5213	4779	5551	5967	4949	5931	7500	6798	6233	6527	6625
Exports	1982	1376	2055	2229	2491	2435	2936	2604	2852	1651	3324	2675	3203	2870	3117
Domestic Consumption	1133	2668	2039	2165	2722	2344	2615	3363	2097	4280	4176	4123	3030	3657	3508
	<u>2000/2001</u>	<u>2001/2002</u>	<u>2002/2003</u>	<u>2003/2004</u>	<u>2004/2005</u>	<u>2005/2006</u>	<u>2006/2007</u>	<u>2007/2008</u>	<u>2008/2009</u>	<u>2009/2010</u>	<u>2010/2011</u>	<u>2011/2012</u>	<u>2012/2013</u>	<u>2013/2014</u>	<u>2014/2015</u>
Exports (000 60kg Bags)	1982	1376	2055	2229	2491	2435	2936	2604	2852	1651	3324	2675	3203	2870	3117
Domestic Consumption (000 60kg Bags)	1133	2668	2039	2165	2722	2344	2615	3363	2097	4280	4176	4123	3030	3657	3508
Price Paid Farmer in Ethiopia per Pound	\$0.56	\$0.44	\$0.27	\$0.35	\$0.49	\$0.64	\$0.58	\$0.70	\$0.72	\$0.77	\$0.85	\$1.45	\$1.03	\$0.76	
US Retail Price per Pound	\$3.45	\$3.09	\$2.92	\$2.92	\$2.85	\$3.26	\$3.20	\$3.47	\$3.50	\$3.67	\$3.91	\$5.19	\$5.68	\$5.45	
	<u>2000/2001</u>	<u>2001/2002</u>	<u>2002/2003</u>	<u>2003/2004</u>	<u>2004/2005</u>	<u>2005/2006</u>	<u>2006/2007</u>	<u>2007/2008</u>	<u>2008/2009</u>	<u>2009/2010</u>	<u>2010/2011</u>	<u>2011/2012</u>	<u>2012/2013</u>	<u>2013/2014</u>	<u>2014/2015</u>
Price Paid Farmer	56.42	43.78	26.88	34.57	48.85	64.23	58.32	69.83	71.71	77.06	85.46	145.46	102.79	75.98	

Attachment Eleven

Agricultural Transformation Agency Geographic Focus for Commercial Clusters for Coffee

Jimma & Illu Ababora Coffee Areas, Oromia - Jimma: Limu Seka, Limu Kosa, Mana, Gomma, Seka Cherkosa, Shebe Senbo, Gera Illu Aba Bor: Borecha, Dedesa, Gech. The coffee types in these woredas are Jimma/Limma A and Jimma/Limmu B. The average yield is 600 kilograms per hectare with an annual marketed amount of 52,700 metric tons. Small percent of the production is classified as Grade 1 and 2 (specialty coffee grade) and exports are 369,000 metric tons per year valued at \$122 million (average price per kg is \$2.31). For those that can produce the specialty grade prices are good: Grade 1 - \$6.09 per kilogram; and Grade 2 - \$4.37 per kilogram. Approximately 13 percent of exports are done through direct trade. This area has 22 commercial coffee farmers with 5,785 hectares under production.

K. Wellega and W Wellega Coffee Areas, Oromia - West Wellega: Lalo Asabi, Genji, Haru, Guliso, Ayira Kelem Wellega: Anfilo, Jima Horo, Dale Sadi, Yama, Logi Welele, Gidami, Dale Wabara. Principal coffee types are Lekempti and Gimbi with average yields of 600 kilograms per hectare. Total marketed amount is 483,000 metric tons per year with very little classified as Grade 1 or 2 with less price differentiation between the grades (Grade 1 - \$5.97 and Grade 2 - \$5.38). Total exports were 368,000 metric tons valued at \$110 million (average price per kg is \$2.99). Direct trade amounted to 8 percent of total exports and there are 9 commercial coffee farmers with approximately 528 hectares.³³

Sidama, Gedeo and Segen Hizboch Cluster, SNNP Region – Principal coffee types are SDA A and B and Yirgachefe A with average yields are 1,070 kilograms per hectare (Sidama - 1,100 kgs/ha, Gedeo - 826 kgs/ha and Segen Hizboch - 1,100 kgs/ha). This is a highly developed coffee area with 371,000 smallholder farmers cultivating 176,320 hectares and producing more than 180,000 metric tons. There are 132,000 smallholder farmers in primary cooperatives. Over half the coffee produced is certified Fair Trade or Organic. Half the production goes into illegal trade or local consumption. Approximately, 70,000 metric tons is exported at a value of \$246 million (average per kg is \$3.15). There is a high level of donor and NGO support to the sector (Technoserve, Nespresso, ACDI-VOCA, World Vision and Solidaridad). Direct trade is estimated at 10 percent of total exports with 8 commercial coffee farmers and 1,500 hectares under production.

³³ Based on interview with Robera Coffee they have now a 300-hectare coffee farm in operation and plan to engage in direct trade. Added them to the total that ATA had for commercial coffee famers.

Structure and Performance of Ethiopia's Coffee Export Sector
Ethiopia Strategy Support Program, Working Paper 66
Ethiopian Development Research Institute (EDRI) and International Food Policy Research
Institute (IFPRI), June 2014

“We have seen impressive performance of Ethiopia's coffee export sector ... with the real value of coffee exports rising four-fold between 2003 – 2012. The coffee export market is highly differentiated in Ethiopia, with quality premiums being offered for washing, grades, certification, and specific geographical indications. About 30 percent of coffee is washed, leading to high but variable premiums compared to unwashed coffee. There are strong effects of geographic indications of origin with Yirgacheffe and Harar coffee commanding large premiums over coffees originating from elsewhere in Ethiopia. Certified coffee and coffee marketed by cooperatives are being sold at higher prices than coffee sold by the private sector. We also find that all exporters that are vertically integrated are able to obtain significantly higher prices over time than those that do not. This is especially valued in the differentiated high-end market.”

Recommendations:

- Increased coffee washing capacity in an environmentally friendly and sustainable manner (e.g., with ecological wet mills);
- Focus on the 20 to 30 percent of Ethiopia coffee that could qualify as specialty coffee;
- Focus on sustainability through traceability and certain certification programs; and
- Promote increased productivity through focus on improved technologies such as mulching, pruning, rejuvenation of trees, planting of improved varieties and modern input use.

Breakdown of area for production types:

Forest – 10%

Semi-Forest – 35%

Garden – 50%

Plantation – 5%

One major area is the Southern Nations, Nationalities and People Regions (SNNPR) in the south and west of Ethiopia.


5,000 farmer target represents 0.125% of total coffee farmer population of 4,000,000.

Number of coffee exporters is increasing from 100 active exporters in 2007/2008 to 175 exporters in 2012. Washed coffee makes up 30% of exports. Average exporter has 1,266 MT and value of \$4.5 million.

Attachment Thirteen

Cargo Coffee Bike

Cost is \$120 – bike could reduce transport time/cost and increase coffee quality. Bike can carry a load of 250 kg that is 10 times what a person is expect to carry). Average coffee farm is 57 minutes from a commercial selling point. Bike could be used through a micro credit system that is based on repayment by the farmer on increased coffee quality. Experience in the field indicates that Cargo Coffee Bike reduced time required for farmer to get product to the nearest wet mill increasing quality 3.5 SCAA quality points versus non-bike coffee and farmers’ premium by 20%. Rugged, durable, effective with low maintenance requirements but training was put in effect and various bike shops established.

CASE STUDY: “Cargo Coffee bike” reduced time required to bring cherries to wet mills increasing quality 3.5 points and farmers’ premium by 20%		
Background	Modality	Criteria for success
 <ul style="list-style-type: none"> • Started:2007 • Fund: USAID – SPREAD program • Objectives: To reduce transport time and increase coffee quality • Characteristics: Bike can carry a load of up to 250 Kg at a time • Cost of Bike: \$120 (2008) 	<ul style="list-style-type: none"> • Cooperatives set up a micro credit system to give the farmers credit to buy the coffee bikes • Coffee-bike coffee are kept separate from other coffee and evaluated for quality and sold on its own quality merits • Farmers were able to gain extra earnings from the quality of their cherries resulting in quicker delivery, allowing them to pay off the loans within 2 -3 years 	<ul style="list-style-type: none"> • The bike’s design provided surface to tie down cargo and gave better stability to transport • The bike is also geared to handle the country’s hilly terrain • Required low maintenance but training programs for maintenance and repair service were put in place • Various bike shops and plants established • Micro-credit access to farmers were facilitated
	Key results	
	<ul style="list-style-type: none"> • Reduce the time required to bring coffee cherries to the washing stations • Farmers retained a suitable margin of 20% on their crop • The bike coffees yielded 3.5 SCAA quality points higher than non-bike coffee at washing station • Enabled farmers to deliver high quality coffee 	
<small>Source: Newtimes (2008), Unionsroasted (2008) ATA Analysis (2015)</small>		

Private Plantations (newly established): The same can be claimed for all private investors who, over the last 5-6 years, were able to obtain land for coffee production purposes from the concerned regional governments. The newly established private coffee plantations owned by more than 135 investors have entered into developing modern coffee plantations by obtaining more than 32,000 ha of land. During the 2008/09 crop season, 6,915 tons of coffee were produced by 32 commercial farmers. At the time of writing this report, some 70 private investors were registered, with a tendency to increase further. Not all have shown the anticipated results right away, as the reality of nature and management has taught. A similar result to that of the privatized state farms discussed above can be expected; eventually a production quantity between 30,000 and 50,000 tons could be seen. It remains to be seen when this ambitious target can be achieved. It is also an indicator of how quick the anticipated growth of the smallholder production can or could possibly grow and achieve improved growth rates.

To address coffee productivity and production, on the one hand, and ensuring consistency of quality of supply on the other, the following actions should be taken: Development and wider dissemination of improved coffee varieties with better agronomic and marketing characteristics and adapted to specific agro-ecologies; Leguminous shade trees, mulches, organic fertilizers and better application technique on soil-test based recommendations; Adaptive participatory research on intercropping and mixed farming; Integrated Pest Management (IPM) approach; Soil and water conservation practices; Recommended harvesting and post-harvest management of coffee beans including expansion of eco-friendly and low cost processing facilities, minimal waste generation and proper disposal; and Encourage production and marketing of differentiated high quality coffees and protect unique Ethiopian coffee identities and intellectual property.

To address problems related to coffee marketing, concerted efforts have been planned to:

- Promote most profitable options for the mainstream coffee trade (washed and sun-dried), a considerable share of the country's marketable coffee;
- Promote a marketing system that operates with utmost quality concern and urges Ethiopian coffees to move towards meeting recognized worldwide sustainability certification standards;
- Promote a marketing system that: (a) presents a level playing field for all value chain actors and (b) facilitates enhanced private sector participation while ensuring higher profitability for farmers and a better and fair share of benefits for all stakeholders;
- Promote a marketing system willing to differentiate between coffee qualities with price incentive mechanisms.

“Vertical integration by exporters to buy micro-lot coffees from specific washing stations or growers has been eliminated in the current marketing structure. In order to have a specialty market, direct trade for single origin and micro-lot coffees is needed. Coffee flow in this marketing system, trading coffee since 2008, could be improved by addressing market requirements such as traceability, quality and supply consistency. This would create loyalty in possible clients. Other areas of possible improvement concern certification and quality issues, transparency and traceability questions, efficiency and professionalism or cost-mindedness. Steps may be taken in order to offer exporters more incentives and improve the global competitiveness of Ethiopia's coffees, thus increasing world demand for coffees produced in Ethiopia.” EU Coffee Sector Study, Vol. 1, p. 11.

“Despite the desire to provide a level legal playing ground for all players at the first collection point, the licensing officer of a given Woreda, who is very often the controlling authority at the first level of the marketing chain also sees the possibilities the market offers. During the past coffee sale period, 2013/14, very often PMCs seemed to be deserted, contrary to washing stations, which enjoyed busy selling and buying activities.” p.12

According to ICO 2014,8 it is estimated that the per capita consumption of coffee in Ethiopia is around 2.3 kg per year. Currently the population in Ethiopia is estimated at 90 million people, which would bring the total annual consumption of coffee to 207,000 tons. As Ethiopia is also exporting a similar quantity, the national annual production would be roughly around 414,000 tons ($\pm 5-10\%$) According to ICO 2014,8 it is estimated that the per capita consumption of coffee in Ethiopia is around 2.3 kg per year. Currently the population in Ethiopia is estimated at 90 million people, which would bring the total annual consumption of coffee to 207,000 tons. As Ethiopia is also exporting a similar quantity, the national annual production would be roughly around 414,000 tons ($\pm 5-10\%$). p. 18

Region / Zone	Production Estimate (in metric tons)							
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
SNNPR	107,140	134,832	130,857	62,939	149,838	110,224	204,618	122,678
Kembata	2,376	2,970	4,376	1,006	5,616	1,785	8,445	4,545
Hadiya	-	1,400	2,299	2,230	4,500	4,584	4,131	612
Wollayita	2,720	3,400	20,919	371	5,287	6,955	6,061	2,511
Sidama	29,364	45,175	33,562	14,313	50,000	43,043	55,896	36,443
Gediyo	29,223	34,380	32,000	11,371	43,257	12,381	47,797	30,920
Keffa	18,700	22,000	15,301	5,075	13,434	8,450	23,722	7,983
Sheka	6,468	6,600	8,400	13,802	10,066	10,340	12,649	13,007
Benchmajji	13,009	10,407	14,000	14,770	17,678	12,084	24,750	19,187
Others	5,280	8,500	5,613	10,428	19,626	10,602	21,167	7,470
Oromia	198,178	181,063	213,100	206,633	308,875	251,008	290,585	211,000
Borana	9,263	12,350	12,475	12,475	9,220	12,594	12,366	10,884
Guji	4,550	6,500	13,386	12,184	28,816	28,630	15,457	13,969
Djimmma	50,600	44,000	49,775	39,775	62,778	83,778	70,827	49,114
Illubabura	40,619	38,685	26,802	26,802	48,431	37,479	59,379	42,138
West Wollega	44,880	37,400	50,629	40,629	61,231	33,346	46,394	29,916
East Wollega	8,102	6,752	4,000	2,000	3,338	6,229	1,030	636
QelemWollega	-	-	19,345	29,345	48,862	21,306	45,570	32,419
East Harargie	6,849	8,058	8,395	8,306	6,758	4,199	7,729	5,622
West Harargie	18,397	14,718	15,042	20,874	17,559	9,321	17,518	14,851
Bale	-	6,100	5,332	5,332	10,843	8,453	4,637	3,713
West Arsi	-	-	2,126	3,227	1,680	-	4,524	3,338
Arsi	-	6,500	4,683	4,683	7,106	5,673	5,154	4,391
HoroGudruWollega	-	-	1,110	1,001	2,253	-	-	9
Others	14,918	-	-	-	-	-	-	-
Gambela	3,250	3,250	4,000	3,000	2,282	0	3,564	9,297
Benishangul	-	-	-	-	-	-	-	376
GRAND TOTAL	308,568	319,145	347,957	272,572	460,995	361,232	498,767	343,351

Gross Margin Analysis for Various Project Scenarios

Garden Coffee Without Project						Remark: \$1 = EBT 21
Activity	UoM	Qty	rate	Total ETB	Total USD	
Sales revenue	ETB/KG	750	51	38,273	1,823	Remark: ETB 8.5 x 6 kgs red cherry = 1 kg green coffee
Cost						No Premium
Farm Management costs						
Mulching	PDL/Ha	10	40	400	19.05	
Pruning	PDL/Ha	20	40	800	38.10	
Compost Use	PDL/Ha	15	40	600	28.57	
Tillings	PDL/Ha	10	40	400	19.05	
Weedings	PDL/Ha	30	40	1,200	57.14	
Subtotal: Farming				3,400	162	
Harvesting	ETB/KG	750	12	9,000	429	
Packaging cost	ETB/bag	12.50	45	563	27	
Transport	PDL/Ha	30	20	600	29	Remark: Average load is 25kg red cherries, which is equivalent to 4kg of green coffee; average distance one walking; 2 hr for round trip.
Direct cost				13,563	646	
Gross margin				24,710	1,177	
Investment and overhead cost						
Improved seedlings	EBT/Ha	1	225	225	10.7	Remark: EBT2.25 per seedling \$0.107 per seedling.
Depreciation Cost				-	-	
Management cost				-	-	
Utilities				-	-	
Insurance				-	13.7	
Subtotal				225	24	
Net profit				24,485	1,166	

Garden Coffee Production Without Project

Garden Coffee With Project						Remark: \$1 = EBT 21
Activity	UoM	Qty	rate	Total ETB	Total USD	
Sales revenue	ETB/KG	975	59	57,184	2,723.04	Remark: 30% increase in yield from fertilizer 15% increase for timely arrival of red cherries via cargo bike and washed coffee. ETB 8.5 x 6 kgs red cherry = 1 kg green coffee
Cost						
Farm Management costs						
Mulching	PDL/Ha	10	40	400	19.05	
Pruning	PDL/Ha	20	40	800	38.10	
Compost Use	PDL/Ha	15	40	600	28.57	
Tillings	PDL/Ha	10	40	400	19.05	
Weedings	PDL/Ha	30	40	1,200	57.14	
Pesticide/Herbicide	ETB/lit	3	150	450.0	21.4	Remark: Coffee Berry Borer, Hypothenemus hampei.
Chemical fertilizer	ETB/Ha	1	1800	1,800	86	
Subtotal: Farming				5,650	269	
Harvesting	ETB/KG	975	12	11,700	557.14	Remark: EBT 12 per kg of red cherry
Packaging cost	ETB/bag	15.60	45	702	33.43	
Transport	PDL/Ha	2	40	80	3.81	Remark: 4 trips by bike – separate days - - 1/2 day each.
Direct cost				18,132	863.43	
Gross margin				39,052	1,859.61	
Investment and overhead cost						Remark: Seedling cost = EBT 2.25 = \$0.107/each seedling.
Improved seedlings	EBT/Ha	1	225	225	11	
Ecological Wet Mill	EBT/Year	1	588	588	28	Remark: Total cost of ecomill is \$35,000 financed at 0% interest over 5 years. Five years of annual payments among 250 member farmer group Total cost is \$125 financed for 5 years. Operating Costs & Depreciation = \$0.088 per kg = EBT 1.85/kg
Depreciation, Maint. & Admin	EBT/Kg	975	1.850	1,803.75	85.89	
Coffee Cargo Bike	EBT/Year	1	525	525.00	25.00	
Management cost				-	-	
Utilities				-	-	
Insurance				-	-	
Subtotal				3,142	149.61	
Net profit				36,435	1,710	

Gardent Coffee Production – With Project

Semi-Forest Without Project

Semi-Forest Without Project						Remark:
Activity	UoM	Qty	rate	Total ETB	Total USD	
Sales revenue	ETB/KG	400	51	20,400	971.43	Remark: \$1 = EBT 21
Cost						Remark: ETB 8.5 x 6 kgs red cherry = 1 kg green coffee No Premium
Farm Management Costs						
Weedings	PDL/Ha	10	40	400	19.05	Remark: 1 weeding per year.
Subtotal: Farming				400	19	
Harvesting	ETB/KG	400	12	4,800	228.57	
Packaging cost	ETB/bag	15.60	45	702	33.43	
Transport	PDL/Ha	16.00	20	320	15.24	Remark: Average load is 25kg red cherries, which is equivalent to 4kg of green coffee; average distance one walking; 2 hr for round trip.
Direct cost				6,222	296.29	
Gross margin				14,178	675.14	
Investment and Overhead Cost						
Improved seedlings	EBT/Ha	1	225	225	11	Remark: EBT2.25 per seedling \$0.107 per seedling.
Management cost					-	
Utilities					-	
Insurance					-	
Subtotal				225	10.71	
Net profit				13,953	664	

Semi-Forest With Project

Semi-Forest Coffee With Project						Remark:
Activity	UoM	Qty	rate	Total ETB	Total USD	
Sales revenue	ETB/KG	400	66	26,520	1,262.86	Remark: \$1 = EBT 21
Cost						Remark: Rate paid increased by 30% for timely arrival of red cherries via cargo bike and washed.
Farm Management costs						
Weedings	PDL/Ha	10	40	400	19.05	Remark: 1 weeding per year.
Subtotal: Farming				400	19	
Harvesting	ETB/KG	400	12	4,800	228.57	Remark: EBT 12 per kg of red cherry
Packaging cost	ETB/bag	15.60	45	702	33.43	
Transport	PDL/Ha	2	40	80	3.81	Remark: 4 trips by bike – separate days - – 1/2 day each.
Direct cost				5,982	284.86	
Gross margin				20,538	978.00	
Investment and overhead cost						
Improved seedlings	EBT/Ha	1	225	225	11	Remark: Seedling cost = EBT 2.25 = \$0.107/each seedling.
Ecological Wet Mill	EBT/Year	1	588	588	28	
Depreciation, Maint. & Admin.	EBT/Kg	400	1.850	740.00	35.24	Remark: Total cost of ecomill is \$35,000 financed at 0% interest over 5 years. Five years of annual payments among 250 member farmer group Total cost is \$125 financed for 5 years. Operating Costs & Depreciation = \$0.088 per kg = EBT 1.85/kg
Coffee Cargo Bike	EBT/Year	1	525	525.00	25.00	
Management cost					-	
Utilities					-	
Insurance					-	
Subtotal				2,078	98.95	
Net profit				18,985	879	

Details	Units of Measure	Garden	Garden w/Project	Semi-Forest	Semi-Forest w/Project	Plantation
Yield	kg/ha/yr	750.00	975.00	400.00	400.00	1500.00
Selling price	USD/kg	2.43	2.81	2.45	3.06	3.80
Total sales	USD/Ha	1822.50	2723.04	971.43	1263.00	5700.00
Direct cost	USD/Ha	645.83	933.90	296.00	285.00	3007.34
Gross Margin	USD/Ha	1176.67	2144.31	675.00	978.00	2692.66
Other costs	USD/Ha	24.39	149.61	11.00	98.95	117.68
Net income	USD/Ha	1165.95	1995.00	664.00	879.00	2574.98

Details	Units of Measure	Garden	Garden w/Project	Percent Change
Yield	kg/ha/yr	750.00	975.00	30%
Selling price	USD/kg	2.43	2.81	16%
Total sales	USD/Ha	1837.50	2723.04	48%
Direct cost	USD/Ha	646.00	863.00	34%
Gross Margin	USD/Ha	1192.00	2214.00	86%
Other costs	USD/Ha	24.00	149.61	523%
Net income	USD/Ha	1822.50	2065.00	13%

Details	Units of Measure	Semi-Forest	Semi-Forest w/Project	Percent Change
Yield	kg/ha/yr	400.00	400.00	0%
Selling price	USD/kg	2.43	3.14	29%
Total sales	USD/Ha	971.00	1263.00	30%
Direct cost	USD/Ha	296.00	285.00	-4%
Gross Margin	USD/Ha	675.00	978.00	45%
Other costs	USD/Ha	11.00	99.00	800%
Net income	USD/Ha	664.00	879.00	32%

Comparison