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The World Bank

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Report No: ICR00004303

IMPLEMENTATION COMPLETION AND RESULTS REPORT

(IDA-47830-IDA-H600/TF-11306 TF-99729)

ON A

CREDIT

IN THE AMOUNT OF SDR US$ 71.8 MILLION (US$ 101.5 MILLION EQUIVALENT)

AND A

GRANT

IN THE AMOUNT OF SDR US$ 27.5MILLION (US$ 38.9 MILLION EQUIVALENT)

TO THE

Federal Democratic Republic of Ethiopia

FOR AN

ET: AGRICULTURAL GROWTH PROJECT

December 15th, 2017

Agriculture Global Practice
GFA 13
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective November 30, 2017)

Currency Unit	**=**	**Ethiopian Birr (ETB)**
Ethiopian Birr 1.00	**=**	**US$ 0.04**
US$ 1.00	**=**	**27.16 Ethiopian Birr**

FISCAL YEAR

[January 1 – December 31]

ABBREVIATIONS AND ACRONYMS

ADPLAC	Agriculture Development Partners Linkage Advisory Council
AGP	Agricultural Growth Project
AGP2	Second Agricultural Growth Project
AHC	Animal Health Clinic
AHP	Animal Health Post
ATA	Agricultural Transformation Agency
CAADP	Comprehensive Africa Agriculture Development Program
CAS	Country Assistance Strategy
CIG	Common Interest Group
CLPP	Community Level Planning Process
CPS	Country Partnership Strategy
CDSF	Capacity Development Support Facility
EDRI	Ethiopia Development Research Institute
EIAR	Ethiopian Institute of Agriculture Research
EIRR	Economic Internal Rate of Return
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESSP	Ethiopia Strategy Support Project
ETB	Ethiopian Birr
Ethio - SMIS	Ethiopia Small-Scale and Micro Irrigation Support Project
FAO	Food and Agriculture Organization (United Nations)
FCA	Federal Cooperative Agency
FCU	Federal Coordination Unit
FDI	Foreign Direct Investment
FHH	Female-Headed Household

FM	Financial Management
FMS	Financial Management Specialist
FTC	Farmer Training Center
GAFSP	Global Agriculture and Food Security Program
GDP	Gross Domestic Product
GoE	Government of Ethiopia
GRM	Grievance Redress Mechanism
GTP	Growth and Transformation Plan
GTP2	Second Phase of Growth and Transformation Plan
ha	Hectare
IA	Implementation Agency
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion Report
IDA	International Development Association
IO	Intermediate Outcomes
IFPRI	International Food Policy Research Institute
IFR	Interim Financial Report
IPMP	Integrated Pest Management Plans
ISR	Implementation Status and Results Report
IWUA	Irrigation Water User Association
JRIS	Joint Review Implementation Support
KDC	Kebele Development Committee
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
MDTF	Multi-Donor Trust Fund
MHH	Male-Headed Household
MoA	Ministry of Agriculture
MoFED	Ministry of Finance and Economic Development
MoT	Ministry of Trade
MTR	Mid-Term Review
MU	Moderately Unsatisfactory
NBE	National Bank of Ethiopia
NGO	Non-Governmental Organization
NPV	Net Present Value
PAD	Project Appraisal Document
PAP	Project-Affected People
PBS	Protection of Basic Services
PCDP	Pastoral Community Development Project
PDO	Project Development Objective
PIF	Policy Investment Framework
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PSNP	Productive Safety Net Project
PPR	Procurement Post Review

PPP	Public-Private Partnership
RCBP	Rural Capacity-Building Project
RED&FS	Rural Economic Development and Food Security
RPF	Resettlement Policy Framework
SC	Steering Committee
SLMP	Sustainable Land Management Project
SNNPR	Southern Nations, Nationalities and People's Region
STC	Short-Term Consultant
SSI	Small-Scale Irrigation
SWG	Sector Working Group
TA	Technical Assistance
THH	Total Households
TTL	Task Team Leader
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USD	United States Dollar

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P113032	ET: AGRICULTURAL GROWTH PROGRAM (P113032)
Country	**Financing Instrument**
Ethiopia	Specific Investment Loan
Original EA Category	**Revised EA Category**
Partial Assessment (B)	Partial Assessment (B)

Related Projects

Relationship	Project	Approval	Product Line
Supplement	P127507-Agricultural Growth Project - Additional Financing	30-Nov-2011	Recipient Executed Activities

Organizations

Borrower	Implementing Agency
Federal Ministry of Finance and Economic Development, Federal Democratic Republic of Ethiopia	Ministry of Agriculture and Natural Resources

Project Development Objective (PDO)

Original PDO

The PDO is to increase agricultural productivity and market access for key crop and livestock products in targeted woredas with increased participation of women and youth.

FINANCING

		Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing				
P113032	IDA-47830	108,400,000	108,400,000	106,167,829
P113032	IDA-H6000	41,600,000	41,600,000	42,436,802
P113032	TF-99729	56,200,000	56,200,000	56,200,000
Total		**206,200,000**	**206,200,000**	**204,804,631**
Non-World Bank Financing				
Borrower		7,000,000		
US: Agency for International Development (USAID)		81,400,000		
Local Communities		20,800,000		
UN Development Programme		2,400,000		
Bilateral Agencies (unidentified)		56,200,000		
Total		**167,800,000**		
Total Project Cost		**374,000,000**	**206,200,000**	**204,804,631**

KEY DATES

Project	Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
P113032	30-Sep-2010	16-Feb-2011	10-Mar-2014	30-Sep-2015	30-Apr-2017
P127507	30-Nov-2011	15-Feb-2012		30-Sep-2015	30-Sep-2015

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
22-Jun-2016	148.60	Change in Loan Closing Date(s) Reallocation between Disbursement Categories

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Moderately Unsatisfactory	Moderately Satisfactory	Modest

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	13-Feb-2011	Satisfactory	Satisfactory	0
02	07-Sep-2011	Satisfactory	Satisfactory	9.46
03	28-Mar-2012	Satisfactory	Moderately Satisfactory	15.72
04	12-Nov-2012	Satisfactory	Moderately Satisfactory	31.45
05	10-Jun-2013	Moderately Satisfactory	Moderately Satisfactory	53.75
06	21-Feb-2014	Moderately Satisfactory	Moderately Satisfactory	75.08
07	12-Oct-2014	Moderately Satisfactory	Moderately Satisfactory	91.37
08	17-Apr-2015	Moderately Satisfactory	Moderately Satisfactory	117.67
09	28-Dec-2015	Moderately Satisfactory	Moderately Satisfactory	139.76
10	30-Jun-2016	Moderately Satisfactory	Moderately Satisfactory	148.60
11	06-Jan-2017	Moderately Satisfactory	Moderately Satisfactory	148.60

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Agriculture, Fishing and Forestry	**100**
Other Agriculture, Fishing and Forestry	59

Public Administration	**100**
Public administration - Agriculture, fishing and forestry	12

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)
Private Sector Development	**100**
Jobs	100
Finance	**4**
Finance for Development	4
Agriculture Finance	4
Urban and Rural Development	**81**
Rural Development	81
Rural Markets	26
Rural Infrastructure and service delivery	39
Land Administration and Management	16
Environment and Natural Resource Management	**67**
Climate change	51
Mitigation	51
Water Resource Management	16
Water Institutions, Policies and Reform	16

ADM STAFF

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1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. **During the appraisal stage of the Agricultural Growth Project (AGP), several exogenous shocks severely affected Ethiopia's economy.** The first shock was related to the sharp increase in global commodity prices in 2008. The price increases, combined with the lack of the *belg* (short) rains, fueled anticipation of inflation. As a result, consumers stockpiled food, which contributed to a near doubling of food prices between 2007 and 2008. At the same time, higher prices for fuel and fertilizer pushed Ethiopia's balance of payments into a position of vulnerability. The second shock was the global economic slowdown of 2009. Ethiopia's merchandise exports, which had grown at an annual average rate of 20 percent per year in dollar terms between 2005/06 and 2007/08, shrank by 1.1 percent in 2008/09. The annual change in foreign direct investment (FDI) slowed dramatically, declining from 81.5to –1.2 percent.

2. **These exogenous shocks severely impacted the welfare of Ethiopia's poor households.** In 2010, the price of goods consumed rose by approximately 78 percent in urban areas, and by 85 percent in rural areas compared to previous years. This resulted in significant adverse welfare effects.

3. **Smallholder agriculture is an important sector of Ethiopia's economy.** The government committed to shift its focus from humanitarian activities to development activities, with an increased interest in expanding and transforming the agricultural sector. Greater investment in high-potential areas was considered critical for agricultural growth. **Ethiopian farmers' vulnerability and exposure to shocks is high, especially considering the lack of capacity to store water and irrigate their crops.** The focus on productivity growth was paramount in mitigating these risks. Expanding agricultural production areas under irrigation, especially for small-scale farmers, was considered a key vehicle to increasing productivity, reducing dependency on rain-fed production, and diversifying agricultural production.

Rationale for Bank Involvement

4. **The AGP was expected to lessen the effects of the global economic crisis by promoting agricultural growth, complementing other World Bank initiatives[1] in Ethiopia**. The proposed project supported the government's strategic objective to increase agricultural productivity by reducing the capacity constraints in the agricultural sector. Agricultural development was a central component of the World Bank's country

[1] These initiatives included the Protection of Basic Services (PBS) initiative; the Productive Safety Net Program; the Sustainable Land Management Project (SLMP); and the Pastoral Community Development Project (PCDP).

assistance strategy for Ethiopia (43051-ET) for FY 2008-2011 dated April 2, 2008. In its 2008 CAS, increased agricultural productivity was a focus area under Strategic Objective 1 (Fostering Economic Growth), and AGP was a major component of the strategy. The World Bank's involvement in the AGP was also expected to provide important financial and technical resources to leverage support from other development partners.

5. **The operation was part of a comprehensive agricultural sector program financed by multiple sources/donors, with all investments contributing to commonly defined outcomes.** It included complementary sub-projects financed by the United States Agency for International Development (USAID) and the United Nations Development Programme (UNDP).

1.2 Original Project Development Objectives (PDO) and Key Indicators

6. The development objective of the AGP is to increase agricultural productivity and market access for key crop and livestock products[2] in targeted *woredas*, with increased participation of women and youth[3]. The project had the following two outcome indicators:

PDO 1: Percentage increase in agricultural yields of participating households – with a target of *11.1 percent by the Mid-Term Review (MTR), and a 16.2 percent target by year 5.*

PDO 2: Percentage increase in total real value of marketed agricultural products per household – with a target of *12.5 percent by MTR, and a 21.7 percent target by year 5.*

1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reason/justification

7. The PDO was not revised during project implementation. However, a number changes were made to the Results Framework through a Level II restructuring, which affected the project's outcome indicators and intermediate outcome targets. The rationale for the changes was as follows:

a. *Update of the baseline values:* Baseline data included in the Project Appraisal Document (PAD) was taken from a rapid baseline survey conducted during project preparation. Since it was not a full household baseline survey, it was

[2] Key commodities are defined as those comprising the bulk of current agricultural commodities in the selected *woredas*, including those in the agribusiness value-chain activity.
[3] The landless are a particularly vulnerable group of youth.

limited in its geographical scope and sample size. A full baseline sample survey was conducted in the first year of the project and resulted in different baseline values, requiring an amendment in the results framework.

b. *Revisions in the project targets*: The end of project targets that were changed included: (i) PDO 1: a change in agricultural yield target for youth-headed households was lowered;(ii) IO 1.3: the target for the number of beneficiaries with innovative best practices was lowered from 126,000 to 60,000; (iii) IO 1.4: the target for the number of sub-projects fully operational and sustainably managed 1 year after the initial project launch was lowered from 50,000 to 7,000; and (iv) IO 2.1: the targets for the number of farmers benefitting from irrigation investments was reduced from 72,000 to 42,000. (*Annex* 11 details these changes).

c. *Change in measurement units:* The two PDO-level indicators were defined as percentage increases. However, the targets were denominated in absolute values (for yields and for farmgate sales). To make the targets consistent with the indicator wording, the targets were then converted to percentages.

1.4 Main Beneficiaries

8. The primary beneficiaries of the project intervention included farmers (both small and medium) in the selected *woredas*, including farmers in Common Interest Groups (CIGs) and primary cooperatives, as well as those in the Irrigation Water User Associations (IWUAs). Women and young people were encouraged to participate. Secondary beneficiaries included household members and farmers benefitting from the improved access to and quality of public agricultural services (including agricultural extension and animal health services).

1.5 Original Components (as approved)

9. The project had the following three components:

Component 1: Agricultural Production and Commercialization (USD 118.3 million; International Development Association [IDA]/ pooled: USD 67.4 million; USAID: USD 45 million):

10. The objective of this component was to increase agricultural productivity and marketing. It supported investments in institutional strengthening and development to deliver better services to farmers, including the establishment and strengthening of the Agriculture Development Partners Linkage Advisory Council (ADPLACs) and farmer organizations, and the strengthening of key public advisory services. It also supported

the identification and expansion of best practices and provided implementation support. This component supported market and agribusiness development, and the identification of market opportunities, thereby stimulating linkages of agro-enterprises and cooperatives with domestic, regional, and international markets. Finally, the component sought to strengthen the supply systems for key inputs (better seeds and livestock breeds).

Component 2: Small–scale Rural Infrastructure Development and Management (USD 142.1 million; IDA/ pooled: USD 121.3 million).

11. The component supported investments in irrigation, road access, and markets. The component included: (i) small-scale agricultural water development and management; (ii) investment in development and management of SSI infrastructure construction; (iii) implementation of soil and water conservation–related activities; and small-scale market infrastructure development and management to increase market access, including construction and maintenance of small-scale feeder roads, foot bridges, and roadside drainage; (iv) development and management of market centers; and (v) institutional development and capacity building at the *woreda, kebele* (neighborhood/ward), and community levels.

Component 3: AGP Management and Monitoring and Evaluation (USD 18.8 million; IDA/pooled: USD 9.3 million; USAID/ UNDP/ parallel: USD 8.4 million)

12. This component included AGP management at the federal, regional, zonal, and *woreda* levels aimed at mainstreaming the project within the existing governmental structure to the extent possible. Specifically, it supported a broad agenda to strengthen the implementation capacity of the project and to communicate lessons learned during implementation. It also provided for the investment of resources to capture the project's outcomes and effects; monitor implementation progress (inputs and outputs); and introduce participatory monitoring and evaluation (M&E), social accountability, and internal learning.

1.6 Revised Components

Not applicable.

1.7 Other significant changes

13. The following three significant changes were made to the project during implementation:

(1) ***The project was selected to receive financing from the Global Agriculture and Food Security Program (GAFSP)***. The overall purpose of GAFSP funding is to

support country-led efforts to invest in sustainable agriculture and food systems to reduce hunger and increase incomes in low-income countries. GAFSP financing had two components: USD 50 million financing to a trust fund that was provided to finance AGP activities and provide technical assistance (TA); and USD 1.5 million financing that was provided as a United Nations Food and Agriculture Organization (FAO) TA. The GAFSP financing of AGP supported the expansion of the project to additional *woredas* and supported additional activities. The Agricultural Transformation Agency was introduced as an implementing agency to implement the additional activities supported by GAFSP, including the piloting cooperative warehouse storage, the Ethiopian Soil Information System, and fertilizer blending.

(2) ***The project went through two Level II Restructurings***. The first, in September 2015, included an extension of 9 months to the closing date of the IDA credit and Multi-Donor Trust Fund (MDTF)—that is, from September 30, 2015, to June 30, 2016. This was done because of delays in the implementation of the small-scale irrigation (SSI) schemes. A second extension to the closing date of the IDA credit and grant was done for 10 months from July 1, 2016, to April 30, 2017, thereby bringing the cumulative extension from the original closing date to 19 months. The second extension was mainly due to delays in infrastructure works because of the suspension of work by construction firms in areas of civil unrest, especially in Amhara and Oromia. This accounted for the largest share of the project's resources. In addition, heavy, unseasonal rains throughout the country from March to May 2016, and contractor underperformance contributed to the need for these Level II Restructurings.

(3) ***A reallocation of funds under the MDTF grant agreement was executed***, which resulted in a reduced allocation to Component 1 (Agricultural Production and Commercialization) of USD 4.56 million and Component 3 (Management, M&E) of USD7.62 million, as well as an increased allocation for small-scale rural infrastructure development and management work of USD 12.18 million. It enabled the documentation of expenditures against the MDTF, allowing for the closure of the trust fund on schedule as of June 30, 2016.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

14. **The project design process was broadly inclusive, and was owned and led by the government.** A systematic process of consultation was conducted, and included the creation of four thematic groups. The groups worked with the design team to address sector bottlenecks and develop a comprehensive design. The design process also

involved consultations with implementation agencies based in the regions, regular discussions among Steering Committee and Technical Committee members, various agencies, as well as regular feedback from regional presidents. These inputs were then incorporated into the scope of the project.

15. **Existing national/regional knowledge and resources were used to inform the project design; project-supported analytical work also contributed to an improved project design.** The AGP integrated inputs from the government's rural development strategy, the Agriculture Development Led Industrialization (ADLI) strategy, and country investment plans under the Comprehensive Africa Agriculture Development Program CAADP into the project design. A considerable amount of work was done in studying the country and sector context, and analyzing the lessons learned from different agriculture growth projects. In this regard, the World Bank financed several analytical works[4] which contributed to a well-informed project.

16. ***Quality at Entry*. Most of the relevant project documents and implementation arrangements were in place at the time of project approval.** All necessary project documents—including supporting materials, such as the procurement plan for the first eighteen months, a Project Implementation Plan (PIP), and the Terms of Reference for consultancy services — were in place at the time of project approval.

17. **The PDO was clear, appropriate, relevant and consistent with the project's activities.** The project components were aligned with the two key objectives of increasing productivity and commercialization. The two PDO indicators were adequate to measure the project's impact on productivity and commercialization. However, some aspects of the PDO were not clearly defined and made collection of data difficult. For example, "*increased participation of women and youth*" was not articulated clearly. Furthermore, the indicator to measure the livestock yield index was modified because of data limitations. At design the main livestock produce to be included in the livestock productivity index were milk, eggs, meat (live weight for sheep, goat, cattle and poultry) and honey. However, only milk yield was considered as a representative measure livestock productivity indicator.

2.2 Implementation

18. **Although the project experienced start-up delays, the following factors were key to its successful implementation and outcomes**:

[4] Strengthening Value Chains under AGP, Forage and livestock assessment under AGP, Assessment of Small Scale Irrigation schemes, Agricultural Value Chain Commodity Selection for AGP Regions (Oromia, Amhara, SNNPR and Tigray), and Menu of SSI services under the AGP

- **The Ministry of Agriculture and Natural Resources had a strong commitment to the project**. It had the experience and capacity to implement a large World Bank project, which helped in successful implementation — despite key capacity gaps in safeguards, procurement, financial management, and rural infrastructure.

- **Most of the regional presidents and *woreda* administrators had a strong sense of buy-in/ownership and supported the project.** Support for the project and buy-in at the regional and *woreda* levels was initially low, causing delays in project planning. However, support grew as implementation progressed.

- **The Technical and Steering Committees at the *woreda*, regional and federal levels provided timely inputs to the project.** For example, the findings of Technical Committee assessments resulted in new approaches to improve the performance of CIGs. In addition, a Capacity Development Task Force designed a single, coherent and structured capacity-building strategy.

- **Systematic progress reviews were conducted quarterly. A regional M&E team** consolidated the quarterly reports and sent them to the Federal Coordination Unit (FCU) for review. Meetings were held twice a year among regional leaders, project component leaders and regional M&E coordinators to discuss these reports and assess progress. In the annual meetings, ratings were provided to each region for each component, including gender. In a similar manner, the regions rated the woredas on each component, as well as by cross-cutting themes.

- **An adequate system of supervision resulted in a significant improvement in the implementation capacity of the project.** Joint Review Implementation Support (JRIS) missions were conducted every 6 months with extensive field work to track progress on the ground and obtain a better understanding of the challenges. In addition to the formal JRIS missions, the interim technical missions were helpful in supporting project supervision. Both development partners and the government regularly and actively participated in the supervision missions. Regular technical and steering committee meetings enabled the project to receive quality and timely inputs. The Project Implementation Unit (PIU) also conducted quarterly supervision missions led by component leaders. Project meetings to address problems were held monthly at the regional and federal levels, as well as bi-monthly at the *woreda* level.

- **Project coordination was a big challenge at the beginning of the project.** The project was complex, and included a broad range of activities and many implementation partners. However, as project implementation progressed,

coordination improved and led to the successful implementation of all project activities.

- **Coordination challenges at the beginning occurred regarding the parallel-financed USAID AGP sub-projects and with the Ministry of Trade.** For example, for some commodities the CIGs developed under the project were not able to make strong linkages with the USAID-financed AGP-AMDe and AGP-LMD sub-projects. Part of the challenge was because the USAID sub-projects supported a limited and specified number of commodities focusing on value addition, whereas the CIGs covered a broader range of activities.

- **The second AGP (AGP2) took several steps to address coordination problems related to parallel-funded subprojects**. It aligned the design of the AGP project and USAID parallel-financed subprojects so that both projects complemented each other. Also, one implementation agency for the value chains in AGP2 was chosen to implement crop and livestock activities, which helped improve coordination.

- **Private sector engagement in the irrigation component was innovative.** Before the project, the government only used public enterprises for irrigation work. The involvement of the private sector enabled a large work force to be deployed simultaneously for the successful implementation of many schemes. Private sector engagement occurred in all three stages of design, construction and supervision of SSI schemes.

- **Weak contractor enforcement resulted in the variable quality of construction work.** The SSI schemes were of variable quality because technical specifications were not strictly enforced. Like the SSI schemes, the lack of adequate experience by site supervisor in administering supervision work for the chosen K-span technology contributed to delays and variability in the quality of completed warehouses.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

19. **M&E design issues overcome: project coverage and complexity, and excess number of indicators.** Given the vast coverage and complexity of the project across 96 *woredas*, the monitoring of progress vis-a-vis the PDO was challenging. The project had many outcome indicators, which made monitoring cumbersome. The addition of another 12 GAFSP indicators exacerbated this situation. Overall, many indicators were identified and effective collection data methods, including household surveys and

focused group discussions were used to collect the data to monitor various project activities and indicators.

20. **M&E implementation issues overcome: weak start, capacity challenges, coordination difficulties, and data limitations.** M&E implementation had a weak start because of capacity challenges at the local level. The quality of implementation improved and by the Mid-Term Review, M&E was rated moderately satisfactory. The M&E system had adequate staff in place at the federal, regional and *woreda* levels. Furthermore, there were multiple implementing agencies that were required to report on the indicators, which resulted in poor coordination and led to the reporting of inconsistent figures (and resulted in poor ratings after the MTR). Although the project explicitly targeted women and youth in project activities, it was weaker in collecting youth-related data as compared to women. This was partly because the PIU found it challenging to identify youth-headed households. As noted earlier, due to data limitations, only milk yield was collected to measure the livestock yield index. However, excluding measures of the other livestock
products in the agricultural yield index was limiting considering the importance of livestock fattening, meat production and beekeeping activities that were implemented in the project. Overall, the project produced a rich dataset of good quality quantitative and qualitative data based on a survey of 7,927 households. The survey used household- and community-level questionnaires, and most of the indicators related to the results framework were collected.

21. **M&E utilization: Several assessments conducted during project implementation informed decision making and facilitated significant changes in the CIG structure.** For example, a CIG assessment was done when the M&E team reported that two-thirds of the CIGs created were not functional around the MTR. The results from this assessment enabled the project implementers to change their approach to focus on strengthening existing CIGs, and to stop establishing more CIGs. The Ethiopia Development Research Institute (EDRI) was contracted to conduct an impact evaluation of the project using both qualitative and quantitative econometric methods. A qualitative project evaluation report of the Borrower was also conducted by a consulting agency (Loyya Consults).

22. **Weaknesses were observed in M&E and safeguards compliance at the local level, which affected project implementation, especially in the beginning.** The project was extended twice because of delays in the completion of SSI schemes, partially because of the limited capacity of private-sector contractors. Overall, the project team showed commitment in engaging the private sector in SSI and provided technical support.

2.4 Safeguard and Fiduciary Compliance

23. **Environmental and Social Safeguards**: **No major safeguard issues arose during project implementation.** This project fell into the Environmental Category B because no adverse long-term or cumulative effects were anticipated. There were no major safeguard problems anticipated in the project because most of the investments were community based, and only infrastructure investments triggered safeguards policies. The project and the additional financing triggered six World Bank safeguards policies: (i) Environmental Assessment (OP/BP 4.01); (ii) Pest Management (OP/BP 4.09); (iii) Involuntary Resettlement (OP/BP 4.12); (iv) Safety of Dams (OP/BP 4.37); (v) Projects on International Waters (OP/BP 7.50); and (vi) Physical Cultural Resources (OP/BP 4.11). During project preparation, the exact locations of the proposed project activities were not known in sufficient detail. Therefore, the client prepared and disclosed an ESMF and a resettlement policy framework. The nature of the investments (for example, SSI) had minor safeguard implications. For example, no one was resettled, the amount of land acquisition was minimal, and in all cases, land was donated and compensation was paid as required. Notably, this was the first agriculture project in the country to have a dedicated safeguard specialist.

24. **Environment: There were procedural and documentation gaps during project implementation.** The Integrated Pest Management Plans (IPMPs) were prepared in only some *woredas*, and in some cases, they were not prepared before the subprojects were implemented. This resulted in a lack of clarity as to whether the project was promoting environmentally sustainable pesticide use in the command area of newly constructed and rehabilitated SSI schemes.

25. **Social aspects: The social audit reports revealed poor documentation related to land donation.** The lack of documentation raised concerns about whether the project followed due process in land acquisitions. However, the audit found no evidence of involuntary displacement or resettlement in the project areas. The Environmental and Social Audit indicated that all consulted Project- Affected People (PAP) were satisfied about the AGP sub-projects established in their localities. There was no Grievance Redress Mechanism system established to address concerns and complaints. Consent regarding voluntary land acquisition was taken orally, and was not documented with minutes of consultations and signatures of PAP.

26. **Recommended action plans were adequately integrated into the design and implementations of AGP2**. Some of these include: the establishment a Grievance Handling Mechanism; an explicit focus on mitigating risks in AGP2 (which were identified in the social assessment); and significantly improved, user-friendly documentation templates in the ESMF.

27. **Financial Management (FM): The FM risk exposure at the project appraisal stage was rated substantial.** Risk factors included the decentralized nature of the project, continuous low budget utilization, and the high level of cash and advances given to project implementers.

28. **FM performance improved throughout project implementation, and internal controls were considered adequate.** Annual project audit reports contained an unqualified audit opinion on the annual financial statements throughout the project's life, and the audit reports were consistently rendered to the Bank in a timely manner. The quarterly Interim Financial Reports were of acceptable quality and were also generally submitted on time to the Bank. The risks were mitigated by adequate adoption of sound financial management procedures, the use of a computerized accounting system, and qualified staff trained in Bank FM procedures. There was relative stability in the tenure of the project FM staff during project implementation.

29. **The budget was fully utilized, with no outstanding advances at the end of the project**. Issues of inadequate documentation for incurred expenditures, unresolved ineligible expenditures and unretired advances were flagged during the FM implementation support missions conducted over the life of the project. Annual budget utilization was consistently low, with little explanation provided. The recommended action plans following these observations were adequately implemented by the FM team in the FCU, and resulted in full budget utilization by the end of the project.

30. **Procurement Management: The initial procurement capacity at the federal level (FCU) and a few regions was weak, but improved with training and supervision support as well as corrective actions during project implementation.** Weak procurement capacity was observed following the World Bank's procurement post review (PPR) and many procurement lapses were also observed. High staff turnover resulted in a few issues of non-compliance with procedures, including weak record-keeping and procurement of items without approval of procurement plans. Consequently, the PPR recommendations were prepared, and included dedicated training of 2-3 week for contract management to address skill gaps, especially regarding works procurement. The FCU procurement team implemented the recommended action plans. The team provided regular procurement training, with strong supervision support from the World Bank and the government. Independent procurement audits and technical support were provided through procurement clinics, with an emphasis on identified gaps and corrective measures related to compliance.

2.5 Post-completion Operation/Next Phase

31. **The AGP 2 was launched to consolidate the results of the first phase and to geographically scale-up to half of the high potential *woredas* in the country.** The AGP2 aims to increase agricultural productivity and commercialization. It covers 157 *woredas*, which includes all the *woredas* targeted under AGP. Further, it has more than double the financing than the first AGP (US$ 581.80 million). The AGP2 will benefit from the increased capacity of public and private sector actors achieved under the first AGP. Importantly, it will ensure the sustainability of the outcomes of the first AGP for the following reasons:

- The AGP2 follows the implementation arrangements under the first AGP, and will leverage the increased capacity of the existing government structure. The regular Steering and Technical Committees proved to be successful mechanisms in the first AGP, and will be retained in the AGP2 to ensure good coordination. Most of the project's outcome indicators will continue to be monitored under the AGP2's M&E framework.

- The AGP2 provides capacity-building support for 604 operational Water User Associations (WUAs) for water management and operations and maintenance of the schemes. In addition, there is a commitment under the AGP 2 to continuously improve the schemes constructed under the first project, thereby ensuring the sustainability of the SSI schemes. Strong technical assistance and regular training will also be provided to strengthen the CIGs established under the first AGP.

32. **The Government requested additional World Bank support for the development of the livestock sub-sector** through the "*The Livestock Fisheries Sector Development Project (LFSDP)*", which was approved in December 2017. The LFSDP offers US$ 170 million in finance to target rural and peri-urban areas of the highland regions where the dairy, poultry, red meat, fisheries and aquaculture value chains dominate. Since this project follows a value chain approach and covers some AGP woredas, it will help strengthen the AGP outcomes achieved through complementary investments and through its initiation of productive partnership alliance to improve market linkages.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

33. *Relevance of Objectives (Substantial).* The objectives are well aligned with the ambitious second GTP (2015/16 to 2020/21), which emphasizes a strong role for the agricultural sector in driving sustained economic growth and job creation. The AGP objectives and outcomes directly support the current Country Partnership Framework Objective 1.3, which seeks to increase agricultural productivity and commercialization — with a special focus on tackling the constraints that women face in agricultural commodity value chains.

34. **Relevance of Project Design (High) and Implementation (Substantial).** All project activities and components were clearly designed to contribute to the achievement of the PDO outcomes. Overall, there was a relatively sound logical progression from expected outputs to expected intermediate outcomes, and eventually to expected PDO outcomes.

35. The relevance of the design of project components to the achievement of the three key PDO-level outcomes can be summarized as follows:

(i) Increasing agricultural productivity: The project was expected to increase productivity through: the strengthening of agricultural public service delivery; the identification and scaling up of best practices; training; and increasing access to small-scale irrigation technologies.

(ii) Increased market access was designed to be supported by: the development of market infrastructure, including the construction and rehabilitation of market centers, feeder roads, foot bridges, and a strengthening of CIGs and cooperatives; various training programs under Component 2; and market and agribusiness development activities supported by the AGP-AMDe and AGP-LMD sub-projects.

(iii) Increased women and youth participation in the project and primary cooperatives occurred through the creation and strengthening of CIGs. In addition, the project results framework captured gender disaggregated data for most of the activities and outcomes, which were facilitated by the development and implementation of gender mainstreaming guidelines.

3.2 Achievement of Project Development Objectives

Rating: Moderately Satisfactory

PDO Outcome 1: Increasing Agricultural Productivity

36. **Project investments in small-scale irrigation successfully increased land-irrigation coverage, agricultural productivity, crop diversification, and farmer incomes.** In total, 44, 150 hectares (ha) of land was provided with irrigation due to investments in small-scale irrigation infrastructure. This outcome exceeded the project target by 66 percent, benefiting 148, 357 farmers. It further reduced the dependence of farmers on rain-fed agriculture. It also contributed to crop diversification, as several crops can now be grown on a plot per year. Therefore, productivity increased because of the use of improved farming practices. Farmers also reported significant, positive changes in income per hectare due to increased access to irrigation, as well as their reduced exposure to risks related to high seasonal rainfall volatility.

37. **Project support for new technologies, best practices, extension services and seeds and fertilizers improved the management and yields of selected crops.** Approximately 537,335 (84,903 FHH and 62,870 YHH) farmers adopted best practice technologies for crop, livestock and natural resource management. The technologies and best practices included row planting which increased from 9 percent at project start to 20 percent by project completion. The use of chemical fertilizers increased from 65 to 72 percent by project end. The use of improved seeds also increased from 23 percent at baseline to 42 percent by project completion. The adoption of inorganic fertilizers increased as well. In addition, 94% of farmers reported to be satisfied with the quality of extension services provided by the end of the project. The detailed outputs of the project are outlined in *Annex* 2.

38. **The project achieved its development objective for increasing agricultural productivity, but fell below its target value of 16 percent.** Table 1 shows the agricultural yield index calculated from the AGP's household survey data.

Table 1: Agricultural Yield Index* in AGP *Woredas* (weighted mean values)

Household Category	Average yield (Baseline) 2011	Average Yield (Project Completion) 2016	Percentage Change (%)
All Households	9.6	10.6	10.4
Female-headed households	9.4	10.4	12.7
Youth-headed households	10.0	9.5	-5

Source: EDRI, 2017; *Weighted index including crop yield index and milk yield index (for livestock).

39. **The agricultural yield index generally increased, including for women; however, results for youth were not indicative of this trend.** The agricultural yield index at baseline for beneficiaries in the AGP *woredas* was 9.6 quintals per hectare. It increased to 10.6 at project completion, indicating an average increase of 10.4 percent.

The percentage increase in the agricultural yield index[5] for the average AGP female-headed household beneficiary was 12 percent. The yield index for YHH decreased by 5 percent, but it was not statistically significant. The productivity result pertaining to youth needs to be interpreted within the context of Ethiopia. On average, youth are landless, and those who have land tend to have relatively small amounts of land. Given that crops constituted 90 percent of the agricultural yield index and the sample size for YHH on crop productivity was smaller relative to mature-headed households, the productivity outcome for youth is not surprising. Furthermore, the household data at project completion reflects yields covering the 2016 agricultural period, a time during which Ethiopia experienced the worst drought in 50 years. Thus, the yields reported in the project household survey do not accurately reflect a typical agricultural period and were lower, on average.

40. **The productivity gains and yield indexes in crops were higher than in livestock; more *woredas* engaged in crop rather than livestock production.** Table 2 shows the crop and milk yield index in AGP *woredas*. Table 3 depicts the average yields for selected crops at the baseline and end of the project. The crop yield index increased by 10 percent, whereas the milk yield index decreased by 23 percent. Yields of teff, chickpeas and finger millet decreased slightly, and the weighted mean yield of barley, wheat, sorghum and potatoes increased substantially. The barley yield increased from 15.5 to 17 quintals per hectare, and potatoes increased significantly from 35.6 to 64.8 quintals per hectare. Approximately 60 percent of households in AGP *woredas* produced only crops, whereas 9 percent produced only livestock. As noted, many livestock-related activities, such as animal fattening, were not assessed because they were not captured in the household data.

Table 2: Agricultural Yield Index in AGP *Woredas* (weighted mean values)

Yield category	Average yield		Percentage change
	Baseline (2011)	Project completion (2016)	
Crop yield index	12.8	14.1	10.1
Milk yield index	3.73	2.85	-23
Milk yield (per day)	1.83	0.96	-47

Source: Adapted from EDRI AGP Evaluation Draft report (2017).

Table 3: Mean Yields of Selected Crops and Livestock - AGP *Woredas* Crop

Crop	Average yield (quintals/ha)	Percentage Change

[5] This is the weighted index in the crop and milk yield indexes.

	Baseline	Project Completion	
Teff	9.7	8.8	-9.2
Barley	15.5	17	9.6
Wheat	14.9	16.4	10
Sorghum	11	14.6	32.7
Horse beans	13.2	9.6	-27.2
Finger millet	14.3	13.1	-8.2
Potatoes	35.6	64.8	82
Chickpeas	11.4	9.5	-16.6
Niger peas	5	5.2	4
Rice	21.9	20.1	-8
Haricot beans	12.3	11.1	-9.7

Source: Based on the end-of-project household data (collected by EDRI – 2017).

41. **The agricultural yield index for the average AGP beneficiary was 56 percent higher than for the average household that did not benefit from the project.** The results (table 4) show that the AGP significantly increased agricultural productivity for the project beneficiaries. Compared to the average non-beneficiary household, the crop and milk yields for AGP beneficiaries are 58 and 43 percent higher, respectively. The results were all statistically significant at the 5 percent level of significance. Compared to female-headed households who did not obtain similar interventions, female-headed households who benefited from AGP interventions have 52 percent higher crop yields and 41 percent higher milk yields (statistically significant). However, the results do not show a significant impact on agriculture productivity for youth-headed households, except for milk yields. The AGP's YHHs had 44 percent higher milk yields compared to YHHs that did not receive project interventions.

Table 4: Impact of AGP on Yield: AGP vs Non-AGP Households (baseline vs. end-line)

Yield category	Impact on All HHs	Impact on Female headed HHs	Impact on Youth headed HHs
Agricultural yield	0.56**	0.52	-0.11
Crop yield	0.58**	0.45	-0.24
Milk yield	0.43***	0.41*	0.44*

Source: EDRI, 2017. Note ** (5 percent), ***(1 percent) and * (10 percent) statistical significance level.

PDO Outcome 2: Increased Market Access

42. **Investments in marketing infrastructure — feeder roads, bridges, and market centers —successfully increased direct access to markets for rural agricultural households.** By the end of the project, 90 primary market centers and 8 terminal markets were built. The project invested in the construction of 175 small bridges and 623 kilometers (km) of feeder roads. Based on the end-of project data, the average distance to nearest market center for households in AGP *woredas* decreased by 38

percent (that is, from 27 km to 17 km). Project beneficiary households reported that they are now able to sell their agricultural produce more directly to end users instead of selling their products to many intermediaries. Training was given to 637 market center management committees. The project strengthened a total of 12, 827 CIGs, and 939 were promoted to the cooperative level through training, technical support and linkages to microfinance institutions.

Table 5: Market infrastructure investments under AGP

	Target	**Completed**
Feeder roads (km)	600	623
Small bridges (number)	80	175
Concrete		143
Trail		17
Wood bridges		15
Market centers (number)	68	92
Primary	60	90
Terminal	8	2

Source: AGP PIU, 2017.

43. **Project interventions increased the real value of revenues of marketed agricultural products for beneficiaries by 25 percent, exceeding the project target.** The target for this indicator was to increase the real value of marketed agricultural products by 21 percent. The AGP interventions increased the real value of agricultural revenues of its beneficiaries by Ethiopian Birr (ETB) 1,230. In nominal terms, the project increased agricultural revenue for beneficiaries by 34 percent. The FHH gained in real terms by 32 percent. All results were statistically significant at the 5 percent significance level. However, the YHH experienced a slight decline of 3 percent in the real value of agricultural revenues, but the change was not statistically significant. Overall, the project's impact on the real value of marketed agricultural products for the project beneficiaries was significantly positive — and exceeded its targets.

Table 6: Impact of AGP on the Real Value of Agricultural Revenue (ETB thousands)

Household	**Baseline Revenue**	**AGP impact on nominal revenue**		**AGP impact on real revenue**	
		Birr	%	Birr	%
All households	4,951	1,703	34	1,230	25
Female-headed households	3,542	1,671	47	1,136	32
Male-headed households	5,414	1,856	34	1,307	24
Mature-headed	4,886	2,170	44	1,487	30

households					
Youth-headed households	5,068	-171.6	(5)	-154	(3)

Source: EDRI Impact Evaluation of AGP, 2017.

44. **The absolute value of crop sales was higher than livestock sales, but revenue livestock sales also increased significantly, in part due to project-financed breed improvements.** Table 7 shows changes in revenue by the type of agricultural marketing activity. On average, the highest revenues for the AGP households were from crop sales. Revenues from crop sales increased by 9 percent from the baseline period to project completion. However, revenues from livestock sales increased significantly, that is, by 23 percent. Sales from dairy were smaller in monetary terms, but increased significantly by 31 percent by project completion, due partly to breed improvements.

Table 7: Change in Agricultural Revenues per Agricultural Marketing Activity

Marketing activity	Total agricultural revenue (Birr)		Percentage change
	Baseline (2011)	Project completion	
Livestock sales	1,123	1,382	23
Crop sales	3,453	3,760	9
Dairy sale and renting out livestock	170	223	31

Source: Based on EDRI Impact Evaluation Draft Report, 2017.

PDO Outcome 3: Increased Women and Youth Participation

45. **The project made a commendable effort to mainstream gender in project activities, by setting minimum participation targets and capturing disaggregated data.** The project set a minimum target of a 30 percent participation rate for women. Overall, the project made a commendable effort to mainstream gender in project activities to increase both youth and female participation. The project captured female disaggregated data well for most activities, but less so for youth.

46. **CIGs strengthen the participation of women and youth.** Creating and strengthening CIGs was an effective strategy to engage, train, and provide access to savings and credit for women and youth in the project and in primary

Box 1: Supplying the Malt Factory

Gugugma kebele of Meliga woreda, three CIGs – Guguma Buraro, Guguma Buko, and Guguma Wube – were linked with Assela Malt factory. This market linkage with the factory provided CIG farmers incentive to invest in inputs and increased their agriculture production over the years. The three CIGs supplied 620 quintals in 2015, 2,200 quintals in 2008, and 7,300 quintals in 2017 and were promoted to primary cooperative level, Guguma Darara. The project helped address bottlenecks on the supply (production) and demand (market) sides of malt barley in the Meliga woreda.

Source: Project documents

cooperatives, thereby increasing their participation in agricultural business activities and providing them with higher incomes. CIGs provided a platform for women and youth to save and receive credit. Table 8 shows that, of the 12,827 CIGs that were strengthened, 32 percent were female and 36 percent were youth. The few CIGs promoted to primary cooperative level managed to receive access to credit. For example, in East Wollega (Oromiya), more than five cooperatives received credit of 70,000 to 200,000 ETB. The evaluation report further noted that sales volumes for both women and youth increased.

Table 8: AGP Common Interest Groups

	Women	Youth	Mixed	Total
Strengthened CIG	4,107 (32%)	4,622 (36%)	4,098	12,827
CIGs receiving Facilitation Support	970	1,324	N/A	
CIGs promoted to Primary Cooperative	426	469	N/A	

Source: AGP PIU, 2017, and EDRI Report, 2017. *Note:* N/A= not available.

47. **CIGs could own assets under the project, which enhanced the ability of youth and women to hold assets that they could independently manage and profit from.** For example, the Andinet Leegit Youth CIG (with 20 members) secured 13.5 hectares of land from the local government. They grew maize, chickpeas, onions, and oil seeds. The CIG bought a tractor from the profits and reported 180,000 Birr in their account, with approximately 54,000 Birr on hand as operating cash. After an audit, they reported 95,000 Birr as gross profit. Another youth CIG called Jelisi Debisi in the Dendi *Woreda* (west Shewa – Oromiya region) focuses on growing teff and potatoes. They report having sold 290,000 ETB worth of potatoes for one season. They harvested 50 quintals of teff, which they then sold for 1,500 ETB per quintal.

48. **The parallel-financed AGP subprojects made significant investments in training and development and achieved progress in specific gender-related activities, thereby promoting higher level gender participation.** The AGP LMD sub-project offered special training to women in entrepreneurship and leadership development. Some female entrepreneurs in the livestock sector were identified for additional entrepreneurship and business management training and mentoring. More examples of gender-related outputs can be found in Annex 12.

49. **Women benefited from an increased share of irrigation investments in small-scale irrigation and water harvesting technologies, although their numbers were below target.** Overall, 29,484 female-headed households benefited from increased access to small-scale irrigation technologies. Specifically, 19,452 (23 percent) of FHH

beneficiaries benefited from new investments in water harvesting and micro structures, such as ponds, hand-dug wells and shallow wells. About 5,058 FHHs benefited from new SSI projects. Approximately 5,774 women are members of operational IWUAs, and women comprise 23 percent of members in legally registered IWUAs. Twenty-four percent of members of existing IWUAs that were strengthened were women. Mainstreaming gender in small-scale irrigation was challenging because of the lack of physical availability of water and other geophysical considerations, which are key determinants of the location of SSI schemes. Although below target, efforts were made to include female-headed household beneficiaries in SSI investments. Table 4 and 5 in *Annex* 2 depicts SSI investments results for women.

50. **The overall participation of women in capacity-development training was low due to time and labor constraints; participation was therefore below target.** The project faced challenges in incorporating women into various training opportunities. For example, in the Southern Nations, Nationalities and People's Region (SNNPR), experience sharing after the harvest was planned for 556 women. However, only 57 participated. Capacity-building training was planned for 1,139 women in Oromiya, but only 603 were trained. Training on the CLPP was given to 27,190 participants, of which only 5, 677 (26 percent) were women. Table 6 in *annex* 2 shows selected capacity-building training on best practices offered to implementers (development agents and extension workers) at the regional, *woreda*, and zonal levels, as well as to farmers. Overall, the participation of women was low. The major reason for the low participation of women was time and labor constraints due to the multiple roles that women have in the household, including cooking, caring for children, fetching water and wood, and tending to agricultural production. In addition, women comprise a much smaller proportion of the total number of extension and development agents.

51. **The project was effective in mainstreaming the concerns of women and youth, and the two groups were given priority access to new market infrastructure.** A project gender assessment completed in 2017 revealed that the project was effective in mainstreaming the concerns of women and youth in the project. It also found that women and youth were given priority access, and benefited from infrastructure created by the project. For example, organized women and youth CIGs were given priority for the allocation of market shades.

52. **Overall, the project did a poor job of collecting data and assessing youth outcomes because of difficulties in identifying youth-headed households, of which there are few.** Although there is anecdotal evidence about the project's achievements related to youth, quantitative data and information about the outcomes related to youth is scant. In this context, the PIU noted that it was difficult to identify youth-

headed households, and this resulted in the weak assessment of various outcome indicators related to youth.

3.3 Efficiency

Rating: High

53. **The financial and economic analysis of the AGP was conducted by adopting methodologies and drawing assumptions similar to those used during the design and preparation of the project.** To estimate the project's benefits and costs, the analysis used representative enterprise models as the analytical units, or subprojects supported by the project interventions. The analysis assumed a project economic life of 20 years, and a 12 percent discount rate. In addition, the analysis applied 20 years in projecting the net present values and rates of return. This is based on the values of net aggregate incremental benefits, and the computing of performance indicators. (*Annex* 3 provides details of the efficiency analysis).

54. **The estimated overall financial rate of return (FIRR) for the project is 26 percent, and the net present value (NPV) is ETB 3.662 billion or USD 183 million.** The analysis included a representative financial crop model based on the farming system analysis conducted during project preparation. The typical crop enterprise models (on a per hectare basis) were developed for the main crops, including: wheat, barley, teff, sorghum, chickpeas, onions, tomatoes, green peppers, cabbage, and potatoes for irrigated areas.

55. **The economic rate of return (ERR) of the project is 24 percent, and the estimated 20-year NPV is ETB 3.605 billion or USD 156 million.** Given a NPV of ETB 3.605 billion, the project was successful. The estimated overall ERR for the project at the project preparation stage was 19.9 percent, and the NPV was ETB 1.838 billion or USD 138 million, assuming a cost of capital of 12 percent. The economic internal rate of return and the NPV increased by 20.06 percent and 13.04 percent respectively from the period of project appraisal to project completion.

56. **The project's economic viability is robust to adverse changes in project costs, and the project will remain viable with increases in capital and recurrent costs of up to 73 percent.** Analysis of the ERR shows that the project is sensitive to changes in project benefits and costs. The project is robust to changes in incremental benefits, and only becomes uneconomic when incremental benefits are reduced by 44 percent. A delay in project benefits by two years also reduces the ERR to 15 percent.

3.4 Justification of Overall Outcome Rating

Rating: Moderately Satisfactory

57. **The overall outcome rating was on the border between Satisfactory and Moderately Satisfactory.** All three aspects of the PDO continued to be substantially relevant to the government's strategies and the World Bank's current Country Partnership Framework at project closing. The project design was highly relevant, and the overall achievement of the PDO was substantial. All three aspects of the PDO were largely met, although the assessment of youth participation was weak. Project interventions increased the real value of revenues of marketed agricultural products for beneficiaries by 25 percent, exceeding the project target. The project investments in small-scale irrigation successfully increased land-irrigation coverage, agricultural productivity by 10.4 percent, crop diversification, and farmer incomes. Finally, the efficiency is high, with good economic and financial rates of return. Thus, an overall Outcome Rating of Moderately Satisfactory is justified.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

58. **The project was successful in targeting poor smallholders, including through CIGs.** Direct beneficiaries included 538,995 smallholder farmers who adopted the technologies promoted by the project. Smallholder farmers in 5,345 CIGs and primary cooperatives also received project support. In addition, smallholder farmers benefited from the SSI and HHI, including those in 604 operational IWUAs. The project specifically targeted vulnerable and poor female smallholders, and maintained gender-disaggregated indicators.

59. **Although the project did not directly measure the impact on poverty, it increased agricultural growth by increasing agricultural yield; likewise, the real value of marketed agricultural products to beneficiaries increased.** The recently completed Ethiopia Poverty Assessment (2014) found that the key driver of the impressive rate of poverty reduction in Ethiopia over the past decade has been agricultural growth. Poverty fell fastest when and where agricultural growth was strongest. For every 1 percent of growth in agricultural output, poverty fell by 0.9 percent. The AGP's direct contribution to agricultural growth through investments in irrigation infrastructure and improved service delivery will have a long-term, positive impact on poverty reduction.

(b) Gender Aspects

60. The gender aspects of the project are discussed in section 3.2.

(c) Social Development

61. **The project reached vulnerable groups through CIGs, bringing together landless men and women in groups for activities, such as beekeeping and growing coffee seedlings.** It improved the technical capacity of some CIGs, and provided market linkages and innovative funding opportunities by helping them to link with cooperatives and FCU partners. Further linkages occurred with commercial supply chains. Most of the farmer groups started under the project have registered so that they can benefit from support from the AGP2 and the government of Ethiopia.

(d) Institutional Change/Strengthening

62. **The project strengthened the capacity of the client and its implementing partners to deliver quality services from the federal to the community levels**. The training improved skills related to program management and administration, technical competency, service delivery, as well as coordination and communication. Extensive AGP capacity-building activities were conducted to address cross-cutting themes. These targeted groups at different levels including cooperatives, farmer groups, women and youth, as well as implementing agencies at the federal, regional and *woreda* levels.

63. **Private consultants and contractors gained enormous capacity in the design and construction of SSI schemes.** The private sector had limited experience in the construction of SSI schemes and market centers. Project support enhanced the capacity of private contractors in design, contractor supervision, and contract and construction administration. There was also a gradual, tangible improvement in the quality of SSI projects built by the private sector.

(e) Other Unintended Outcomes and Impacts (positive or negative)

64. **The project contributed positively to nutritional outcomes through investments in increased irrigation, as well as through nutrition-specific activities implemented through the AGP's parallel funded sub-projects.** The construction and high adoption rate of micro irrigation technologies enabled households to diversify their agricultural production and plants on a year-round basis. The water development interventions and complementary support improved the diet and nutritional diversity of farm households. Households increased their production of vegetables such as potatoes, cabbage, tomatoes, onions and beans. Based on household survey data, the

household dietary diversity score[6] was 3.65 at the baseline. It increased by 22 percentage points to 4.47 by the end of the project (of a total score of 7).

65. **The AGP-AMDe sub-project integrated nutrition education and dietary diversity into the program's main activities to address the issue of stunting.** This was achieved through training and behavioral change campaigns, which reached more than 15,000 smallholder farmers. The nutrition training provided 38,590 smallholder farmers (45 percent of them women) across Ethiopia with some form of nutrition-sensitive agriculture training.

66. **The sustainable use of micro-irrigation raises unanticipated environmental concerns.** The large expansion in the irrigated land area is largely due to the adoption and expansion of micro-irrigation technologies, including the use of water pumps, and pumping shallow water wells and community ponds. Micro-irrigation technologies proliferated because of a large, unexpected demand. This is a significant achievement in terms technology adoption, and its potential effect on increasing agricultural production. However, the expansion of these technologies raises an *unanticipated environmental concern*. Specifically, the question is whether micro-level irrigation technologies are being adopted and used in an environmentally sustainable manner, particularly given the lack of a legal framework and guidelines regarding the extraction of groundwater.

4. Assessment of Risk to Development Outcome

Rating: Low

67. **The follow-on project, the AGP2 ensures the sustainability of project outcomes and improvements based on key lessons and gaps**. First, the AGP2 is being implemented with the same implementation arrangements used under the first AGP, which leveraged the increased capacity of the existing government structure. Second, the AGP 2 will help ensure the sustainability of the first AGP's outcomes, especially pertaining to the irrigation infrastructure achieved through the strengthening of the Water User Associations (WUAs). In addition to infrastructure, there were elements in the AGP, such as the CIGs, which necessitated a focus on sustainability. This included an increased focus under the AGP 2 on making CIGs more functional, and helping them to link to markets.

68. **The AGP had a built-in sustainability mechanism as part of its design; this contributed to the low risk of achieving development outcomes for project**

[6] The total dietary diversity score is 7.

beneficiaries. Some of those mechanisms include: (i) The *WUAs will ensure the sustainability of SSI schemes by facilitating the maintenance and management of the SSI schemes* created by the project. The WUA proclamation has been enacted and enforced in Tigray, Oromia and Amhara, and the SNNPR is awaiting the approval of the parliamentary committee; (ii) The *bottom-up, demand-driven approach* in which the beneficiaries prioritized assets and other investments ensured strong ownership and support for project investments. It will strongly contribute to minimizing the risk to achieving the project's development outcome; and (iii) *A holistic package of investments* included community investments to groups, rural infrastructure capacity building, and extension and advisory services to ensure that relevant aspects are in place for the long-term sustainability of project outcomes.

69. The following are risk factors can potentially reduce the achievement of the project's development outcomes:

- **The potential for inappropriate maintenance of the equipment, as well as new and rehabilitated infrastructure, poses a risk to the AGP's development outcomes.** The AGP 2 and associated projects, such as the SMIS, should pay close attention to this risk and support capacity building in this area.

- **Limited access to agricultural credit poses a risk to the sustainability of the project development outcomes and the future development of the sector**. The agricultural sector in Ethiopia receives an average of only 9.6 percent of the total loan portfolio of commercial banks. Too often, financial institutions view the agricultural sector as too risky.

- **The potential of a reoccurrence of social unrest.** This includes the widespread protests and demonstrations witnessed in 2016, especially in the AGP regions (Oromia and Amhara), which can result in insecurity and pose a risk to project development outcomes – including those of the AGP2.

5. Assessment of Bank and Borrower Performance

Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Moderately Satisfactory

70. **The Bank's performance in the identification, preparation, and appraisal of the project was Moderately Satisfactory.** The design of the project was well aligned with the development agenda of the government and the country partnership strategy. Given that the project was the first to address major gaps in the agriculture growth agenda in Ethiopia, the World Bank financed sufficient analytical work to inform the design of the project. All aspects related to procurement, financial management, safeguard compliance issues, and technical aspects of financial and economic analyses were adequately considered during project preparation and appraisal.

71. **The design of the AGP considered its complementarity with other projects.** It also incorporated lessons from other agriculture projects in the country. The capacity of the implementation agencies was limited, despite capacity-building attempts at the start of the project. The activities did not match the in-country capacity for implementation at the beginning of project implementation, especially with the project covering 96 *woredas* and 2,423 *kebeles.* This resulted in significant delays during project implementation that led the project to be extended by 19 months. The Bank had a good working relationship with the borrower, and consistently engaged with the borrower during project preparation and appraisal.

(b) Quality of Supervision

Rating: Satisfactory

72. **The Bank's performance during project implementation was Satisfactory.** It allocated sufficient budget and staff resources. There was consistency in the project task team leadership (two task team leaders) throughout the project life. The Bank's task team conducted regular implementation support missions and consistently responded to the needs of the borrower. It provided a team of local and international staff and consultants to convey advice to the client. Regular technical support was provided through supervision missions and technical committee meetings.

73. **The Bank's responsiveness to changing local conditions was evident in the second Level II restructuring of the project.** The team initiated a second Level II restructuring of the project because of delays related to the construction projects of SSI schemes and other marketing development infrastructure. The delays were primarily related to civil disturbances,

especially in the Amhara and Oromia regional state, which accounted for the largest share of the project's resources. In addition, heavy, unseasonal rains throughout the country from March to May 2016 significantly delayed construction work because most SSI schemes involved stream diversion, and work was not possible during heavy rains. The team was proactive in seeking collaboration to support capacity and completion of project work.

74. **In addition to supervision missions, interim technical missions were organized to address problems with the project.** Communications and consultations with the client were regular, open, and transparent. The task team was solution oriented and regularly followed up with the client on problems and the status of action plans.

75. **Monitoring and evaluation was one area that deserved closer follow-up and supervision from the task team.** Beyond the collection of data related to indicators, the budget resources that were needed for assessments to evaluate the interim outcomes of various activities as the project progressed were not forthcoming. In the end, the project was output oriented, and did not properly assess and document the project outcomes.

(c) Justification of Rating for Overall Bank Performance

Rating: Satisfactory

76. **The overall Bank performance rating was on the border between satisfactory and marginally satisfactory.** The project team provided appropriate support and paid adequate attention to the project from the design stage through all critical problems that arose during implementation until project completion. The task team was proactive and prepared implementation status and results reports regularly, highlighting implementation concerns and preparing action plans to address them. This contributed to responsiveness and problem solving during project implementation. Overall the Bank had a marginal satisfactory rating for quality at entry, and a satisfactory rating for quality of supervision. Overall Bank performance was rated Satisfactory.

(a) Borrower Performance:

Rating: Moderately Satisfactory

(b) Government Performance

Rating: Satisfactory

77. **Government commitment and support for the project was a key ingredient for the successful implementation and completion of the project.** There was a high level of project ownership and political momentum at the start of the project, with late Prime Minister Meles voicing support for the project. It was considered a flagship agricultural project to support a shift toward promoting agricultural growth and transformation, covering four large regions of the country. Representatives from the Ministry of Finance and Economic Development were members of the technical committee and actively participated in supervision missions.

(c) Implementing Agency or Agencies Performance

Rating: Moderately Unsatisfactory

78. **Implementation agencies were very responsive to inputs from the development partners and integrated their experience and feedback into the project.** The Ministry of Agriculture had dedicated staff who collaborated with the Bank team on project management. There was good follow-up of project-related activities because of the good governance system of the steering committees and technical committees at the *woreda*, regional, and federal levels. The project team demonstrated a strong commitment to project implementation. Annual work plans and budgets were prepared regularly with substantial inputs from implementation agencies, thereby increasing ownership of the project. The interim technical mission and fiduciary ratings were moderately satisfactory, with progressive improvement in financial management performance throughout project implementation to mitigate risks.

(d) Justification of Rating for Overall Borrower Performance

Rating: Moderately Satisfactory

79. The Borrower's overall performance is rated as Moderately Satisfactory because government performance is rated as satisfactory. The implementing agency is rated as Moderately Unsatisfactory.

6. Lessons Learned

80. The lessons learned in the project are as follows:

1. **Private sector actors successfully implemented SSI schemes, exceeding targets.** Private sector engagement in the new SSI schemes was a successful pilot model. It took patience, commitment, and technical capacity-building support to bring the private sector on board. The engagement of the private sector brought professionalism to the SSI work, and enabled the project to exceed its SSI targets. Private sector participation in SSI work will be expanded in the AGP2.

2. **Exchange visits can serve as an effective mechanism to convince policy-makers to consider new initiatives that have worked in other places with a similar context.** The LMD sub-project demonstrated that public-private partnership (PPP) models can be successful in Ethiopia. After study tours to Djibouti and Somalia, the sub-project successfully piloted PPPs for quarantine stations, which are government owned and run by the private sector on a profitability basis.

3. **The success of capacity-building activities in the project can be enhanced using a more consistent, uniform approach.** Many ad hoc training programs were conducted under the project, but the quality of the training was questionable and was not assessed. The project did not take a systematic approach to building capacity. With this lesson in mind, a capacity development support facility was established under the AGP2. It is providing technical assistance using a consistent, uniform approach to capacity building.

4. **The project demonstrated how agricultural growth originated at the ground level through the CIGs.** Indeed, the creation and strengthening of CIGs was instrumental in improving and diversifying agricultural productivity and incomes, including among women and youth.

5. **Creating and strengthening CIGs is an effective way to mainstream gender into projects.** The establishment of CIGs increased the participation of women and youth in the project, and allowed the project to focus on constraints that women and youth face by strengthening the specialized women and youth CIGs. Targeting youth in the creation and strengthening of CIGs proved effective in increasing youth participation in the agricultural sector. The project helped youth to achieve higher agricultural productivity and incomes. However, more analytical work is needed to identify youth-headed households and disaggregate data.

6. **Group formation and collective action are necessary, but not sufficient conditions, to**

achieving agricultural commercialization in Ethiopia. Farmer groups and cooperatives are needed to enable aggregation in a smallholder agricultural setting. The establishment of groups must be accompanied by attention to building their entrepreneurial capacity. Without it, there will be limits to the extent and speed at which agricultural commercialization in Ethiopia's smallholder system —and agriculture at large — can be achieved. The functioning and performance of agricultural cooperatives needs to be evaluated to improve their potential in helping farmers and other value chain actors participate in markets.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

81. The Borrower endorsed the findings of the ICR, and had no additional comments. The key issues raised by the Borrower have been incorporated in the ICR and discussed with the Borrower. See Annex 7.

(b) Co-financiers

82. The ICR was shared with the United States Agency for International Development that provided parallel financing for implementation of activities under component 2, Italian Development Cooperation, Spanish Technical Cooperation, and European and Global Affairs Canada. No comments were received.

Annex 1: Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
A. Agricultural Production and Commercialization	118.3	229.7	
B. Small Scale Rural Infrastructure Development and Management	142.1	263.4	
C. AGP Management and Monitoring and Evaluation	18.8	35.6	
Total Baseline Cost			
Physical Contingencies	0.00		
Price Contingencies	0.00		
Total Project Costs			
Project Preparation Fund	0.00		
Front-end fee IBRD	0.00		
Total Financing Required			

(b) Financing

FINANCING

		Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing				
P113032	IDA-47830	108,400,000	100,101,406	106,167,829
P113032	IDA-H6000	41,600,000	37,764,650	42,436,802
P113032	TF-99729	56,200,000	56,200,000	56,200,000
P127507	TF-11306	50,000,000	50,000,000	50,000,000
Total		**256,200,000**	**244,066,056**	**254,804,631**
Non-World Bank Financing				
Borrower		7,000,000		
US: Agency for International Development (USAID)		81,400,000		
Local Communities		20,800,000		
UN Development Programme		2,400,000		
Bilateral Agencies (unidentified)		56,200,000		
Total		**167,800,000**		
Total Project Cost		**424,000,000**	**244,066,056**	**254,804,631**

Annex 2: Outputs by Component

Component 1. Agricultural Production and Commercialization (USD118.3; IDA/ pooled: USD67.4; USAID: USD45 million): This component included strengthening public institutions to deliver improved services to farmers in targeted communities; identification of best practices and implementation support for expanding best practices; and identification of market opportunities and stimulation of linkages of agro-enterprises and cooperatives with domestic, regional, and international markets. Under this component, the project could achieve the following:

Productivity-related outcomes: Using other qualitative information from various sources, other examples of productivity outcomes due to direct project interventions are presented below.

Crops

- By the end of the project, 537,335 farmers adopted best practice technologies of crop, livestock, and natural resources management. This is three times the planned target. Adopted rates of best practice technologies were highest in Oromia and Tigray. The significant best practices included teff row planting and transplanting and wheat, maize, faba bean, field pea, and oil seed row planting. Onions and other vegetables and fruit crops dominated the best technologies uptake in irrigation farming.

- Adoption of new agronomic practices such as row planting was high for maize, sorghum, wheat, and barley. Adoption rates were higher in male- than female-headed households.

- Yields of major crops such as wheat, maize, barley, oilseeds, and vegetables increased because of good follow-up by extension personnel, row planting, greater use of inorganic fertilizers and new high-yield varieties, proper land preparation, greater frequency and better time of weeding, and appropriate planting time. Productivity gains were significant in areas where small-scale micro-irrigation was expanding.

- Beneficiaries raised concerns regarding lack of availability of disease- and pest-tolerant varieties and exclusion of agro-chemicals from the AGP support fund. The lack of support in agro-chemicals was a challenge in all woredas given the significant losses experienced from pests and disease.

Livestock

- **Milk volumes**: Based on focus group discussions, due to project interventions, sales of milk increased significantly for households owning cross-bred cows. On average, farmers obtained 4 to 6 liters of milk per crossbred cow per day, compared with 1 to 2 liters from local cows.

- **Artificial insemination** through hormone-induced heat synchronization contributed substantially to increasing crossbred male and female progeny. A total of 26,391 improved calves (13,028 heifers, 13,363 bulls) were produced in Oromia, but the calving rate was very low (e.g., 26% in Oromia, 22% in Amhara). The potential economic contribution to farmers of marketing livestock is high (e.g., 1-year-old bull calf can fetch ETB 15,000 vs similar local sales of less than ETB 5,000). A farmer was reported to have sold a crossbred bull for ETB 33,000 in North Shewa – Abote Woreda.

- SSI-related outcomes

  - **Shift from dependence on rain-fed agriculture** resulted in crop diversification and increased market orientation, with a focus on irrigated high-value crops. This reduces farm households' risks related to high volatility of seasonal rainfall. Farmers reported **significant changes in income per hectare**.
  - In Amhara (Efrata-Gidim), farmers started to invest in trucks and in houses in nearby towns. The **diversification in sources of incomes** reduces the risk and vulnerability of households. Some farm households reported sending children to school, even university.
  - **Increased agricultural intensification** resulted in several crops grown on one plot per year, and productivity increased with use of better farming practices.
  - Agricultural water interventions combined with complementary supports **increased productivity of high-value crops** and **market participation**.
  - Nutritional diversity reported by farmers indicated **better diet and greater nutritional** range.

- Functioning CIGs are involved in several agribusiness activities, including irrigation-based vegetable and fruit production, sugar cane, maize production, dairy, and cattle and sheep fattening. Irrigation-based production is the dominant activity of CIGs; 87% of total farm households, 94% of FHHs, and 87% of YHHs were satisfied with the quality of extension services that the project provided.

- 46% of total farm households, 52% of FHHs, and 54% of YHHs were members of functional agricultural cooperatives.

Table 1 Summary of Common Interest Groups (CIGs) Established Under the Project

CIG	Amhara	Tigray	Oromia	SNNP	Total	%
	987	586	6127	3769	11,469	
Female Interest Groups	156	220	1881	1867	4,124	35
Youth Interest Groups	676	247	1955	988	3,866	33
Mixed Interest Groups	155	119	2291	914	3,479	30
CIG Upgraded to Primary Cooperative	64	253	785	200	1,302	11

Source: AGP PIU

- The value of incremental farmgate sales for the following commodities achieved through AGP-AMDe:
  - Wheat: USD8,033,376
  - Maize: USD15,576,425
  - Coffee: USD42,972,549
  - Sesame: USD42,445,928
  - Chickpea: USD902,000
  - Honey: USD2,059,140

- The value of exports for the following targeted agricultural commodities achieved through AGP-AMDe:
  - Coffee: USD75,288,263
  - Sesame: USD32,540,658
  - Honey: USD731,951

482,757 client days of training to raise agricultural productivity were provided to development agents, and other government officials, 39,174 of which were provided to women.

- 331,380 client days of extension services provided to farmers and community members in farmer training centers, 132,552 of which were provided to women.
- 538,995 farmers adopted the technology being promoted under the project, 159,804 of which were women. The farmers were defined as seed producers (functional), farmers adopting technologies through project annual technology promotions, and farmers who were in functional CIGs and functional IWUAs
- 275,356 beneficiaries became members of an association, which are functional cooperatives, functional WUAs, functional seed producers, and functional CIGs, 87,131 of which were women.

Component 2. Small-scale Rural Infrastructure Development and Management (USD142.1 million; IDA/pooled: USD121.3): This focused on community-based participatory planning to support investments in irrigation, access roads, and markets and included development and management of SSI infrastructure; implementation of soil and water conservation-related activities; construction and maintenance of small-scale feeder roads, foot bridges, and roadside drainage; development and management of market centers; and institutional development and capacity building at the woreda, kebele, and community levels. Under this component, the project could achieve the following:

- 58, 578 farmers benefiting from the irrigation investments of new, improved, and rehabilitated schemes, 12,051 of which were women and 6,432 youth.
- 89% of the completed infrastructure was being used within one year of its completion.
- 26, 528.32 hectares of land area was provided with new irrigation and drainage services through SSI and micro-irrigation schemes, and 10,190 hectares of land was provided with improved or rehabilitated irrigation and drainage services. The targets for land area provided with new irrigation and drainage services and micro-irrigation were far exceeded. This achievement was because additional resources were available through the MDTF, with contributions from Italy, Canada, and Netherland. Involvement of the private sector enabled a huge work force to be deployed at once for successful implementation of many SSI schemes.
- Sustainable land management practices were adopted on 217,000 hectares of land area because of the project.
- 80% of market infrastructure (road and market center) was being sustainably managed one year after the investment was completed.
- 604 WUAs were operational under the project, which ensured the sustainability of the schemes, 155 of which are legally registered. AGP successfully financed the implementation of IWUA proclamation. The IWUA proclamation has been enacted and enforced in Tigray, Amhara, and Oromia and is in the last stages of enactment and enforcement in SNNPR, with only approval from the parliamentary committee outstanding.
- 623 km of all-weather feeder roads and 156 footbridges were constructed under AGP to improve the accessibility of the kebeles.
- 26 fruit nurseries were completed to encourage high-value crops in areas where the project had implemented irrigation and watershed development-related activities.

Table 2: Summary of Agricultural Growth Project Small-Scale Irrigation (SSI) Schemes

	Target (ha)	Achieved		Beneficiary household	
		Number of schemes	Command area (ha)	Female	Total
New SSI	13, 811	169	13,814	5,058	37,434
Upgrade (existing traditional SSI)	6,105	176	6,519	3,280	18,734
Rehabilitated or improved (modern SSI)	4,266	48	4,400	1,694	9,990
Household Micro-SSI*	10,955	5,824	16,416	19,452	82,199
Total	35,137	6,217	41,150	29,484	148,357

Source: PIU (2017) . Notes: *Water harvesting and micro structures (e.g., shallow wells, hand-dug wells, ponds, motor pumps).

Table 3: Market Shed Construction under AGP

Region	Planned	Achieved
Amhara	16	20
Oromia	42	42
SNNPR	33	33
Tigray	4	4
Total	95	99

Source: PIU (2017)

Table 4: Small-Scale Irrigation Development

Type of SSI	**Number of SSIs**	**Household Beneficiaries**	**Female HH Beneficiaries**	**FHH (%)**
Upgrading of existing traditional SSIs	176	18,734	3,280	17
Rehabilitation of existing modern SSIs	48	9,990	1,694	16
Establish water harvesting and micro structures*	5,824	82,199	19,452	23
New SSI projects	169	37,434	5,058	14

Source: AGP PIU, 2017. *Note:* *Examples: shallow wells, hand dug wells, ponds, and so on.

Table 5: Irrigation Water User Associations (IWUA)

IWUA	**Number**	**Members**	**Female Members**	**FHH (%)**
Strengthening of existing IWUAs	243	10,574	2,569	24
Formation of new IWUAs	569	23,037	4,892	21
Legally registered IWUAs	165	7,672	1,792	23
Operational IWUAs	604	25,932	5,774	22

Source: AGP PIU, 2017.

3. **Component 3. AGP Management and Monitoring and Evaluation** (USD18.8 million; IDA/pooled: USD9.3 million; USAID/UNDP/parallel: USD8.4 million): Component 3 addressed management of the project and M&E of activities so that the project could achieve its PDO. The component included AGP project management and coordination at the federal, regional, zonal, and woreda levels and project monitoring and evaluation.

ANNEX 3: Economic and Financial Analysis

Financial and Economic Analysis of the Agricultural Growth Project

Dereje Fekadu[7], MSc.

Introduction

The project development objective of Ethiopia's Agricultural Growth Project (AGP) was to increase agricultural productivity and market access for key crop and livestock products in targeted woredas and to increase participation of women and youth. The project was expected to increase productivity by strengthening agricultural public service delivery, identifying and expanding best practices, increasing access to small-scale irrigation, and strengthening agribusiness and market linkages. Multiple agencies implemented AGP, with satisfactory oversight and coordination mechanisms. The project components included:

(1) Agricultural Production and Commercialization

The objective of this component was to strengthen advisory services, particularly agricultural extension, and develop the institutional capacity of farmer organizations and other private-sector stakeholders involved in supporting AGP activities. It strengthened linkages between farmers and markets and promoted agri-business enterprises. The component had three subcomponents: institutional development and strengthening, expansion of best practices, and market and agribusiness development.

(2) Small-scale Rural Infrastructure Development and Management

This component supported and investments for the construction, rehabilitation, improvement, and management of small-scale infrastructure (agricultural water, rural roads and markets) investments to address key constraints in the agricultural production system on increasing productivity. It also developed and increased the efficiency of identified value chains supported under component 1 by improving access to markets. The component had the following two sub-components: small-scale agricultural water development and management and small-scale market infrastructure development and management.

(3) Project Management and Monitoring and Evaluation

This component is an integral part of the AGP across all levels and stakeholders. Its main aim was to monitor and evaluate the project at all levels of implementation. It had two subcomponents: project management and monitoring and evaluation.

Data collection and subproject models.

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The economic and financial analysis used data and information from various sources, including the following:

- World Bank AGP project appraisal document
- AGP baseline report and AGP project appraisal document
- AGP midterm review report
- World Bank AGP2 project appraisal document
- Government AGP reports
- Central Statistics Agency agricultural household surveys
- Ethiopia Development Research Institute end-of-project household survey data

Methodology

The financial and economic analysis of the AGP was conducted by adopting the methodologies and assumptions like those used during design and preparation of the project. To estimate the project's benefits and costs, the analysis used representative enterprise models as the analytical units or subprojects supported by the project interventions. The analysis assumed a project economic life of 20 years and a 12% discount rate (cost of capital). Thus, cropping patterns, input applications, costs, and benefits were projected out for 20 years. In addition, the analysis used 20 years in projecting net present value and rates of return based on the values of net aggregate incremental benefits and in computing performance indicators.

Main assumptions

Representative enterprises were used in the financial and economic analysis to assess the project's benefits and costs. The financial analysis was based on market prices and direct costs and benefits. The following assumptions are made.

i. Period of analysis

The analysis is based on a 20-year period, during which the AGP generates benefits, including the 5-year project implementation period. Cash flows for investment, operating inputs, labor, costs, and benefit streams were estimated and projected for 20 years. An incremental cost-benefit analysis was used to estimate benefits of investments in the enterprises.

ii. Costs and prices

Economic Project Costs: Financial project costs were converted to economic costs using appropriate conversion factors, which excluded taxes, duties, and price contingencies. There were no further investment costs after project year 5, although annual operation and maintenance costs of road and market infrastructure were included in the economic analysis until project year 20, because these costs must be incurred if the future benefits of AGP are to be sustained. Import and export parity prices have been calculated for internationally traded commodities. All other commodities and inputs were valued based on the prevailing market prices at the producer level using CSA survey or mission data. All prices are current (first quarter 2016).

Financial Rate of Return

The main objective of the financial analysis is to examine the financial viability of the main farm and value-chain enterprises that the project supported and to assess their potential for increased profitability and income through project interventions. To achieve this objective, the analysis prepared representative financial crop models based on the farming system analysis study conducted during project preparation. The typical crop enterprise models (on a hectare basis) were developed for the main crops, namely, wheat, barley, teff, sorghum, and chickpeas and onions, tomatoes, green peppers, cabbage, and potatoes for irrigated areas. Tables C.1 and C.2 summarize the financial results of the major crop enterprise models. The estimated overall financial rate of return for the project is **26%,** and the net present value (NPV) is **ETB 3,662 million** (**USD183 million).**

Table 1. Financial Result for Main Crops Models Rain Fed (ETB/ha)

Items	Unit of Measurement	Sorghum	Wheat	Barley	Teff
Yield	kg	1,310	1,690	1,540	860
Total revenue	ETB	8,578	13,151	12,788	13,229
Variable costs[a]	ETB	3,125	4,790	4,213	2,967
Gross margin	ETB	5,453	8,361	8,575	10,262
Hired labor	Person-days	55	71	71	71
Family labor	Person-days	70	70	91	70
Total labor	Person-days	125	141	162	141
Fixed costs	ETB	100	100	100	100
Net income[b]	ETB	5,353	8,261	8,475	10,162
Return to family labor/person day	ETB	78	119	94	147
Return to hired labor/person day		99	118	121	145

Sources: Adapted from various AGP2 project document, EDRI (end-of project data). [a]Excluding family labor. [b]Family labor not valued.

Table 2: Net Income of Selected Crop Enterprises: Rain Fed (ETB/ha)

	Preparation	Completion	Increment
Sorghum	-	5,353	-
Wheat	1,439	8,261	6,822
Barley	-	8,475	-
Teff	5,084	10,162	5,074

Sources: Adapted from various AGP II project document & EDRI. [a]Family labor not valued.

Table 3: Summary of Financial Result of Main Crop Models: Irrigated (ETB/ha)

Items	Unit of Measurement	Onions	Tomatoes	Green peppers	Cabbage	Potatoes
Yield	Kg	22,800	15,300	9,000	18,000	6,600
Total revenue	ETB	78,546	79,888	53,100	70,200	39,204
Variable costs[a]	ETB	11,926	21,777	9,324	12,720	17,580
Gross margin	ETB	66,620	58,111	43,776	57,480	21,624
Family labor	Person-day	70	70	70	70	70
Hired labor	Person-day	215	155	220	20	194
Total labor	Person-day	285	225	290	90	264
Fixed costs	Lump sum	1,080	1,080	1,080	100	100
Net income[b]	ETB	65,325	56,876	42,476	57,360	21,524
Return -family labor/person/ day	ETB	933	813	607	819	111
Returns to hired labor/person day	ETB	304	367	193	2,868	309

[a]Excluding family labor. [b]Family labor not valued. Data Source: AGP II project document, EDRI and 2016 base prices were used

Table 4: Net income of Selected Crops Irrigated

Crops	ETB/ha
Onions	66,620
Tomatoes	58,111
Green peppers	42,476
Cabbage	57,360
Potatoes	21,524

Sources: EDRI (2017) and 2016 prices and AGP 2 used sources

Economic Rate of Return

The economic rate of return (ERR) of the project is **24 percent,** which indicates that, if the incremental benefits of the project are discounted at the rate of 24 percent, the benefits will equal the costs, and the NPV will be zero. The estimated 20-year **NPV is ETB 3,605 million (USD156 million),** which is the net worth of the project when all costs are accounted for, including family labor, and the benefits that the resources committed to the project would have generated without the project. Given an **NPV of ETB 3,605 million**, the project was successful. Table 5 shows the detailed results of the economic analysis.

Table 5: Estimation of the Project Economic Rate of Return ERR and NPV

A. Investment costs (ETB thousands)	6,463,000
Average hectare of land of AGP households	0.69
Number of AGP households	2 million
Investment cost per hectare	4,680
B. Recurrent costs	
Maintenance of infrastructure (% of investment costs, per/yr.) 2.5%	117
C. Total costs per hectare	4,803
Economic internal rate of return (EIRR)	24%
Economic NPV ETB million	3,605
Economic NPV USD million	156

AGP, Agricultural Growth Project

The estimated overall ERR for the project at project preparation stage was 19.9%, and the NPV was ETB 1,838 million or USD138 million. Table 6 shows that the **economic internal rate of return increased by 20.6 percent,** and the **NPV increased by 13.0 percent**, over period project preparation to project completion.

Table 6: Value of Economic Indicators – (Project preparation vs project completion)

Indicators	**Preparation (2011)**	**Completion (2016)**	**Percentage of increment**
ERR	19.9	24	20.6
NPV ('000 ETB)	1,838	3605	96.1
NPV ('000 USD)	138	156	13.0

Source: Based on author's calculations.

Sensitivity of the results of economic analysis

Table 7 summarizes the sensitivity analysis results. The project's economic viability is robust to adverse changes in project costs, and the project will remain viable with increases in capital and recurrent costs of up to 73 percent. Analysis of ERR shows that the project is sensitive to changes in project benefits and

costs. The project is robust to changes in incremental benefits and only becomes uneconomical when incremental benefits are reduced by 44 percent. A delay of project benefits by two years reduces the ERR to 15 percent.

Table 7: Economic Rate of Return (ERR) and Sensitivity Analysis

Sensitivity Analysis Summary - All project costs												
Indicator	All costs	**Increase in project costs**			**Increase in benefits**			**Decrease in benefits**			**Delay of benefits**	
		10%	20%	50%	10%	20%	30%	-10%	-20%	-50%	1 year	2 years
EIRR	24%	21%	16%	11%	27%	43%	108%	21%	19%	11%	21%	18%
Net present value (USD, millions)	156	151	126	117	176	184	276	147	129	110	147	141

Source: Based on author's calculations.

Based on the rather conservative assumptions described, the project was successful on economic grounds. The analysis captured the costs and benefits related to small-scale micro-irrigation schemes by using the AGP2 data, which cover the AGP woredas. Analysis of the irrigated crop will be refined when end-of project data is available from EDRI. Other potential economic benefits such as the direct and indirect benefits of rural roads and multiplier effects from the project intervention spillover effects to non-AGP areas were not captured in the analysis. Thus, the estimated economic benefits are on the low side of the potential economic returns of AGP.

Crop Yields

For crop production, at project preparation, the yield rates applied were generic data derived from cropped area and yield surveys that EDRI and CSA conducted. In the Implementation Completion Report, the yield rates applied are the actual achieved yield rates that implementation monitoring unit record. The actual yield rates were not available for all crops. The yield rates for wheat, barley, sorghum, and potato were higher than their values at the project's preparation stage. Table C.8 shows that the increase ranged from 0.8 percent for sorghum to 96.4 percent for potatoes. The yield rate for teff decreased 17 percent. The decrease in the yield of teff could be because of the drought; teff is not drought tolerant.

Table 8: Representative Crop Yields (quintal/ha)

Crops	Implementation (2011)	Completion (2016)	Percentage change

Teff	10.3	8.6	(17)
Wheat	15.1	16.9	12
Barley	14	15.4	10
Sorghum	13	13.1	0.8
Onion	-	228	-
Tomato	-	153	-
Green pepper	-	900	-
Head cabbage	-	180	-
Potato	33.6	64.8	96.4

Source: Based on author's calculations.

Table 9: Summary of Financial Results of Main Crop Models (rain fed)

ITEMS	Unit of measurement	Sorghum	Wheat	Barley	Teff
Yield	kg	1,310	1,690	1,540	860
Total revenue	ETB	8,578	13,151	12,788	13,229
Variable costs[a]	ETB	3,125	4,790	4,213	2,967
Gross margin	ETB	5,453	8,361	8,575	10,262
Hired labor	Person-day	55	71	71	71
Family labor	Person-day	70	70	91	70
Total labor	Person-day	125	141	162	141
Fixed costs	ETB	100	100	100	100
Net income[b]	ETB	5,353	8,261	8,475	10,162
Return to family labor/person day	ETB	78	119	94	147
Return to hired labor/person day	ETB	99	118	121	145

Sources: adopted from various AGP II project document, EDRI and 2106 prices used sources. [a]Excluding family labor. [b]Family labor not valued.

Table 10: Net Income of Selected Crop Enterprises: Rain Fed (ETB/ha)

	Preparation	Completion	Increment
Sorghum	-	5,353	-
Wheat	1,439	8,261	6,822
Barley	-	8,475	-
Teff	5,084	10,162	5,074

Family labor not valued. Sources: adapted from various AGP II, EDRI End-of Project Household Survey Data (2017)

Table11: Summary of Financial Result of Main Crop Models: Irrigation

Items	Unit of Measurement	Onions	Tomatoes	Green peppers	Cabbage	Potatoes
Yield	kg	22,800	15,300	9,000	18,000	6,600
Total revenue	ETB	78,546	79,888	53,100	70,200	39,204
Variable costs[a]	ETB	11,926	21,777	9,324	12,720	17,580
Gross margin	ETB	66,620	58,111	43,776	57,480	21,624
Family labor	Person-day	70	70	70	70	70
Hired labor	Person-day	215	155	220	20	194
Total labor	Person-day	285	225	290	90	264
Fixed costs	Lump sum	1,080	1,080	1,080	100	100
Net income[b]	ETB	65,325	56,876	42,476	57,360	21,524
Return to family labor/person day	ETB	933	813	607	819	111
Return to hired labor/person day	ETB	304	367	193	2,868	309

Sources: adopted from various AGP2 project documents, EDRI and 2016 prices; [a]Excluding family labor. [b]Family labor not valued

.

Table 12: Net Income of Selected Crop Enterprises: Irrigated

Crops	ETB/ha
Onions	66,620
Tomatoes	58,111
Green peppers	42,476
Cabbage	57,360
Potatoes	21,524

Source: Based on author's calculations.

Table 13: Cropping Patterns

Crop	Area (ha)	
	Hectares	%
Teff	17	16
Barely	9	8.5
Wheat	14	13.3
Sorghum	8	7.6
Chickpea	2	1.9

Tomato	4	3.8
Green Pepper	4	3.8
Onion	14	13.3
Potato	33	31.4
Total	105	

Source: Based on author's calculations.

Table 14: Rain-Fed Scheme: Yields

Cereals	Yield (net of post-harvest losses) by Year (kg/ha)					
	1st year	2nd year	3rd year	4th year	5th year	Target yield
% of target yield	60%	65%	70%	75%	80%	100%
Grain						
Teff	516	559	602	645	688	860
Barely	924	1,001	1,078	1,155	1,232	1,540
Wheat	1,014	1,099	1,183	1,268	1,352	1,690
Sorghum	786	852	917	983	1,048	1,310
Chickpea	960	1,040	1,120	1,200	1,280	1,600
Straw						
Teff	1,109	1,202	1,294	1,387	1,479	1,849
Barely	2,028	2,197	2,366	2,535	2,704	3,380
Wheat	4,680	5,070	5,460	5,850	6,240	7,800
Sorghum	4,680	5,070	5,460	5,850	6,240	7,800
Chickpea	1,264	1,370	1,475	1,581	1,686	2,107

Table 15: Irrigated Scheme: Yields

Yield (net of post-harvest losses) by Year (kg/ha)					
1st year	2nd year	3rd year	4th year	5th year	Target yield
60%	65%	70%	75%	80%	100%
9,576	10,374	11,172	11,970	12,768	15,960
6,426	6,962	7,497	8,033	8,568	10,710
3,780	4,095	4,410	4,725	5,040	6,300
3,960	4,290	4,620	4,950	5,280	6,600

Source: Based on author's calculations.

Table 14: Rain fed scheme- Yields

Cereals	Yield (net of post-harvest losses) by Year (Kg/ha)					
	1st year	2nd year	3rd year	4th year	5th year	Target yield
% of target yield	60%	65%	70%	75%	80%	100%
Grain						
Teff	516	559	602	645	688	860
Barely	924	1,001	1,078	1,155	1,232	1,540
Wheat	1,014	1,099	1,183	1,268	1,352	1,690
Sorghum	786	852	917	983	1,048	1,310
Chickpea	960	1,040	1,120	1,200	1,280	1,600
Straw						
Teff	1,109	1,202	1,294	1,387	1,479	1,849
Barely	2,028	2,197	2,366	2,535	2,704	3,380
Wheat	4,680	5,070	5,460	5,850	6,240	7,800
Sorghum	4,680	5,070	5,460	5,850	6,240	7,800
Chickpea	1,264	1,370	1,475	1,581	1,686	2,107

Table 15 Irrigated scheme –yields

Yield (net of post-harvest losses) by Year (Kg/ha)					
1st year	2nd year	3rd year	4th year	5th year	Target yield
60%	65%	70%	75%	80%	100%
9,576	10,374	11,172	11,970	12,768	15,960
6,426	6,962	7,497	8,033	8,568	10,710
3,780	4,095	4,410	4,725	5,040	6,300
3,960	4,290	4,620	4,950	5,280	6,600

Annex 4: Bank Lending and Implementation Support/Supervision Processes

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Supervision/ICR	
Andrew D. Goodland	Task Team Leader(s)
Shimelis Woldehawariat Badisso	Procurement Specialist(s)
Meron Tadesse Techane	Financial Management Specialist
Meseret Marcos	Team Member
Ingrid Marie Pierre Mollard	Team Member
Chukwudi H. Okafor	Social Safeguards Specialist
Tesfahiwot Dillnessa Zewdie	Team Member
Tesfaye Ayele	Team Member
Teklu Tesfaye Toli	Team Member
Binyam Bedelu Mekbib	Team Member
Asferachew Abate Abebe	Environmental Safeguards Specialist
Hayalsew Yilma	Team Member

Annex 5: Beneficiary Survey Results

Not Available

Annex 6: Stakeholder Workshop Report and Results

Not Available.

Annex 7: Summary of Borrower's ICR and/or Comments on Draft ICR

(A) **Summary of Borrower's ICR:**

Summary of Borrower's Implementation Completion Report (ICR)

The evaluation report is in draft form and being revised. The executive summary of the borrower's draft project impact evaluation, *The Agricultural Growth Project of Ethiopia – Evaluation Report (Draft)* by EDRI, is presented below (copied from the report)

Executive Summary
The primary purpose of this report is to present the impact evaluation of the first phase of the Agricultural Growth Program (AGP), implemented from 2011 to 2016, on the main outcome variables: agricultural productivity, commercialization, and dietary diversity. It also describes the implementation process of the various interventions of the program and assesses the relevance, effectiveness, efficiency, and sustainability of the program.

Chapter 2 *describes the implementation process of the program, covering various topics such as timing of program launch, activities undertaken and processes put in place to deliver inputs, availability and functionality of office equipment, connectivity of the offices to power and communication services, and reliability of the services.*

The main results are:

- *The program was launched in 81 percent of the woredas by the end of the fourth quarter of 2011; only a small proportion of woredas delayed the launch of AGP to as late as the second quarter of 2013. AGP steering committees were also established and launched in most of the AGP woredas by end of 2011.*
- *The woreda administrator, the head of the Woreda Office of Agriculture and Rural Development (WOARD), the head of Woreda Office of Finance and Economic Development (WOFED), and the heads of representatives of all line offices engaged in implementation of AGP are members of the woreda AGP steering committees in all AGP woredas. Membership of other offices in steering committees ranges from 22 percent to 48 percent.*
- *In all AGP woredas, there is a focal person at WOARD and WOFED who is fully dedicated to AGP. Fewer than 65 percent of them are ful- time government employees. Fewer than 10 percent of focal persons in WOARD are women and roughly 20 percent in WOFED. More than 95 percent of the focal persons at both offices have completed university education, and all focal persons in both offices have received AGP-related training.*
- *Woreda-level AGP steering committees reviewed and approved AGP-supported projects that kebeles proposed and follow-up of implementation of the projects in all AGP woredas. In more than 95 percent of the AGP woredas, the steering committees held at least three meetings per year. Slightly more than half of focal persons at WOARD and fewer than 20*

percent at WOFED regularly received reports from development agents. All focal persons at WOARD and more than 65 percent at WOFED conducted field visits.

- *Although no WOARD office is without a functioning computer, 3.4 percent of WOFED offices have no functioning computers; 3.3 percent of WOARD offices and 14 percent of WOFED do not have a functioning printer. Most WOARD and WOFED offices have one to five computers and one to three printers.*

Chapter 4 *explores the relevance, effectiveness, efficiency, and sustainability of the program. The main findings related to relevance, effectiveness, and sustainability are presented below:*

- *The program is relevant: The AGP not only is a continuation, but also strongly builds its formulation on the different policies and strategies of the government of Ethiopia, including the Rural Development Policy and Strategy (2003) and Growth and Transformation Plan. Beneficiary households and communities revealed that the program in general was relevant to them.*
- *The overall implementation process was effective, with the level of achievement or performance for many of the interventions near, equal to, or more than the target, although some interventions missed their targets.*
- *The program is sustainable; it is believed that all the institutions that were established and strengthened, the capacity-building trainings that were offered, and the experience sharing and field visits that were conducted have set the stage for continuation of the activities and benefits after the program has ended. Various measures were also taken to ensure that the program is environmentally sustainable.*

Chapter 5 *addressed the effect of the program on agricultural productivity and includes descriptive and estimated results. The descriptive part covers availability of institutional services and supports and adoption of improved technologies and agricultural practices in AGP and non-AGP woredas. The estimation part tries to identify the effect of the program on outcome variables related to agricultural productivity. Some of the main results include:*

- *Agricultural productivity (measured per agricultural yield index) of households who benefited from AGP interventions is 50 percentage points higher than that of households that did not benefit from the program. Similarly, AGP increased the agricultural yield of female-headed households (FHHs) by 68 percentage points over that of FHHs that did not obtain similar interventions, indicating that AGP was more effective for FHHs, but AGP has had no significant effect on agricultural yield for youth-headed households (YHHs).*
- *The program has also had a significant positive effect on crop yield. With program beneficiaries having crop yields 55 percentage points higher than those of no-beneficiaries. FHHs that benefited from the program have a crop yield 62 percentage points higher than those who did not benefit. AGP has had no significant effect on crop yield for YHHs.*
- *AGP resulted in milk yields 35 percentage points higher for beneficiaries of the program in the whole sample and 33 percentage points higher for FHHs than for their non-beneficiary*

counterparts. Like the effect of AGP on agricultural and crop yields, the program has no significant effect on milk productivity YHHs.

***Chapter 6** presents the effect of AGP on the degree of commercialization and dietary diversity; the main findings are as follows.*

- *During the 5-year period, AGP led to an increase in household revenue of Birr 1,703, which was 37% of average household revenue at baseline. When the effect is decomposed into price and quantity effects, 41% of the effect was due to the former and 59% to the later.*
- *The effect of the program on household revenue is moderately higher for male-headed households than FHHs (Birr 1,856 versus 1,671). The effect is significant for adult-headed households (increase of Birr 2,170) but not YHHs.*
- *The difference in scale elasticity among households in AGP and non-AGP Woredas is large (0.6 versus 0.25)*
- *There are some margins to increase efficiency, both using better disposable inputs and operating on a more appropriate scale.*

(B) Borrower's Comments on Draft ICR:

The Borrower reviewed the draft WB ICR. Overall the Borrower noted that the draft ICR accurately reflects both the achievements and challenges of the project. The main areas of minor disagreement and corrections noted by the borrower include:

1. **Monitoring and Evaluation**

The borrower noted that the overall M&E improved significantly as the project progressed. The borrower's M&E PIU team noted that M&E is a process as learning comes with implementation. They emphasized that the project independently initiated self-evaluations and took initiatives to identify gaps. Coordinators identified and raised problems and took self-correction measures. In addition, the borrower noted that many external factors affected the delay related SSI infrastructure works. They noted the weaknesses of M&E at woreda level were not as significant as stated in the Bank's draft ICR and the examples given were routine issues. The team noted that there was an M&E focal person at woreda level. The borrower disagreed with and did not have clarity on reasons for a MU rating of M&E in the Bank's last three ISRs. They were only aware on one out of eight MU rating (captured in an aide memoire). The team acknowledged that there were capacity gaps at the beginning given the complexity of the project, but that significant progress was made with project implementation. Overall the team disagreed with the Marginally Unsatisfactory rating noted referenced in the context of the ISRs that the justification for an MU rating was not strong and that the team strength in self-identifying gaps and problems did not come out clearly in the M&E section.

2. Borrower Performance

The borrower noted that they disagree with the MS rating on the borrower's performance, and

that the rating should be a “Satisfactory” rating.

3. **Safeguards**

The borrower noted that, all in all, there were no negative impacts and that gaps related more to documentation, and that training was provided to improve safeguards compliance.

4. **Youth:** the borrower noted that identification of youth is difficult and as a result the project faced in challenges to collect the data on youth headed households.

Annex 8: Comments of Co-financiers and Other Partners/Stakeholders

The borrower reviewed the draft World Bank Implementation Completion Report (ICR). Overall, the borrower noted that the draft ICR accurately reflects the achievements and challenges of the project. The main areas of minor disagreement and corrections that the borrower noted include:

1. **Monitoring and Evaluation**

The borrower noted that the overall monitoring and evaluation (M&E) improved significantly as the project progressed. The borrower's M&E Project Implementation Unit team noted that M&E is a process because learning comes with implementation. They emphasized that the project independently initiated self-evaluations and took initiatives to identify gaps. Coordinators identified and raised problems and took self-correction measures. In addition, the borrower noted that many external factors contributed to the delay-related SSI infrastructure works. They noted that the weaknesses of M&E at the woreda level were not as significant as stated in the Bank's draft ICR and that the examples given were routine problems. The team noted that there was an M&E focal person at the woreda level. The borrower disagreed with and was unclear of the reasons for a moderately unsatisfactory rating of M&E in the Bank's last three ISRs. They were aware of only one rating out of eight which was rated as moderately unsatisfactory rating (captured in an aide memoire). The team acknowledged that there were capacity gaps at the beginning, given the complexity of the project, but that significant progress was made with project implementation. Overall, the team disagreed with the moderately unsatisfactory rating referenced in the context of the ISRs that the justification for a moderately unsatisfactory rating was not strong and that the team's strength in self-identifying gaps and problems did not come out clearly in the M&E section.

2. **Borrower Performance**

The borrower noted that they disagreed with the moderately satisfactory rating of the borrower's performance and that the rating should be satisfactory.

3. **Safeguards**

The borrower noted that there were no negative effects, that gaps were related more to documentation, and that training was provided to improve safeguard compliance.

4. **Youth**

The borrower noted that identification of youth is difficult and that, thus, the project faced challenges in collecting data on YHHs.

Annex 9: List of Supporting Documents

1. Agribusiness and Market Development Gender Assessment, November 2015, AGP AMDe, Addis Ababa.

2. Assessment of the Effectiveness of AGP Training Activities in Four Regions of Ethiopia, October 2013, Dynamic Development Studies and Capacity Building Consult PLC, Addis Ababa.

3. Agricultural Growth Program of Ethiopia – Midline Evaluation Report 2013, July 2014, IFPRI and EDRI, Addis Ababa.

4. Agricultural Growth Program of Ethiopia – The Impact of the Agricultural Growth Project, *Draft September 2017*, EDRI, Addis Ababa.

5. Agricultural Growth Program of Ethiopia – End Term Evaluation Report 2013, 2017, EDRI, Addis Ababa.

6. Agribusiness and Market Development Life of Project Report 2011 to 2016, 2017, AGP AMDe, Addis Ababa.

7. Comprehensive Implementation Performance Assessment- AGP, Draft Report (2017), Loyya Consults.

8. Project Appraisal Document Agricultural Growth Project, September 2010, World Bank, Washington D.C.

9. Project Appraisal Document Second Agricultural Growth Project, September 2010, World Bank, Washington D.C.

10. Agriculture Growth Project Implementation Status and Results Reports (2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017), World Bank Washington DC.

11. Joint Review Implementation Support Mission Aide Memoires (2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017), World Bank, Washington D.C.

12. Agricultural Growth Project Baseline Study Report, 2013, IFPRI, Washington D.C.

13. Restructuring Paper on the Project Restructuring, September 2015, World Bank, Washington D.C.

Annex 10: RESULTS INDICATORS

Project Development Objectives (from Project Appraisal Document)

The objective of the project was to increase agricultural productivity and market access for key crop and livestock products,[8] in targeted woreda (districts), along with increased participation of women and youth. This would be achieved through the scaling up best practices and technologies in agricultural production, investments in rural infrastructure supporting small-scale irrigation and marketing, the strengthening of water user associations (WUA), and the strengthening of informal and formal farmer organizations, including groups formed by women and youth.

Revised Project Development Objectives: N/A

(a) PDO Indicator(s)

INDICATORS	Baseline	Target YR5	Formally Revised Target	Achievement YR5
PDO: The PDO is to increase agricultural productivity and market access for key crop and livestock products in targeted woredas with increased participation of women and youth.				
Indicator 1: Percentage increase in agricultural yield (crops and livestock products)	Quintile/ ha Total: 9.6 FHH: 9.4 YHH: 10	Percentage change since baseline (Q/ha) Total: 16.2% (11.5) FHH: 16.2% (11.5) YHH: 16.1% (14.4)	N/A	Percentage change since baseline (Q/ha) Total:10.4% (10.6) FHH: 12.7% (10.4 YHH: (5%) (9.5)
Comment: The project achieved 65 percent of its target. Impact analysis showed that project beneficiaries have 50 percent higher yields than non-project beneficiaries. Reported data on yield covers the drought period of 2016, in which yields were on average lower than in a typical agricultural year. There were complications in collecting other livestock product data. Therefore, only milk data are shown as a representative measure of livestock productivity.				
Indicator 2: Percentage increase in the real value of marketed agricultural products (including livestock) per household	Ethiopian birr Total: 4,951 FHH: 3,242 YHH: 5068	Percentage change since baseline Total: 8,731 (21.7%) FHH: 7,509 (21.7%) YHH: 8,785 (21.7%)	N/A	Percentage change since baseline Total: 25% (6,181) FHH: 32% (4,678) YHH: -3% (4,914)

[8] Key commodities are defined as those comprising the bulk of current agricultural commodities in the selected *woredas*, including those selected in the agribusiness value-chain activity.

INDICATORS	Baseline	Target YR5	Formally Revised Target	Achievement YR5
PDO: The PDO is to increase agricultural productivity and market access for key crop and livestock products in targeted woredas with increased participation of women and youth.				
Comment: The project achieved 115 percent of its target. The FHH exceeded the target by 10 percentage points. The decline in real revenues for YHH was not statistically significant. The nominal revenue increased by 34 percent for all HHs, and by 47 percent for FHHs.				

(b) Intermediate Outcome Indicator(s)

INDICATORS	Baseline (updated baseline)	YR5 Target	Formally Revised Target	YR5 Achievement
IO1.1: Percentage of farmers satisfied with quality of extension services provided.	Total: 87% (92%) FHH: 94% (92%) YHH: 87% (93%)	Percentage Satisfaction Total: 94% FHH: 94% YHH: 94%	N/A	Percentage Satisfaction Total: 94.5 FHH: 95.3% YHH: 96%
Comment: No information on revision of this target. The initial baseline was 87 percent, but the updated baseline value is 92 percent. Based on the updated baseline, the project exceeded its target by 2.8 percent of the original target. It exceeded the target by 8.62 percent of the original target.				
IO1.2: Share of farm households that are members of agricultural cooperatives.	For Agricultural Cooperatives: Total: 36% (13.1%) FHH: 32% (7.6%) YHH: 35% (10.6%	For Agricultural Cooperatives: Total: 40% FHH: 35% YHH: 39%	N/A	For all farmer organizations: Total: 46% FHH: 52% YHH: 54%
Comment: No information regarding revision of target. Exceeded original set target by 15 percent.				
IO1.3: Number of beneficiaries with innovative best practices (improved/new techniques and technologies).	AGP beneficiaries: Total: 0 Female: 0 Youth: 0	AGP beneficiaries: Total: 60,000 Female: 28,000 Youth: 28,000	Lowered from 126,000 to 60,000	Total: 537,335 Female: 84,903 Youth: 62,870
Comment: Exceeded target by 795 percent. Examples of best practices include row planting, use of chemical fertilizers, the adoption of inorganic fertilizers, and the use of improved seeds.				
IO1.4: Number of sub-projects fully operational and sustainably managed 1	Total: 0 Women Groups: 0 Youth Groups: 0	Total: 7000 Female Groups: 2,600 Youth Groups: 3,300	Lowered from 50,000 to 7,000	Total: 5,345 Female: 2,085 Youth: 3,191

year after initial investments.				
Comment: Achieved value is 23 percent below the target.				
IO1.5: Value of farmgate sales for selected commodities	Wheat: 175,000 Maize: 3,000,000 Coffee: 5,600,000 Sesame: 6,400,000 Chickpea: 450,000 Honey: 95,000	Wheat: 400,000 Maize: 7,200,000 Coffee: 10,300,000 Sesame: 10,000,000 Chickpea: 1,000,000 Honey: 367,000	N/A	Wheat: 8.0 mil Maize: 15.6 mil Coffee: 42.9 mil Sesame: 42.4.mil Chickpea: 902,000 Honey: 2.1 mil
Comment: These capture farmgate sales were facilitated through the AGP-AMDe and the AGP-LMD. Targets in all commodities were exceeded except for chickpeas.				
IO1.6: Value of exports of targeted agricultural commodities because of the AGP-AMDe.	Coffee: 0 Sesame: 0 Honey: 0	Coffee: 23,991,000 Sesame: 27,641,250 Honey: 1,400,000	N/A	Coffee: 75,288,263 Sesame: 32,540,658 Honey: 731,951
Comment: These capture farmgate sales facilitated through the AGP-AMDe and the AGP-LMD. Targets in all commodities were exceeded except for honey.				
IO2.1: Number of farmers benefiting from the irrigation investments ('000)	Total: 0 Female: 0 Youth: 0	Total: 72,000 Female: 14,000 Youth: 18,000	42,000 8,000 10,000	Total: 148,357 Female: 29,484 Youth: N/A
Comment: Exceeded original target by 106 percent, and revised target by 253 percent. Data on YHH were not available from the end-line data.				
IO2.2: Percentage of infrastructure utilized one year after the investment is completed	0	80%	N/A	89%
Comment: Exceeded target by 11.3 percent.				
IO2.3: Area provided with irrigation and drainage services (ha) (i) New (ha) (ii)Improved/ rehabilitated(ha)	Total: 0 New: 0 Improved: 0	Total: 21,000 New: 15,000 Improved: 6,000	N/A	Total: 24,734 New: 13,814 Improved: 10,920
Comment: Exceeded overall target by 66 percent. Micro small-scale irrigation (SSI) schemes were provided for a command area of 16,416 ha, and benefitted 82,199 households. Total SSI investments covered a 41,150-ha command area.				
IO2.4: Land area (ha) where sustainable land management practices	0	Total: 96,400	N/A	Total: 21,7598

have been adopted because of the project.				
Comment: The target was defined in terms of percentage increase, but the indicator was collected in hectares of land. Achievement of target in hectares is 77 percent below target.				
IO2.5 Percentage decrease in time for farmers to travel to market center.	Total: 52 (71 min) FHH: 52 (71.7 min) YHH: 52 (60.1 min)	Percentage change Total: 5% FHH: 5% YHH: 5%	N/A	Percentage change (27 km to 17 km) Total: 5% FHH: 5% YHH: 5%
Comment: Data captured as a decrease in kilometers. Households traveled 10 km less to reach a market center. This represents a 38 percent decrease (27 to 17 km).				
IO2.6: Percentage of users satisfied with the quality of market infrastructure (roads and market centers).	Total: 66.2% FHH: 62.7% YHH: 64.7%	Total: 76% FHH: 73% YHH: 75%	N/A	Total: 95% FHH: 94.3% YHH:97.1%
Comment: Exceeded target by 25 percent.				
IO2.7 Percentage of market infrastructure (roads and market centers) sustainably managed one year after the investment is completed.	0%	80%	N/A	82%
Comment: Target met.				

(c) GAFSP Indicators

INDICATORS	Baseline	YR5 Target	YR5 Achievement
GAFSP1: Number of client days of training to raise agricultural productivity provided to scientists, extension agents, agro-dealers, farmers, community members etc.	Total: 0 Women: 0	Total: 136,000 Women: 25,000	Total: 482.757 Women: 39.174

INDICATORS	Baseline	YR5 Target	YR5 Achievement
GAFSP2: Number of client days of extension services provided to farmers, community members, etc. (Defined as training days to community members and farmers in FTCs)	Total: 0 Women: 0	Total: 131,000 Women: 40,000	Total: 331.380 Women 132.552
GAFSP3: Number of farmers who have adopted the technology being promoted	Total: 0 Women: 0	Total: 308,000 Women: 74,000	Total: 538,995 Women: 159,804
GAFSP4: Number of targeted clients who are members of an association including producer association, cooperative, water user association etc.	Total: 0 Women: 0	Total: 320,000 Women: 90,000	Total: 275,356 Women: 87,131
GAFSP5: Area with new irrigation and drainage services	0	15,000	13,814
GAFSP6: Area with improved/rehabilitated irrigation and drainage services (ha)		6,000	10,919
GAFSP7: Number of water users provided with new/ improved/rehabilitated irrigation and drainage services	Total: 0 Women: 0	Total: 42,000 Women: 8,000	Total: 66,158 Women: 10,032
GAFSP8: Number of operational water user associations	0	328	604
GAFSP9: Km of roads constructed (all-weather only constructed under AGP)	0	1203	678
GAFSP10: Number of rural markets/ market centers constructed and rehabilitated	0	126	90

Annex 11: Changes in Results Framework during restructuring

The project made efforts to address safeguard compliance issues by assigning safeguard officers at the federal and regional level through trainings to inform the implementation agencies at the woreda level to implement the safeguards, but these efforts were not adequate. Although there were no changes in the project development objectives (PDOs), project outcome indicators, or intermediate outcomes (IOs), several changes were made to the results framework through the Level II restructuring. The changes proposed to the indicators and targets and the rationale for the changes are described below.

- **Update of baseline values**: Baseline data included in the Project Appraisal Document was taken from a rapid baseline survey conducted during project preparation. This was not a full survey, having limited geographical scope and sample size. A full baseline sample survey was conducted in year 1 of the project that resulted in different baseline values. Although these updates were agreed upon with the government and included in project aide memoires and in the project Implementation Status and Results Report, they were not formally reflected in an amended results framework.

- **Revised end-of-project targets**: For some indicators, end-of-project targets were changed for the following reasons:

    - Revision of the baseline values (as above) has implications for the end-of-project targets, which may need to be adjusted up or down. Where appropriate, percentage change from baseline was maintained. PDO 1, for which the youth-headed household target has been lowered.

    - At the output level, changes in the scope and scale of specific activities based on project experience require end-of-project targets to be adjusted accordingly. All changes in activities have been agreed upon with the government and recorded in aide memoires. These are as follows:

        - IO 1.3: Number of beneficiaries with innovative best practices (improved or new techniques and technologies). This was intended to measure the number of members of innovation groups that the project supported. At the midterm review, it was agreed that, to achieve group sustainability, the project should support a smaller number of common interest groups composed of women and youth groups. The end-of-project target for total group members was therefore reduced from 126,000 to 60,000.

        - IO 1.4: As described above, the midterm review mission agreed to scale back support and focus on women's groups and youth groups, reducing the end-of-project target for all groups' subprojects from 50,000 to 7,000.

- IO 2.1: The project targets for the number of farmers benefitting from irrigation investments assumed that participating farmers would receive approximately 0.25 hectares of irrigated land. Experience under the project demonstrated that the average irrigated land allocation is approximately 0.5 hectares, resulting in fewer total beneficiaries. The end-of-project target was therefore reduced from 72,000 to 42,000.

- **Change in measurement units**: The two PDO-level indicators are defined as percentage increases, but the targets were denominated in absolute values (for yields and for farmgate sales). To make the targets consistent with the indicator wording, the targets were converted to percentages.

- **Modification of indicators, including definitions**: It was proposed to modify the wording of some indicators to clarify exactly what was to be measured and to better track progress and achievements. This is necessary because the original wording in some instances was ambiguous, which led to difficulty in collection of data. Indicators for outcomes were incorporated into the sample survey through questionnaires, and the proposed changes brought consistency between the results framework and the questionnaire design. Specific proposed indicators modifications were as follows.

  - IO 1.2: This indicator was intended to measure the percentage of farmers who are members of functional farmer groups, but it has been found difficult to define “farmer groups,” so this was restricted to membership in agricultural cooperatives (which is the main form of formal farmer groups).

  - IO 1.3: This indicator unit was changed from households to beneficiaries because group members are individuals not households.

  - IO 1.4: Subproject sustainability refers to common interest groups’ subprojects. Originally it was to measure sustainability after 2 years, but this was considered too long to capture in the lifetime of the project, so it is proposed to reduce it to 1 year.

  - IO 1.5, IO 1.6, IO 1.7: Originally the indicator was “Percentage sales value of key selected value chain commodities supported at the end of the value chain.” Responsibility for monitoring is from the parallel-financed AGP-AMDe Agribusiness and Market Development project. It was agreed to drop this indicator and add two new indicators, measuring the value of farmgate sales and exports for selected commodities.

  - IO 2.3: Originally, this was to measure the percentage increase in the area under irrigation. This would require a full census of irrigated areas, which was not possible under the project. It was therefore proposed that it be replaced by the number of hectares of irrigation that the project supported (disaggregated per new schemes and improved and rehabilitated schemes).

- IO 2.4: Like IO 2.3 above, the original indicator was percentage increase in areas under sustainable land management, which would have required a census of all areas under sustainable land management, which was not feasible. It was replaced by the land area where sustainable land management practices were adopted because of the project.

GAFSP core indicators: A requirement for accessing GAFSP funds, approved on December 28, 2011, as additional financing, was the inclusion of 12 core indicators. These were not formally added to the results framework, although a commitment was made to track these during project implementation. The indicators are at the output level, but there have been some challenges in matching the core indicators to suitable outputs under the project, and therefore, for some, it has not been possible to collect relevant data, and it has therefore been proposed that these be dropped. This was discussed and agreed upon with the GAFSP Secretariat. It has been proposed that one additional core indicator be added. Finally, end-of-project targets were altered to reflect the most recent targets agreed upon with the government. Six were increased, and three were reduced. The revised set of GAFSP core indicators being tracked under the project and the related targets are presented in Appendix J. The changes were as follows:

- GAFSP 1: Number of collaborative research or extension subprojects implemented. It was proposed that this indicator be dropped. It was defined as the number of farmer research and extension groups supported under the project, but the project does not support farmer research and extension groups, so it was included erroneously.

- GAFSP 2: Number of client days of training to raise agricultural productivity provided to scientists, extension agents, agro-dealers, farmers, community members, etc. The indicator was retained, but the end-of-project target for total days was reduced from 670,000 to 136,000 for women days from 200,000 to 25,000. This reduction reflected agreements made with the government regarding demand for training of agricultural specialists.

- GAFSP 3: Number of client days of extension services provided to farmers, community members, etc. This is a core indicator that was not included in the original GAFSP core indicators but for which data were being collected, so it was proposed to add the indicator now. It is defined as training days to community members and farmers in farmer training centers.

- GAFSP 4: Number of farmers who have adopted the technology being promoted. The end-of-project target was increased from 185,000 to 308,000 total farmers and from 55,000 to 78,000 female farmers.

- GAFSP 5: Number of additional hectares for which the technology being promoted has been adopted. It was proposed that this be dropped because it proved impossible to collect reliable

data. It was also not suited to measuring the uptake of livestock and beekeeping activities, which represent most common interest group activities.

- GAFSP 6: Number of targeted clients who are members of an association, including producer associations, cooperatives, water user associations. The end-of-project target was increased from 250,000 to 320,000 total farmers and from 82,000 to 90,000 female farmers.

- GAFSP 7: Area with new irrigation and drainage services. End-of-project target was increased from 9,000 to 15,000 hectares.

- GAFSP 8: Area with improved or rehabilitated irrigation and drainage services. End-of-project target was reduced from 9,000 to 6,000 hectares.

- GAFSP 9: Number of water users provided with new, improved, or rehabilitated irrigation and drainage services. The target was reduced per the revision of IO 2.1 above.

- GAFSP 10: Number of operational water user associations. End-of-project target was increased from 178 to 328 water user associations.

- GAFSP 11: Kilometers of roads constructed (all-weather constructed only under AGP) and GAFSP 12: Kilometers of roads rehabilitated. The project monitoring system was unable to reliably differentiate between new roads and rehabilitated roads, so it was proposed to merge these indicators by dropping GAFSP 12 and summing the targets. The end-of-project target was increased from 831 km (original two targets added together) to 1203 km.

- GAFSP 13: Number of rural markets and market centres constructed and rehabilitated. The end-of-project target was increased from 86 to 126 structures.

Annex: 12 Achievements of other Implementation Agencies under the Project

Table1: Achievements of AGP AMDe implemented by ACDI/ VOCA parallel financed under AGP

Key Performance Indicators	Life-of-project target	Q2 FY16 Results (Oct. 1 – Dec. 30, 2015)	Life-of-project results (Oct. 2011 – Dec. 2015)	Percentage of life of project target achieved
Number of beneficiaries supported by AGP-made-assisted value chains	1,000,144	43,519	1,211,738	121
Value of sales, collected at farm-level, attributed to FTF implementation (USD)	154,959,831	1,996,587	181,888,872	117
Number of individuals who have received agricultural or food security training and capacity building	112,301	1434	156,958	140
Number of hectares under improved technologies or management practices	119,095	-	263,073	221
Value of exports of targeted agricultural commodities (USD)	148,236,057	27,958,754	326,579,219	140
Value of agricultural and rural loans (USD)	39,134,157	15,500,000	174,148,137	225
Number of jobs attributed to FTF implementation	8144	181	6137	75
Value of new private sector investment in agriculture sector or food chain leveraged by FTF implementation	32,102,424	500,000	30,034,425	94
Number of private enterprises, producer organizations, women's groups, trade and business associations, and CBOs applying new technologies or management practices	205	678	921	449

Source: USAID reports and interviews of key sub-project leaders.

The outputs that the AGP-AMDe achieved are as follows.

Since 2011, the program has reached more than **1.2 million people**, created more than **6,000 jobs,** and influenced farmgate sales worth **USD181 million.**

- Over the life of the project, AMDe facilitated **USD174 million** in agribusiness loans in partnership with eight Ethiopian financial institutions for **46** farmer unions, cooperatives, and private businesses.
- New technologies, better infrastructure, better postharvest handling techniques, and improved marketing are some of the resources that helped farmers achieve exports valued at **USD326 million.**

- AMDe leveraged more than **USD30 million** in agribusiness investments and delivered **396 co-investments** worth more than **USD14 million** that have allowed farmer organizations and companies to select, install, train, and use new technologies that are critical to becoming more efficient and competitive.

- AMDe worked with lead farmer networks to provide farmers with training on good agricultural practices, postharvest handling, and better business management skills, resulting in more than **263,000 hectares** managed and cultivated using improved techniques. AMDe has increased the capacity of **54 farmer cooperative unions** representing more than **2,500 primary cooperatives** and **1.9 million members** through training, strategic investments, and market and financial linkages.

- **Coffee Value Chain**
  - Supported common interest groups and trained selected cooperatives to create coffee seedling nurseries that put more than 5 million coffee seedlings in Ethiopian coffee farms.
  - Partnered and co-invested with 11 primary cooperatives to install 11 washing and hulling stations and 45 pulping machines and drying beds.
  - Through a private-public partnership, the U.S. Agency for International Development (USAID) and the Ethiopia Commodity Exchange (ECX) refurbished four cupping labs, with quality assurance and grading equipment certified by the Specialty Coffee Association of America.
  - Feed the Future – USAID AGP-AMDe Life of Project Report: 2011–2016
  - Set in motion the country's first national **traceability** system in partnership with **ECX,** and expect **60,000 MT of traceable coffee** to be traded in the first year of functionality.

- **Sesame Value Chain**
  - Co-invested with sesame farmer unions to erect **four 5,000-MT processing facilities**, which radically changed the unions' ability to aggregate, store, and clean quality sesame for export.

- Partnered with six sesame farmer unions and federations to install six industrial sesame cleaning factories and provided **24 sets of grading equipment** and input and postharvest handling training for farmer cooperatives.
- Supported the Ethiopian sesame and pulses **trade association, ESPOSEA,** in conducting its annual conference for four consecutive years, bringing hundreds of sesame experts, agro-processors, equipment suppliers, and buyers to Ethiopia each year.

- **Chickpea Value Chain**
  - Partnered with Ethiopian chickpea and oilseeds processor Agro Prom to install and commission Ethiopia's first industrial chickpea processing factory.
  - Through training and investments in mechanization, AGP-AMDe reduced postharvest losses of partnering farmers from 20% to 3%.
  - Covered more than 18,500 hectares of land with more than 1,700 MT of improved chickpea varieties that will produce nearly 59,000 MT of chickpea grain and seed.
- **Honey Value Chain**
  - Trained 17,500 beekeepers and workers in postharvest handling, improved semi-processing techniques.
  - Assisted two farmer unions in gaining fair trade certification and sponsored participation in seven specialty food trade shows.
  - Facilitated partnership with and investment from international honey giant Parodi Apicultura with Zenbaba Federal Coordination Unit (FCU) to establish Ethiopia's largest modern honey processing center in Bahir Dar and begin exporting high quality honey.
- **Maize Value Chain**
  - Supported establishment of six warehouses with 5,000 MT capacity each and one warehouse with 2,500 MT capacity, allowing partnering FCUs to aggregate more maize and meet client contracts on time.
  - Leveraged private-public partnership with U.S. agricultural firm DuPont Pioneer to conduct 8,520 hybrid maize seed demonstrations to reach more than 164,000 beneficiaries and created a network of 25 private seed dealers. Demonstration plots resulted in yield increases of nearly 200% from an average 2.5 MT/ha using local maize seeds to 7 MT/ha.
  - Made market linkages between 14 FCUs and the World Food Program's Purchase 4 Peace program, resulting in aggregation and sales of 49,000 MT of maize worth USD15.4 million.
- **Wheat Value Chain**
  - Covered **1,137 hectares** with basic seed for seed multiplication to produce more than **4,600 MT** of wheat seed and co-invested in a 2,000-MT-capacity **seed warehouse**.

- Introduced and cost-hared **56 portable wheat threshers** for 40 wheat-producing primary cooperatives.
- Facilitated market linkages between wheat producers and processors, resulting in sales of wheat worth **USD29.1 million,** and established **historical market linkage** between Ethiopian Grain Trade Enterprise, commercial wheat millers, and farmer unions.

- **Input Supply**
  - Partners multiplied **202,500 MT of improved seed**, enough seed to cover **240,250 hectares.**
  - **14,019 smallholder farmers and five commercial farms** directly benefited from seeds, training and demonstrations on blended fertilizer use.
  - AGP-AMDe introduced and popularized **11 new seed varieties** of maize, wheat, sesame, and chickpea crops in the four AGP regions.
  - **27 FCUs** received AGP-AMDe support of **444.6 MT** of wheat, sesame and chickpea seed, and seed multiplication training.

- **Access to Finance**
  - Supported **45 savings and credit cooperatives** to mobilize **USD2.5 million in savings** and disburse more than **USD4.5 million in loans** to their **3,140 members.**
  - Facilitated **USD1.6 million in equity financing** for three medium-sized Ethiopian agro-processing companies and created more than **370 new jobs**.
  - AGP-AMDe introduced new financial products into agriculture, including a **warehouse receipt system,** allowing farmers to deposit their produce in warehouses operated by FCUs.

- **Business Enabling Environment**
  - Contributed to government of Ethiopia policy change on fragmented coffee institutional structure by deciding to set up a new **Coffee and Tea Development and Marketing Authority**.
  - Provided technical input on **seed regulations** and informed the ongoing seed system about legal, regulatory, and institutional reform at federal and regional levels.
  - Provided technical assistance for government policy change to **separate the ECX warehouse system** from that of the ECX trading system.

- **Cross-Cutting Activities: Gender, Nutrition, and Behavior Change Communication**
  - Created the **Women in Agriculture Leadership Network,** which reached more than **1,000 female entrepreneurs** with business, finance, and leadership training and mentorship programs.
  - Led campaign to bring more than **78,000 new female members** into more than **1,600 farmer cooperatives**.
  - Reached more than **50,700 households** with **nutrition-sensitive agriculture** training focused on dietary diversity strategies by using innovative methods, leveraging posters, multimedia, and film.

Table2: AGP LMD implemented by CNFA parallel financed under the project

Outcome indicators	Unit	Value Chain	Results to date (year 1 - year 5) in US$
Value of Export	USD	MLA	86,875,168
Value of farm-gate Sale	USD	MLA	79,243,120
		Dairy	13,903,059
	#	# beneficiaries	737,159
# of Jobs Created	# FTE		3,469
# of individuals who received training	#		29,357
Value of investment leveraged	USD	All	30,766,896
Value of agricultural and rural loans	USD	All	16,279,781
Number of vulnerable households linked to market	#	MLA	91,710
Number of MSMEs assisted in accessing loan	#	VCs	544

Source: USAID reports and interviews of key sub-project leaders.

Outcome Achievements by AGP-LMD- based on LMD reports

AGP-LMD focused on livestock market and agribusiness development, using a market systems development approach for livestock sector development and operating in 46 woredas selected from AGP-targeted high-potential woredas in the four AGP regions of Oromia, Amhara, Tigray, and Southern Nations, Nationalities and People's Region and 16 additional woredas in USAID's zone of influence, determined by earlier USAID project interventions.

The AGP-LMD project has achieved the following results.

- The project achieved an additional USD87 million of meat exports from Ethiopia to existing and some new export destinations through its support to 10 export abattoirs.
- The support to 14 meat and 24 dairy processing industries generated USD93 million of household sales, of which USD14 million in milk sales and USD79 million in animal sales.
- It was that there were 730,000 direct beneficiaries of the project.
- There were 3,500 additional formal jobs created in the livestock sector in processing, collection, retail, etc.
- AGP-LDM trained 29,000 people in different areas ranging from business and leadership training for female entrepreneurs to hygiene training for abattoir workers.

- USD30 million of new investment was realized in the livestock sector through investment promotion and facilitation. The project supported the establishment and expansion of investment in value chain actors in the livestock sectors such as Abergelle Export Abattoir, Verde Beef Feed Lot and Abattoir, Almi Dairy processing, and Evergreen Dairy.
- AGP-LMD linked 92,000 vulnerable households to buyers of livestock by applying the push-pull strategy and in collaboration with the USAID Pastoralist Areas Resilience Improvement through Market Expansion and Graduation with Resilience to Achieve Sustainable Development projects.
- In collaboration with the Netherlands-financed DairyBiss project, AGP-LMD established 60 private dairy business development service providers in all four regions.
- AGP-LMD implemented 42 innovation grants worth USD4 million, leveraging matching contributions by grantees of USD6.8 million. Grants were used to expand or establish dairy processing plants, feedlot operations, feed processing units, commercial artificial insemination providers, branchless banking, etc.
- AGP-LMD established 100 milk collection centers in the country to increase formal milk collection capacity to 200,000 liters per day.
- AGP-LMD established 100 artificial insemination providers in the country to increase the availability of good-quality artificial insemination services.
- AGP-LMD developed manuals and radio programs on different aspect of livestock management that were made available to more than 100,000 beneficiaries.
- Capacity of four national implementing partners in livestock development and value chain and market systems development was developed.

Table 3: ATA financed under the project through GAFSP

Thematic Area	Deliverable	Status	Key Achievements
Household Irrigation			
Strategies/ Policies/ Regulations	Develop and release National Household Irrigation Sector Strategy	Completed in a timely manner	National HHI Sector Strategy developed, released, and under implementation
Introduction of Innovative Ideas	Develop national irrigation pump standards and strengthen enforcement capacity	Completed in a timely manner	National irrigation pump standards institutionalized by the government

Direct Engagement with SHFs	Scan, test and scale-up shallow groundwater mapping technology	Completed but slightly delayed	**Two innovative concepts and approaches piloted** WATEX shallow groundwater technology piloted GENS (Groundwater Exploration and Navigation System) piloted
	Test the implementation of an end-to-end household irrigation value chain in 21 AGP woredas	Completed in a timely manner	**160,732 SHFs trained and using new technologies** Training provided on high-value crops (HVCs) assessment tool use; and new cropping calendar to SHFs **80,618 ha of land covered by new technologies** SHFs in 21 woredas and more than 210 kebeles engaged in high-value crop production with market linkages
Capacity Building	Strengthen irrigation pump supply chain and procurement system	Completed but with delayed	**8 institutions strengthened** MoA, regional irrigation development offices, and METEC trained on pump supply chain management
Monitoring and Evaluation			
Structure/ processes/ systems	Strengthen MoA/RBOA-PPD to enhance existing PME systems and functions	Completed in a timely manner	MoA Planning and Programing Directorate (MoA-PPD) roadmap to strengthen agriculture sector PME system approved by policy makers and implementation started
Cooperatives			
Strategies/ Policies/ Regulations	Develop and release of a comprehensive Cooperative Sector Strategy	Completed in a timely manner	National Cooperative Sector Strategy developed, released, and under implementation
Cooperative Storage Units	Develop cooperative storage units and capacity building for these units in the 4 AGP regions	Completed but the constructed warehouse facilities are undergoing corrective works before handover to beneficiaries.	**<u>Cooperative Storage Units</u>** Established 44 storage units with 40 units of 500 MT at the Primary Cooperatives and 4 units of 3000 MT at the Cooperative Unions **<u>Capacity Building for these warehouses</u>** 6 trainings for effective management of these warehouses with 4 trainings

			conducted for the Primary Cooperatives, 1 training conducted for the Cooperative Unions and 1 training conducted for woreda, zonal and regional administrations
EthioSIS and Fertilizer Blending			
Strategies/ Policies/ Regulations	Develop and release of National Soil Sector Strategy	Completed in a timely manner	National Soil Sector Strategy developed, released, and under implementation
Introduction of new technologies	Develop soil fertility atlas maps by using advanced technologies for 4 AGP regions	Slightly delayed	The soil fertility atlas was prepared for three AGP regions - SNNPR, Tigray and Amhara during AGP1. The pending soil fertility atlas map for Oromia will be financed through AGP2
Fertilizer Blending Plants**	Develop fertiliser blending plants and capacity building for these plants in the 4 AGP regions		**Fertilizer Blending Plants** Established and operationalized 4 fertilizer blending plants with 30,000 MT in each AGP region **Capacity Building for the Fertiliser Blending Plants** Extensive technical and managerial trainings were provided to operationalize the fertiliser blending plants and to run them in a financially sustainable manner

** Note: The *Reporter* (25 Sept 2017) reported on the government shift in importing blended fertilizer at larger scale and that many plants operated under AGP are struggling and operating below capacity.

Ethiopian Soil Information System and Fertilizer Blending

- All relevant stakeholders prepared and discussed the national soil sector strategy in a widely consultative process, including a national validation workshop. Senior policy makers endorsed the strategy, and it was released for implementation. Since then, two new directorates have been established to institutionalize a soil information system and soil fertility advisory services within the Ministry of Agriculture and Natural Resource.

- The Ethiopian Soil Information System registered unprecedented success in introducing new, complex technologies to support development of a national soil fertility atlas.

- Fertilizer blending project led to construction of Ethiopia's first five fertilizer blending plants. These five plants were initiated the production and formulation of fertilizer to address site-specific soil nutrient deficiencies and meet crop nutrient requirements. Robust capacity

building of the local managers of these blending facilities was identified as a key area of focus to be considered soon to ensure that the farmer cooperatives that own these facilities can operate them in a financially sustainable manner.

- The *Reporter* (25 Sept 2017) reported on the government shift in importing blended fertilizer at larger scale. This can be regarded a positive outcome because the support provided under AGP showed the value of these blends and created significant demand, but many plants operating under AGP are struggling and are operating below capacity. It is important to evaluate the continued functionality and role of the blending units to respond to locally identified soil nutrient deficiencies and introduce further micronutrients. Most importantly, it is important to reorient the cooperative unions (which operate these blending facilities) to make them locally responsive and competitive with imported blends.

- The national research system validated blended fertilizers, fine-tuned the formulations through field experimentation, and established nutrient gradient and nutrient omission trial plots. The critical levels of phosphorous and potassium beyond which the application of phosphorous and potassium fertilizers have no economic benefit are being determined.

- In addition, an institution is being established that will take over responsibility from the project to ensure that soil information is regularly updated.

- **Household Irrigation**

- A comprehensive household irrigation sector strategy was developed and released as a working document. The strategy identified 17 systemic bottlenecks, for which 29 interventions have been prioritized, with implementation activities initiated in most areas.

- An integrated high-value crop assessment tool was developed to defined the most feasible crop for household irrigation and is in use nationally

- A set of household irrigation value chain interventions was prioritized and implemented in 21 selected AGP woredas, with robust participation and ownership by the Ministry of Agriculture and regional, zonal, and woreda stakeholders.

- 75 national pump standards were established, 13 of which the National Standards Council has endorsed as mandatory.

- 56 private and public sector representatives have been trained on pump standards.

- Shallow groundwater potential was mapped for 89 woredas over 32,400 km^2 with a shallow groundwater potential of nearly 3 billion m^3 of water at a depth of less than 30 m, which is expected to irrigate 100,000 ha and benefit 376,000 households.

Cooperatives

- The development and release of a comprehensive cooperative sector strategy was ensured in June 2012. The strategy has since been promoted at the federal and regional levels, and many aspects are currently under implementation.

- 44 storage units, each with a 500- to 3,000-MT capacity, were built, and capacity for effective management of these warehouses is being built. Although this deliverable was not launched until the fourth quarter of 2014, the foundation and basic civil work were completed, but defects in the constructed facilities were detected and the Agricultural Transformation Agency is fixing them so that beneficiaries can begin to use the facilities.

- **STAFF TIME AND COST**

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY10	0	1,368,859.82
FY11	0	225,985.84
Total	**0.00**	**1,594,845.66**
Supervision/ICR		
FY11	0	524,586.87
FY12	0	750,322.60
FY13	0	623,021.00
FY14	66.251	647,855.86
FY15	44.392	299,388.07
FY16	42.976	233,039.09
FY17	16.655	99,631.71
FY18	.350	149.10
Total	**170.62**	**3,177,994.30**