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Report No: PAD4487

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT PAPER

ON A

PROPOSED ADDITIONAL GRANT

FROM THE GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAM

IN THE AMOUNT OF US\$5 MILLION

TO THE

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

FOR THE

SECOND ADDITIONAL FINANCING FOR THE SECOND AGRICULTURAL GROWTH PROJECT

June 25, 2021

Agriculture and Food Global Practice
Eastern and Southern Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective {May 31, 2021})

Currency Unit = Ethiopian Birr

US\$1 = SDR 0.69

US\$1 = ETB 43.53

FISCAL YEAR

July 8 – July 7

Regional Vice President: Hafez M. H. Ghanem

Country Director: Ousmane Dione

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ABBREVIATIONS AND ACRONYMS

| | |
|----------|---|
| AF | Additional Financing |
| AGP2 | Second Agricultural Growth project |
| ARAP | Abbreviated Resettlement Action Plan |
| ATA | Agricultural Transformation Agency |
| AS | Advisory services |
| CDSF | Capacity Development Support Facility |
| CLPP | Community Level Participatory Planning |
| CMU | Country Management Unit |
| COVID-19 | Coronavirus Disease 2019 |
| CPF | Country Partnership Framework |
| DPF | Development Policy Financing |
| DPs | Development Partners |
| EDRI | Ethiopian Development Research Institute |
| EFA | Economic and Financial Analysis |
| EIRR | Economic Internal Rate of Return |
| ESMF | Environmental and Social Management Framework |
| ESMP | Environmental and Social Management Plan |
| ETB | Ethiopian Birr |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| FHH | Female Headed Household |
| FIs | Financial institutions |
| FIRR | Financial Internal Rate of Return |
| FM | Financial management |
| FTCs | Farmer Training Centers |
| GAFSP | Global Agriculture and Food Security Program |
| GBV | Gender based violence |
| GDP | Gross domestic product |
| GHG | Green House Gas |
| GoE | Government of Ethiopia |
| GRM | Grievance Redress Mechanisms |
| GTP2 | Second Growth and Transformation Plan |
| HHI | Household Irrigation |
| HHR | Household Rainfed |
| IAs | Implementing Agencies |
| ICT | Information Communication Technology |
| IFAD | International Fund for Agricultural Development |
| IFC | International Finance Corporation |
| IFRs | Interim Financial Reports |
| IMF | International Monetary Fund |
| IPF | Investment Project Financing |
| IPMPs | Integrated Pest Management Plans |
| IS | Investments services |
| ISR | Implementation Status and Results Report |
| KDC | Kebele Development Community |

| | |
|--------|--|
| M&E | Monitoring and Evaluation |
| MAS | Manufacturing Agribusiness and Services |
| MDG | Millennium Development Goals |
| MDTF | Multi-Donor Trust Fund |
| MoA | Ministry of Agriculture |
| NPV | Net Present Value |
| PCU | Project coordinator unit |
| PDO | Project Development Objective |
| PforR | Program for Results |
| PIM | Project Implementation Manual |
| PMP | Pest Management Plan |
| PPE | Personal Protective Equipment |
| PPSD | Project Procurement Strategy for Development |
| PSNPs | Productive Safety Net Programs |
| RAP | Resettlement Action Plan |
| RF | Result Framework |
| RPF | Resettlement Policy Framework |
| SA | Social Assessment |
| SCFs | Standard conversion factors |
| SEA | Sexual exploitation and abuse |
| SEASNP | Strengthening Ethiopia's Adaptive Safety Net Project |
| SSI | Small Scale irrigation |
| STEP | Systematic Tracking of Exchanges in Procurement |
| ToR | Terms of Reference |
| UPSNJP | Urban Productive Safety Net and Jobs Project |
| USAID | United States Agency for International Development |
| VC | Value Chain |
| VLD | Voluntary land donation |
| WBG | World Bank Group |



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BASIC INFORMATION – PARENT (Second Agricultural Growth Project - P148591)

| | | | | |
|------------|------------------------------|-----------------|-------------|----------------------|
| Country | Product Line | Team Leader(s) | | |
| Ethiopia | IBRD/IDA | Vikas Choudhary | | |
| Project ID | Financing Instrument | Resp CC | Req CC | Practice Area (Lead) |
| P148591 | Investment Project Financing | SAEA3 (9247) | AECE3 (247) | Agriculture and Food |

Implementing Agency: Ministry of Agriculture

| | |
|--------------------------------------|--|
| Is this a regionally tagged project? | |
| No | |

| |
|------------------------|
| Bank/IFC Collaboration |
| No |

| | | | | |
|---------------|--------------|------------------------------------|--|------------------------|
| Approval Date | Closing Date | Expected Guarantee Expiration Date | Original Environmental Assessment Category | Current EA Category |
| 31-Mar-2015 | 15-Jun-2023 | | Partial Assessment (B) | Partial Assessment (B) |

Financing & Implementation Modalities

| | |
|---|--|
| <input type="checkbox"/> Multiphase Programmatic Approach [MPA] | <input type="checkbox"/> Contingent Emergency Response Component (CERC) |
| <input type="checkbox"/> Series of Projects (SOP) | <input type="checkbox"/> Fragile State(s) |
| <input type="checkbox"/> Performance-Based Conditions (PBCs) | <input type="checkbox"/> Small State(s) |
| <input type="checkbox"/> Financial Intermediaries (FI) | <input type="checkbox"/> Fragile within a Non-fragile Country |
| <input type="checkbox"/> Project-Based Guarantee | <input type="checkbox"/> Conflict |
| <input type="checkbox"/> Deferred Drawdown | <input type="checkbox"/> Responding to Natural or Man-made disaster |
| <input type="checkbox"/> Alternate Procurement Arrangements (APA) | <input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS) |



Development Objective(s)

The Project Development Objective is to increase agricultural productivity and commercialization of small holder farmers targeted by the project.

Ratings (from Parent ISR)

| | Implementation | | | | | Latest ISR |
|--------------------------------------|----------------|-------------|-------------|-------------|-------------|-------------|
| | 21-May-2018 | 19-Dec-2018 | 29-Oct-2019 | 01-May-2020 | 06-Nov-2020 | 17-May-2021 |
| Progress towards achievement of PDO | S | S | S | S | S | S |
| Overall Implementation Progress (IP) | MS | MS | MS | MS | MS | MS |
| Overall Safeguards Rating | MU | MS | MU | MS | MS | MS |
| Overall Risk | S | S | S | S | S | S |
| Financial Management | MS | MS | MS | MS | MS | MS |
| Project Management | MS | MS | MS | MS | MS | MS |
| Procurement | MS | MU | MS | MS | MU | MS |
| Monitoring and Evaluation | MS | MS | MS | MS | MS | MS |

BASIC INFORMATION – ADDITIONAL FINANCING (Second Additional Financing for the Second Agriculture Growth Project - P176564)

| | | | |
|------------|--|---------------------------|-------------------------------------|
| Project ID | Project Name | Additional Financing Type | Urgent Need or Capacity Constraints |
| P176564 | Second Additional Financing for the Second | Scale Up | Yes |



| | | | |
|--------------------------------------|-------------------------------|---------------|--|
| | Agriculture Growth Project | | |
| Financing instrument | Product line | Approval Date | |
| Investment Project Financing | Recipient Executed Activities | 25-Jun-2021 | |
| Projected Date of Full Disbursement | Bank/IFC Collaboration | | |
| 15-Dec-2023 | No | | |
| Is this a regionally tagged project? | | | |
| No | | | |

Financing & Implementation Modalities

| | |
|---|--|
| <input type="checkbox"/> Series of Projects (SOP) | <input type="checkbox"/> Fragile State(s) |
| <input type="checkbox"/> Performance-Based Conditions (PBCs) | <input type="checkbox"/> Small State(s) |
| <input type="checkbox"/> Financial Intermediaries (FI) | <input type="checkbox"/> Fragile within a Non-fragile Country |
| <input type="checkbox"/> Project-Based Guarantee | <input type="checkbox"/> Conflict |
| <input type="checkbox"/> Deferred Drawdown | <input checked="" type="checkbox"/> Responding to Natural or Man-made disaster |
| <input type="checkbox"/> Alternate Procurement Arrangements (APA) | <input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS) |
| <input type="checkbox"/> Contingent Emergency Response Component (CERC) | |

Disbursement Summary (from Parent ISR)

| Source of Funds | Net Commitments | Total Disbursed | Remaining Balance | Disbursed |
|-----------------|-----------------|-----------------|-------------------|-----------|
| IBRD | | | | % |
| IDA | 430.00 | 306.97 | 122.48 | 71 % |
| Grants | 100.60 | 88.60 | 12.00 | 88 % |

PROJECT FINANCING DATA – ADDITIONAL FINANCING (Second Additional Financing for the Second Agriculture Growth Project - P176564)

FINANCING DATA (US\$, Millions)



SUMMARY (Total Financing)

| | Current Financing | Proposed Additional Financing | Total Proposed Financing |
|---------------------------|-------------------|-------------------------------|--------------------------|
| Total Project Cost | 661.80 | 5.00 | 666.80 |
| Total Financing | 618.00 | 5.00 | 623.00 |
| Financing Gap | 43.80 | 0.00 | 43.80 |

DETAILS - Additional Financing

Non-World Bank Group Financing

| | |
|--|------|
| Trust Funds | 5.00 |
| Global Agriculture and Food Security Program | 5.00 |

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any other Policy waiver(s)?

Yes No

INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas



PROJECT TEAM

Bank Staff

| Name | Role | Specialization | Unit |
|---------------------------|---|---------------------------|-----------------|
| Vikas Choudhary | Team Leader (ADM Responsible) | Project management | SAEA3 |
| Assaye Legesse | Team Leader | Agricultural research | SAEA3 |
| Hayalsew Yilma | Team Leader | Irrigation | SAEA3 |
| Demelash Demssie | Procurement Specialist (ADM Responsible) | Procurement | EAERU |
| Binyam Bedelu Mekbib | Procurement Specialist | Procurement | EAERU |
| Mekdim Hailu Yemane | Financial Management Specialist (ADM Responsible) | Financial management | EAEG1 |
| Solomon Soroto Tanto | Social Specialist (ADM Responsible) | Social Safeguards | SAES2 |
| Tamru Demsis Temam | Environmental Specialist (ADM Responsible) | Environment Specialist | SAEE2 |
| Hawanty Page | Team Member | Data analysis | SAEA3 |
| Jean O Owino | Team Member | Financial Management | WFACS |
| Margaret Png | Counsel | Legal | LEGAM |
| Mei Wang | Counsel | Legal | LEGAS |
| Messeret Marcos | Procurement Team | Procurement | AECE3 |
| Mugambi Mugisha Mwendia | Team Member | Financial management | WFACS |
| Ndiga Akech Odindo | Team Member | Legal | LEGAM |
| Pierre Olivier Colleye | Team Member | Corporate engagement | SAEA3 |
| Rahel Alemu Workneh | Team Member | Monitoring and Evaluation | SAEA3 |
| Simon Sottsas | Social Specialist | Social development | SAES2 |
| Welela Ketema | Team Member | Agribusiness | SAEA3 |
| Yacob Wondimkun Endaylalu | Environmental Specialist | Environmental safeguard | SAEE2 |
| Extended Team | | | |
| Name | Title | Organization | Location |



I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING

1. This Project Paper seeks the approval of the Regional Vice President to provide an Additional Financing (AF) grant from the Global Agriculture and Food Security Program (GAFSP) in the amount of US\$5 million for Coronavirus Disease 2019 (COVID-19) response to the Federal Democratic Republic of Ethiopia for the Second Agricultural Growth Project (AGP2) – (P148591). The proposed AF would be accompanied by a restructuring, its sixth since effectiveness, to extend the Closing Date of the Multi-Donor Trust Fund (MDTF) Grant Agreement (AGP II Co-financing, TF0A4876) from January 10, 2022 to June 15, 2023.

2. The proposed AF will support interventions which mainly focus on direct response to the COVID-19 crisis and include the following: (i) support agricultural inputs and marketing; (ii) support production and post-harvest management of marketable irrigated crops; and (iii) provide and supply Personal Protective Equipment (PPE) for COVID-19 preventive measures.

3. All the institutional, fiduciary, and safeguard arrangements remain unchanged. No additional safeguards policies is triggered and there is no change in the project's safeguards category. The waiver to use the existing safeguard policies with the COVID-19 Specific Risk Considerations was approved by the Operations Policy and Country Services Vice President on March 2, 2021. The overall risk rating is maintained at Substantial.

4. The AGP2 is of strategic importance for Ethiopia as its economic impact remains strong and its activities are central to supporting the Government of Ethiopia's (GoE) growth and transformation agenda. By ensuring AGP2's contribution to increased agricultural productivity and commercialization, the AF supports the GoE's vision for structural transformation of the national economy. It supports the objective of Pillar 1 of the World Bank Group's (WBG) Country Partnership Framework (CPF) for Ethiopia for the period FY18–FY22 (Report No. 115135-ET), to promote structural and economic transformation through increased productivity, revenue generation, export promotion, import substitution and employment creation effects. The Project will directly address the World Bank's twin goals of alleviating poverty and boosting shared prosperity. This Project will meet the goals of the World Bank's Next Generation Africa Climate Business Plan, Ethiopia's Nationally Determined Contribution, and Ethiopia's Climate Resilient Green Economy strategy. The AF aligns with Ethiopia's commitments under the Comprehensive Africa Agriculture Development Program, and with its commitment under the Africa Food Security Leadership Dialogue under Climate Change in Africa to invest in science and promote a climate smart agriculture research agenda. This AF also aligns with Pillar III- Ensuring Sustainable Business Growth and Job Creation, of the World Bank Group's COVID-19 Crisis Response Approach Paper.

COVID-19 Context

5. **COVID-19 spread accelerated in Ethiopia and negative economic impacts are increasing fast.** As of June 17, 2021, the country reported 274,775 cases and it is the second highest among countries in Africa, next to South Africa. The economic and social impact of COVID-19 in Ethiopia is expected to be significant and prolonged, and authorities are facing an unanticipated financing gap of 1.5 percent of gross domestic product (GDP) (about US\$1.5 billion) in Fiscal Year 2020. More than half of surveyed households reported that their incomes were either reduced or had totally disappeared. There are additional



challenges of unemployment, as well as food security, and the need to expand safety nets has increased. An estimated 1.4 million jobs, accounting for 19 percent of current employment, were estimated to be threatened due to the crisis during the second half of 2020.

6. **The WBG's approach in Ethiopia has been adjusted to meet the challenges posed by COVID-19 while maintaining a longer-term strategy to sustain transformational structural reforms embedded in the CPF for Ethiopia.** These adjustments have been made within the CPF's focus areas and objectives, particularly the second focus area of Building Resilience and Inclusiveness which includes objectives to improve safety nets, healthcare systems, basic education, water supply and sanitation, and management of natural resources which impacts livelihoods. Focus Area 1 also provided strategic underpinning for addressing COVID-19 impacts, particularly in improving access to finance and agricultural productivity. As a result, support is being provided across four pillars consistent with the overall WBG approach: (a) Saving lives, (b) Protecting poor and vulnerable people, (c) Ensuring sustainable business growth and job creation, and (d) Strengthening policies, institutions and investments. The WBG support has been primarily focused on the first two of the three expected stages of crisis response: relief—emergency assistance to confront the immediate threat to public health, as well as short-term economic, financial and social impacts; restructuring—strengthening health systems, restoring human capital, and pursuing economic reforms, debt resolution, and recapitalization of firms and financial institutions (FIs); and resilient recovery—exploiting new opportunities for more inclusive, resilient, and sustainable longer-term development. Annex 1 provides more details of the impact of the COVID-19 pandemic on the country and government response.

7. **World Bank lending has been rapidly adjusted to support Ethiopia across several dimensions of its response to the pandemic.** Ethiopia was among the first countries to receive financing from the World Bank's COVID-19 rapid response facility, with a US\$82.6 million COVID-19 Emergency Response operation (P173750) approved on April 2020, just weeks after the crisis became evident in the country. This operation is already two-thirds disbursed and has been critical in providing medical supplies; capacity building; information outreach; and supporting quarantine, isolation, and treatment centers. This was followed by the rapid preparation of a supplemental US\$250 million Development Policy Financing (DPF) (COVID-19 Supplemental Financing to the Second Ethiopia Growth and Competitiveness Programmatic Development Policy Financing, P169080) approved in June 2020 to augment an earlier US\$500 million approved in March 2020 to support the country's growth and competitiveness agenda. New social protection operations were fast-tracked and levels of financing were increased, with the US\$400 million Urban Productive Safety Net and Jobs Project (UPSNDP, P151712) approved in September, 2020 and the US\$512.5 million Strengthening Ethiopia's Adaptive Safety Net Project (SEASNP, P172479) approved in November 2020. These operations build on preceding support for productive safety nets and support cash transfers, food aid, public works, self-employment through start-up grants, and labor market integration of youth. Employment and development in the agriculture and rural areas were pursued through US\$80 million in Additional Financing of the Second Agriculture Growth Project (P148591) approved in September 2020 and a US\$165 million Additional Financing for the Ethiopia Resilient Landscapes and Livelihoods Project (P163383) approved in December 2020, financed by the Green Climate Fund. These latter two operations had been previously planned but were accelerated and the design was adjusted to meet COVID-19 challenges. Finally, a new US\$100 million Additional Financing for the Women Entrepreneurship Development Project (P122764) was rapidly prepared and approved in December 2020.

8. The Ministry of Agriculture (MoA) has adopted a response plan for COVID-19 developed at



national level and developed an agricultural sector response to minimize the impact of COVID-19 pandemic. The response plan incorporated the guidelines of Ministry of Health in ensuring staff from the federal down to woreda level get access to information on ways to protect themselves from the spread of the virus, thereby assisting farmers to build resilience of rural livelihoods, one aspect of which is to accelerate agricultural growth. This GAFSP grant will help with both COVID-19 protection and livelihood recovery of households affected by COVID-19.

A. Country and Sector Background

9. **Ethiopia has shown strong economic performance over the past decade.** Overall economic growth has been higher than in most African countries. Growth in real GDP from 2012/13- 2016/17 is estimated at 9.9 percent, significantly higher than the 2.6 percent average growth estimated for Sub-Saharan Africa (World Economic Outlook Update, October 2017). Recent growth has been driven by services (10.3 percent) but, at 6.7 percent, growth in agriculture is also significant. Much of the growth in agriculture has been driven by productivity gains.

10. **Ethiopia hopes to realize economic transformation primarily through industrialization. Growth in industry is expected to build on a rapidly growing and transformed agricultural sector.** As such, agricultural development is at the heart of the GoE's development strategy as described in its second Growth and Transformation Plan (GTP2).¹ Although Ethiopia has seen significant growth in agricultural production, this has not been accompanied by real transformation in the sector.² Agriculture in Ethiopia continues to face key challenges related to accelerating productivity growth, strengthening agricultural markets and promoting high value production as well as enhancing the natural resource base on which the sector depends. Furthermore, vulnerabilities persist, related to climate change, the impact of the COVID-19 pandemic and limited capacity to deal with emergencies. The desert locust plague significantly impacted 2020 crop harvest and resulted in severe loss of pastures for livestock. In addition, flooding in 2020, conflict, localized droughts, and double digit inflation continue to threaten agricultural sector and broader economy.

11. **Climate change is a serious concern in Ethiopia, already with adverse consequences on both highland and lowland agriculture.** Ethiopia has seen eight major droughts in the past 15 years, resulting in negative impact on livelihoods of both farming and pastoral communities and spikes in food insecurity. Long-term climate change predictions are mixed, but the consensus is that drought, erratic weather patterns, shifting seasons and increased incidence of pests will continue to be a major source of vulnerability for the Ethiopian agricultural sector. Ethiopian highlands, where the bulk of agricultural production takes place, face extreme and generally erratic weather conditions and the resulting production variability in these geographies have negative consequences for the national economy. Several actions are needed to reduce the vulnerability of Ethiopian agriculture in the face of climate change, including: (i) investments in irrigation to reduce reliance on rainfed production systems, (ii) improving agricultural support services to deliver climate resilient agronomic advice, (iii) enhanced dissemination of climate information, (iv) promotion of soil fertility management techniques and climate smart agriculture practices, (v) development of the next generation of climate smart agriculture research system to climate

¹ GTP2 spans the period from June 2016 to July 2020. A 10-year perspective plan is under development to follow on from GTP2 in which agriculture continues to be the basis for economic growth and transformation.

²Smallholder agriculture remains mostly rainfed and subsistence orientated; natural resource degradation is high, exposure to climate change is significant, and technologies used are mostly manual (use of mechanized technologies and Information Communication Technology (ICT) is low).



proof Ethiopian agriculture against drought, pests, diseases and changing weather, and (vi) upgrading agricultural marketing systems and infrastructure to minimize food loss and waste and increase efficiency of agricultural value chains. These actions are at the core of the GoE's climate change adaptation and mitigation strategies.

12. **The current COVID-19 pandemic is having significant adverse impact on the overall economy, including the agricultural sector.** There has been a general slowdown in economic activities particularly related to the movement of goods and people between rural areas and urban centers which has disrupted agricultural supply chains with a consequent spike in food prices, narrowed rural employment opportunities and limited rural services. The GoE has developed a COVID-19 response plan to minimize the economic impacts of the pandemic while controlling its spread. Nevertheless, the pandemic remains on the rise and the economic impact is expected to be serious.

13. Disruption in agricultural supply chains and rural livelihoods due to the COVID-19 pandemic, variability in production resulting from erratic weather conditions and the current threat to the main harvest as the GoE faces difficulties in containing the desert locust outbreak highlight the vulnerability of the Ethiopian agricultural sector. Accordingly, the GoE has recognized the urgent need to build resilience of rural livelihoods, one aspect of which is to accelerate agricultural growth. Consistent with the parent project, this AF will address climate risks and vulnerabilities in the agricultural sector, by prioritizing support for small scale irrigation (SSI) and agricultural production.

14. **The World Bank, together with several of Ethiopia's Development Partners (DPs), has supported agricultural growth through two consecutive operations—AGP1 and 2, with encouraging results.** AGP1 and 2 supported agricultural growth by strengthening public agricultural support services, SSI and other infrastructure development (identified through a Community Level Participatory Planning [CLPP] process), and supported market development —strengthening of agricultural input supply systems and initiatives to holistically develop selected agricultural commodity value chains. Based on the achievement of AGP1, a second project, AGP2, was designed and is currently under implementation (discussed further below) deepening DP support to agricultural growth. AGP is the GoE's flagship program in its collaboration with DPs to promote agricultural growth and has informed and been key to taking forward the government's approach to agriculture development. It constitutes a significant shift in DP's support to agriculture, moving away from a predominant focus on helping the GoE address food insecurity among vulnerable population groups to investing in growth. It also introduces collaboration among DPs pulling together fragmented interventions under one framework.

B. Parent Project Background

15. **AGP was initially implemented from 2011 to 2017 with significant results.** An external independent impact evaluation conducted by the Ethiopian Development Research Institute (EDRI) concluded that AGP1 significantly increased agricultural productivity for its direct beneficiary households. Agricultural productivity of such households was fifty percentage points higher than similar households who did not benefit from the project's interventions. Among the project beneficiaries, performance by female headed households was even greater as yields registered by such households were higher by sixty-eight percentage points compared to female headed households who did not obtain similar interventions. With regard to its impact on agricultural commercialization, the program had positive effect on household



revenue as beneficiary households had ETB1,703 (US\$61) higher annual revenue compared to non-participants.

16. **Given the successful results of AGP1, the government scaled up interventions from 83 woredas³ in four regions under AGP1 to 167 woredas in six regions in AGP2.** In addition to scaling up project interventions to new woredas, the project added a component on agricultural research to introduce off-the-shelf technologies to the project beneficiaries and connect research and agriculture extension.

17. **AGP2, approved on March 5, 2015, is a US\$350 million IDA credit to which other DPs have contributed another US\$100.6⁴ million through an MDTF⁵ (Ethiopia Second Agricultural Growth Project Multi-Donor Trust Fund, TF072569).** In addition, the GAFSP provided a co-financing grant to the GoE of US\$27 million, as well as US\$3 million of parallel financing to the Food and Agriculture Organization (FAO) of the United Nations to provide technical assistance to the Project. Under the Feed the Future program, United States Agency for International Development (USAID) provided an additional US\$60 million in parallel financing to support Value Chain (VC) development activities (Component 4.3). Global Affairs Canada created a US\$11.9 million Capacity Development Support Facility (CDSF) to build capacity of implementation agencies of AGP2. The Spanish Agency for International Development Cooperation is providing a grant of US\$6 million directly to the government, amounting to EUR 1 million every year for supporting implementation of the Project.

18. **An Additional Financing of US\$80 million was approved by the Executive Directors of the World Bank on September 15, 2020 and was subsequently declared effective on November 4, 2020.** The AF was aimed to address financing gaps resulting from cost overruns on the Project's infrastructure development activities (investment on SSI schemes, warehouses, and market centers) arising from enhanced design features and increased unit costs due to double digit inflation. In addition, taking the opportunity of that AF, the project also allocated resources to provide Technical Assistance to explore options and develop appropriate mechanisms for financial sustainability of SSI and enhance women's benefit from SSI. Also, to generate learning from the Project to incorporate into future generation of projects, the AF allocated resources for analytical work.

19. **AGP2 has five components:** Component 1: Agricultural Public Support Services (US\$129 million); Component 2: Agricultural Research (US\$51.40 million IDA); Component 3: Small Scale Irrigation Schemes (US\$278.68 million); Component 4: Agricultural Marketing and Value Chains (US\$131.57 million); and Component 5: Program Management, Capacity Building, Monitoring and Evaluation, and Learning (US\$71.15 million).

20. **The Project has been under implementation for five years, in 167 woredas with recognized high**

³ Districts in Ethiopia are commonly known as woreda and are the third-level of the administrative division of Ethiopia – after zones and the regional states.

⁴ Of the total US\$100.6 million contributions signed for the MDTF, US\$6.6 million is allocated for Bank executed activities. The remaining US\$94 million would cover the associated fees (US\$4.4 million) and the rest (US\$89.6 million) would be allocated to recipient executed activities and transferred to the client through a Recipient Executed Trust Fund. Of this US\$89.6 million, US\$61.60 million has been transferred to the client. A contribution of US\$5.4 million was received on August 4, 2020 and another contribution of US\$7.1 million was received on September 3, 2020. The remaining commitment amount has not yet been realized.

⁵ Contributors of MDTF includes the European Union (EU), Global Affairs Canada, the Dutch Ministry of Foreign Affairs and the USAID.



agricultural potential in seven Regional States (Oromia, Amhara, Southern Nations Nationalities and Peoples Region, Tigray, Benishangul-Gumuz, Gambella, Harari) and in rural woredas of one city administration (Dire Dawa City Administration).

21. **AGP2 has undergone five Level Two restructurings for:** a) inclusion of the Agricultural Transformation Agency (ATA) and the Ministry of Livestock and Fisheries as Implementing Agencies (IAs); b) inclusion of the Ethiopia Second Agricultural Growth Project MDTF as a source of co-financing; c) inclusion of GAFSP as a source of co-financing; d) extension of the Project closing date by 15 months from October 10, 2020 to January 10, 2022; and e) inclusion of US\$80 million AF, a Closing Date extension of the parent project from January 10, 2022 to June 15, 2023, and changes to the Result Framework (RF) to more accurately capture the accomplishments of the Project and ensure that issues such as Grievance Redress Mechanisms (GRMs) or environmental and social issues are documented.

22. **The Project Development Objective (PDO) of the parent project is “to increase agricultural productivity and commercialization of small holder farmers targeted by the project”.** Its achievement is currently being measured by the following indicators:

- a) Percentage increase in yield of selected crops by targeted households benefiting directly from the program; disaggregated for Female Headed Households (FHH).
- b) Percentage increase in yield for milk, honey, and eggs in targeted households benefiting directly from the project; disaggregated for FHH.
- c) Percentage increase in real revenue from selected crops in targeted household benefiting directly from the project” disaggregated for FHH.
- d) Percentage increase in real revenue from milk, honey and eggs in targeted household benefiting directly from the project; disaggregated for FHH.
- e) Number of direct project beneficiaries.

23. **Progress towards achieving the PDO has been consistently rated Satisfactory** since effectiveness. Furthermore, quantitative and qualitative analyses of PDO status were undertaken at mid-term (June 2019) by the client through EDRI. The Project has registered significant achievements in terms of increased productivity by beneficiary households. The Project’s achievements in terms of commercialization are also positive but lower and, somewhat below the midterm targets. On average across all crops, AGP2 beneficiary households have registered an ETB5,167 (US\$187) real⁶ income increase relative to the baseline. The real revenue from cereals and pulses increased by 113.5 percent and from fruits and vegetables by 75.5 percent. There is also a robust increase in revenue for livestock products as the real revenue from milk, honey and eggs increased by 204 percent, 44.6 percent, and 41.9 percent respectively. In addition, the number of households who sold livestock products improved with an increase of 40 percent for eggs, 54 percent for honey and 40 percent for milk.

24. **Overall implementation progress is rated Moderately Satisfactory.** As per the last Implementation Status and Results Report (ISR) (May 2021), US\$310 million (90 percent of IDA allocation) and US\$88.60 million (100 percent of MDTF and GAFSP allocation), has been disbursed. Nevertheless, there is some lag in project implementation particularly on the SSI component primarily due to security problems (particularly in the Oromiya Regional State), cost overruns that have necessitated the US\$80

⁶ Gross revenue in 2019 deflated by a weighted price in the study area using 2017 as a base year.



million AF and extension of the Project closing date and the recent shortage of cement and reinforcement bar in the market. Issues regarding procurement, financial management (FM), M&E, and safeguard arrangements have also been highlighted in the last ISR. M&E, procurement, and FM performance under the parent project is Moderately Satisfactory.

25. There are no overdue Interim Financial Reports (IFRs) or audit reports.

26. **Environment and Social Safeguards.** Due to the safeguards implementation improvements of the parent project, the overall safeguards ratings, which include the Environment Assessment (OP 4.01), IP (OP 4.10), Involuntary Resettlement (OP 4.12) and Safety of Dams (OP 4.37), have been consistently Moderately Satisfactory over the past two ISRs.

C. Rationale for AF

27. **The proposed AF in the amount of US\$5 million from GAFSP is being sought primarily for COVID-19 response.** COVID-19, by adversely impacting the overall economy and agricultural sector, posed additional challenge for AGP2 beneficiaries, especially the most vulnerable ones. The GAFSP financing will allow AGP2 to respond to COVID-19 impact on vulnerable smallholder poor households by: i) providing agricultural inputs (vegetable crops seed, and fertilizers, and so on) to resource poor smallholder farmers; ii) providing irrigation pumps and small hand tools to female-headed households; and iii) providing and supplying the PPE for COVID-19 preventive measures.

II. DESCRIPTION OF ADDITIONAL FINANCING

A. Overview

28. **Change in component costs and withdrawal categories.** There are no envisaged reallocations across components and withdrawal categories. The proposed allocation of this AF is shown in table 1 below.

Table 1: AF Allocation by Component and Sub-Component

| Project Components | Cost Allocation (US\$ millions) | | |
|--|--|------------|---------------|
| | Current (AGP2* + Additional Financing) | AF | Total |
| Component 1: Agricultural Public Support Services | 129.00 | | 98.26 |
| Sub-Component 1.1 Institutional strengthening and development | 74.0 | | |
| Sub-Component 1.2 Scaling up of best practice | 55.0 | | |
| Component 2: Agricultural Research | 51.4 | | 49.92 |
| Sub-Component 2.1 Technology Adaptations and Generation | 16.3 | | |
| Sub-Component 2.2 Pre-extension Demonstration and Participatory Research Schemes | 5.5 | | |
| Sub-Component 2.3 Source Technology Production | 6.8 | | |
| Sub-Component 2.4 Capacity developments | 22.8 | | |
| Component 3: Small Scale Irrigation Schemes | 278.68 | .75 | 279.43 |



| Project Components | Cost Allocation (US\$ millions) | | |
|--|--|-------------|---------------|
| | Current (AGP2* + Additional Financing) | AF | Total |
| Sub-Component 3.1 SSI Infrastructure Development and Improvement | 268.18 | .75 | |
| Sub-Component 3.2 Integrated Crop and Water Management | 10.5 | | |
| Component 4: Agriculture Marketing and Value Chains | 131.57 | 3.50 | 135.07 |
| Sub-Component 4.1 Support Agriculture Input Supply System | 6.0 | 3.50 | |
| Sub-Component 4.2 Establishing and Strengthening Farmer Organizations | 21.0 | | |
| Sub-Component 4.3 Support Agribusiness Development | 40.8 | | |
| Sub-Component 4.4: Support Market Infrastructure Development and Management | 63.77 | | |
| Component 5: Project Management, Capacity Building, Monitoring and Evaluation, and Learning | 71.15 | .75 | 71.09 |
| Sub-Component 5.1 Project Management and Institutional Arrangements | 43.18 | .5 | |
| Sub-Component 5.2 M&E and Learning | 14.07 | .25 | |
| Sub-Component 5.3 Capacity development | 13.9 | | |
| Total for AGP2 | 661.80** | 5.00 | 666.80 |

*As per AGP2 PAD which included IDA + Joint financing + parallel financing + Beneficiary contribution.

** (This includes 350 million IDA (AGP2), US\$80 million IDA (Additional Financing), US\$15.5 million counterpart funding, US\$100.60 million Trust Fund, US\$71.9 million co-financing and US\$43.80 million financing gap).

B. Component Description

29. The AF will provide resources under components 3 (Small Scale Irrigation Schemes) and 4 (Agricultural Marketing and Value Chains) of the project and provide additional support for Component 5 (Project management, Capacity Building, Monitoring and Evaluation, and Learning).

Component 3. Small Scale Irrigation Schemes (US\$0.75 million)

Sub-component 3.2. Integrated Crop and Water Management (US\$0.75 million)

30. Under the sub-component 3.2, intensification of Household Irrigation (HHI) is one of the successful interventions. This intervention will be expanded by providing irrigation pumps and small hand tools to female-headed households most affected by COVID-19 for the next production season. Distribution and close follow-up of the irrigation pumps and hand tools will be conducted by the federal and regional PCU using the same approach as under the parent program. This is in line with the government strategy for promoting and strengthening the capacity of domestic production to ensure supply of healthy and nutritious foods to beneficiary households and meeting consumers' demands to have access for safe products at local and international markets.

Component 4. Agricultural Marketing and Value Chains (US\$3.50 million)

Sub-component 4.1. Support Agricultural Input Supply System (US\$3.50 million)



31. To help with livelihood recovery to households adversely affected by COVID-19, agricultural inputs will be provided to resource poor smallholder farmers. This will ensure availability and access of the required inputs for timely use in their farming activities and continue their farming activities which had been hampered by COVID-19. The agricultural inputs provision will include improved seeds, with priority to vegetable crops seed, and fertilizers which will be purchased by the regional bureau of agricultural and woreda office of Agriculture and be distributed to the selected resource poor farmers through the Kebele⁷ Development Community (KDC) assisted by the kebele level Development Agents.

Component 5. Project Management, Capacity Building, Monitoring and Evaluation, and Learning (US\$0.75 million).

Sub-component 5.1. Project Management and Institutional Arrangements (US\$0.5 million)

32. Sub-component 5.1 supports overall program management and coordination of the project. The GAFSP funds will be deployed to procure Supplies and PPE for preventive measures). The main objective of this activity is to create awareness and better equip extension staff and selected lead beneficiary farmers to protect them from being infected by the virus and contain its further spread. The main intervention is provision of materials such as sanitizations, soap alcohol and establishing washing stations at least at selected Farmer Training Centers (FTCs) and PPE for prevention and control of the COVID-19 pandemic. Similarly, the implementation of the construction work requires huge labor power, but deployment of adequate labor is impossible due to COVID-19 restriction without addressing all precaution measures. Therefore, this requires provision of all necessary personal protective equipment and disinfecting of the areas such as meeting hall and training rooms and construction sites. This will facilitate the smooth provision of extension services and protect the work force from the pandemic to enable smooth continuation of the construction activities and extension service provision under the Project component interventions.

Sub-component 5.2 M&E and Learning. (US\$0.25 million)

33. The AF will allocate some resources for continued M&E activities and strengthening of monitoring capacity on the Project. The various activities proposed under the Project such as the impact and effectiveness of the preventive measures and the provision of agricultural inputs and materials will be monitored and evaluated under this component along with the activities under the AGP2 AF.

34. The beneficiaries of this AF are part of the original project beneficiaries. To identify the vulnerable households for direct support under the GAFSP grant, existing kebele level committees, chaired by the Kebele Development committee chairperson with the members of the KDC and other relevant members, will identify the beneficiary households. The final list of selected beneficiaries will be sent to the woreda level selection committee for approval. The following criteria will be used for the selection of beneficiaries at kebele level: i) women headed households registered on the kebele registry and who own irrigable land and/or don't own irrigable land but have land for rainfed agriculture; ii) those very poor and very vulnerable farmers registered in the kebele registry and who own less than 0.25ha of irrigable land for irrigated agriculture; and iii) those very poor and very vulnerable and aged households (above 55 years old) registered in the kebele registry having less than 0.5ha of land for rainfed agriculture. In addition to

⁷ A kebele is the smallest administrative unit of *Ethiopia*.



households receiving direct support, front-line extension staff, different committee members and seasonal workers involved in small-scale irrigation construction activities will receive PPE to continue working during the COVID-19 pandemic.

35. Considering the small budget, relative to the need, only a few woredas, out of 167 AGP2 woredas, will be selected for support. The selection of woredas will be conducted by the regional Technical Committee chaired by regional agricultural bureau head or his representative and having pertinent members from Technical Committee. The criteria for the selection of the woredas will be as follows: i) the woreda should have functional irrigation infrastructure with ownership of target groups (supposed to be beneficiaries) of this support; ii) the woreda should have surface (river, lake and/or spring) water or developed ground water sources with adequate discharge for irrigation during the dry season using the available pumps; and iii) woredas where high incidence of COVID-19 have been reported by the woreda and or regional health bureau. After the woreda selection, the woreda AGP II Technical Committee chaired by the head of the woreda agricultural office will be responsible for the selection of the Kebeles using the same criterion for kebele selection, which will be approved by the regional committee.

36. In addition, FAO will directly receive US\$1 million from GAFSP to provide technical support to enhance capacity of the Government Implementing Agencies at all levels to provide effective and efficient agricultural extension services during the pandemic. The purpose is to enable these agencies to continue helping farmers to acquire knowledge and skills in irrigated agriculture, demonstrate efficient on-farm water and crop management practices to increase widespread adoption that would ensure to efficiently utilize the available water and increase water use productivity to sustainably increase agricultural productivity and income of farmers to improve food and nutrition security. Emphasis will also be given to promoting post-harvest handling technologies to improve access of improved post-harvest handling technologies and reduce post-harvest losses, thereby improving the overall food supply system to feed the people accordingly and increase supply to the market, which is essential to improve the health status of the working force, including elders, women and children and better withstand the COVID-19 impact and ensure supplies to the market.

37. **Changes in Result Framework (RF).** No changes to the RF are proposed.

38. **Extension of Closing Date of the MDTF Grant Agreement (TF0A4876) to June 15, 2023.** The closing date of the Grant Agreement will be extended to June 30, 2023 (which is a 15 months extension from the current closing date of January 10, 2022), to allow for full implementation and align with the closing date of the parent project.

39. **Changes in procurement.** There are no changes in the procurement arrangements. Procurement activities under the proposed AF will be carried out in accordance with the World Bank's "Procurement Regulations for Investment Project Financing (IPF) Borrowers" (Procurement Regulations) Fourth Edition, November 2020, as amended from time to time; and the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated July 1, 2016; and the provisions stipulated in the Financing Agreement.

40. **Changes in Financial Management (FM).** There are no changes on the FM arrangements. FM arrangements under the AF will be the same as the arrangements in the original project. The Project will continue to follow GoE's Channel 2 fund flow mechanism whereby funds from donors' flow directly to the



sector ministry, in the MoA and are overseen by the same ministry. The components and sub-components of the Project, the implementing regions and woredas remain the same. However, due to the scale of activities under the AF involving distribution of goods (irrigation pumps, hand tools, seeds, fertilizers, and PPE) additional controls and audit requirements are proposed as summarized in the FM section.

III. KEY RISKS

41. **As there are no changes to the scope, scale or arrangements for the implementation of this Project, the Overall Implementation Risk is maintained as Substantial.** The SORT table in Section VII provides risk ratings by risk categories. The risk rating for different categories has remained same as the AF that was processed in September 15, 2020 and these are described below.

42. **Political and governance risk is retained as Substantial.** The elections, originally scheduled for August 2020, were postponed due to the COVID-19 pandemic. The political and governance situation has remained volatile, especially over the last three years, and postponement of elections might contribute to increased political volatility. Implementation of the Project could slow down or even stop if political unrest or civil protest resumes in the Project areas. This risk will be mitigated by adopting approaches used in other World Bank-financed projects, which include: (a) careful planning and execution of implementation support missions; (b) continued, regular, and strategic communication between government counterparts (project teams) and the World Bank/Development Partner teams; (c) proper implementation and monitoring of safeguard instruments; and (d) ensuring enhanced transparency, (downward) accountability, and citizen engagement in project-supported activities.

43. **Macroeconomic risk is retained as Substantial.** Ethiopia is facing the COVID-19 pandemic with significant implication on curtailing economic growth and macro-economic stability. The acute shortage of foreign exchange, aggravated by the pandemic, is affecting all sectors of the economy, including agriculture. The performance of agricultural exports has been lower than expected and food inflation is quite high. There is a high risk of debt distress and considering these factors the macroeconomic risk is being upgraded to substantial. These risks are partially mitigated by the macroeconomic reform program undertaken by the GoE with support from its international development partners, and the fact that the GoE has succeeded in managing the impact of COVID-19 relatively well thus far. The government has made progress with the introduction of a fiscal stabilization program and reform measures that enhance transparency and accountability in public sector procedures and management. The GoE has begun to publish data on macroeconomics through a data portal under the IMF website. The system aims to provide a onestop publication for essential data. Nevertheless, the residual risk is still substantial.

44. **Institutional capacity for implementation is retained as Substantial.** The institutional capacity has significantly improved since AGP2 and the implementation progress has picked up after initial delays at the start of AGP2 implementation. Establishment of CDSF for capacity building of implementation agencies has had a positive impact on the Project performance. However, despite the improvement, the delay in infrastructure development projects indicated that there is still room for improvement. Hence this risk rating is retained as Substantial. Frequent and regular supervision and continued focus on building capacity will help mitigate the risk.

46. **Fiduciary risk is retained as Substantial.** The Project has significant experience in fiduciary



management and the performance has improved since AGP1. However, there are challenges associated with procurement capacity, security and market failure in some of the critical inputs to the project. Though the activities funded under this additional grant are expected to address some of the challenges associated with COVID-19, the disruption in the movement of goods and services has imposed additional risk to the procurement performance in the Project. As a result, the fiduciary risk is retained as substantial. The Project is currently implementing a work plan to improve the procurement management and fiduciary performance. Similarly, the FM risk for the Project is rated as Substantial due to the decentralized nature of the Project involving multiple implementing entities; use of manual accounting at some woredas; and gaps on internal audit. Distribution of goods (irrigation pumps, hand tools, seeds, fertilizers, and PPE) under this AF brings risk of distribution of the goods to the targeted beneficiaries, proper management and storage of the goods, and generating adequate documentation for the distribution. An Action Plan has been developed to mitigate these risks. In addition, mitigating measures are proposed at each implementation support and supervision missions, which are monitored regularly. The risk will be adjusted as agreed mitigating measures continue to be implemented.

47. **Environment and Social Safeguard risk is retained as Substantial:** The safeguards risk in the parent project was classified as substantial due to issues around voluntary land donation, land acquisition due to construction of small scale irrigation and market infrastructures, functionality of project-level GRM structures, and potential overlap with the government commune development program. The client undertook, an independent environment and social system audit of AGP2 to assess the functionality of the system. Accordingly, the audit recommended actions to further improve the environmental and social safeguards implementation of the Project. The major proposed activities include: (i) strengthening the functionality of the established grievance redress committees; (ii) assigning environmental and social focal persons in all AGP2 woredas; (iii) enhancing the quality of completed screening templates and safeguards instruments; (iv) applying clear strategies to identify and provide project benefits to underserved and vulnerable groups; (v) preparing land acquisition plan for every sub-project activities that involve land acquisition; (vi) applying voluntary land donation (VLD) guideline to properly observe the minimum requirements; and (vii) monitoring, recording documentation and reporting the environmental and social safeguards implementations every six month.

48. **Climate change risk is retained as Substantial.** Risks related to climate change, particularly droughts, flooding, and erratic rainfall can critically affect project implementation and the achievement of project outcomes. Although the highlands, where the Project is being implemented does not suffer from recurrent droughts in lowland areas, the effect of shifting weather and climatic patterns are being felt in the Project areas, also contributing to crop and livestock losses at household level. The mitigation measures to reduce the impacts of climate risk are imbedded in the technical design of the Project itself, which explicitly aims to reduce adverse outcomes of climate change (specifically drought and flooding) by integrating climate smart agriculture as a cross cutting area across all project components. The current locust plague, though mostly concentrated in the Ethiopian lowlands, if not properly managed and if locust swarms move to the highlands in the Project intervention areas, could significantly damage crop production and adversely affect project performance⁸.

⁸ The World Bank has supported Ethiopia with a US\$63 million financial support from the Regional Emergency Locust Response Program (P173702) to help manage the locust plague in Ethiopia.



IV. APPRAISAL SUMMARY

A. Economic and Financial Analysis

49. The financial analysis for the AF was performed from the perspective of beneficiary households. The Project direct beneficiaries will be farmers. Specifically, farmers will be benefitting from: (i) fertilizers and seed provision; and (ii) irrigation pumps and farm tools. Furthermore, ministry members and extension workers will be equipped with PPE for prevention and control of the COVID-19 pandemic.

50. The GAFSP AF is expected to generate benefits of different types. Such benefits include: (i) increased yields; (ii) increased agricultural income; (iii) improvement in market linkages and post-harvest management; (iv) employment generation; (v) increased resilience to climate change due to irrigation schemes and water management; and (vi) ensured food security and rural poverty reduction.

51. Based on the above benefits, three financial farm models based on 13 one-hectare crop models, each with a 'with' and 'without' project situation, were developed to analyze the financial performance of the economic activities that were supported by the AGP2 AF. The financial discount rate used is 10 percent; the duration is 10 years for the agricultural-farm models. The financial models are detailed in the main Economic and Financial Analysis (EFA) file and discussed below, structured in three groups: (a) Crop and farm models; (b) Household Rainfed (HHR) and (c) HHI models.

52. The economic analysis shows satisfactory results, with a net present value of US\$15.70 million at an opportunity cost of capital of 6 percent and an Economic Internal Rate of Return (EIRR) of 17.2 percent (excluding the environmental benefits), suggesting that the overall project is economically profitable. The financial analysis shows that the targeted activities are sound. Further details are provided in annex 2.

53. **Climate Co-Benefits:** Climate Smart Agriculture, with its emphasis on adaptation and mitigation, is one of the core cross cutting areas of AGP2 and this AF is expected to generate significant climate Co-Benefit. Green House Gas (GHG) accounting of the AF demonstrates that the project can constitute a sizeable net carbon sink of $-113,567$ tCO₂eq over 20 years, thus $-5,678$ tCO₂eq annually, due to the introduction of use of fertilizers, agricultural management practices, and livestock productivity. The annual agricultural activities represent a decrease of $-31,368$ tCO₂eq per year. The use of both electricity, fuel and fertilizer will lead to an increase of $25,690$ tCO₂eq per year to transportation and processing due to improved market and the increased use of fertilizer (Annex 3 provide details of GHG accounting).

B. Technical

54. The technical design for the AF remains the same as the parent project.

C. Financial Management

55. There are no changes in the FM arrangements of the Project for the AF. A summary of FM arrangements is provided below.

56. The Project will continue to follow the government's channel 2 fund flow mechanism and budget system. Each implementing entity will prepare its annual budget and submit to the respective project



coordination units for consolidation. The overall budget for the Project will be approved and proclaimed under the MoA. The Project will continue to use the existing finance manual and Peachtree accounting software/IBEX software. The staffing level and cost centers will remain the same for the AF as in the parent project. The existing foreign currency denominated designated account at the National Bank of Ethiopia will be used to receive resources from the World Bank for the AF and the existing pool account will be used to transfer money into local currency and to transfer to implementing entities. Within 60 days of the quarter end, the project will submit quarterly IFRs to the World Bank which will clearly show the income from the AF and its apportioned expenditure. The Project will continue to submit interim audit report and annual audit report within three months of the semester ended and six months of the year end respectively.

57. The Project will maintain a master list of households/farmers who will be receiving irrigation pumps, hand tools, seeds, fertilizers, and PPE under the AF. Selection criteria of the households should be clearly identified and documented. Proper distribution of the goods is the responsibility of the regional and woreda agriculture offices. Actual distribution will be carried out through the KDC assisted by the kebele level Development Agents. A distribution list (payroll) will be maintained upon distribution of the goods. The beneficiaries should sign on the distribution list (payroll) to confirm receipt of the goods intact. Procured goods should be stored properly and safeguarded. All documentations will be maintained at the respective woreda agriculture offices. A “Guidance Note” detailing the procedures and documents to be maintained for distribution of goods will be prepared and disseminated to all implementing entities. The Interim and Annual audits of the Project should cover the distribution of these goods and the controls over it. The existing Audit terms of reference (ToR) will be amended to include this requirement.

58. An FM assessment has been carried out concluding that the FM arrangements meet the World Bank’s requirement as per the IPF policy and directives. Nevertheless, FM risk remains substantial.

D. Procurement

59. **Project Procurement Strategy for Development (PPSD).** The Borrower has prepared a PPSD, which has been cleared by the World Bank, considering the risks and disruptions caused by COVID 19. The PPSD sets the procurement arrangement and market approach options for procurement activities envisaged under this AF. As required, the PPSD shall be updated to reflect changes in the procurement arrangement which might be required due to a change in requirements, market conditions, procurement environment, and so on.

60. **Systematic Tracking of Exchanges in Procurement (STEP).** The proposed AF will use STEP which is a planning and tracking tool that captures data on major procurement decisions, establish benchmarks, monitor delays and measure procurement performance. The use of STEP at the federal and regional PCU level where the procurement activities under the additional grant will be carried out, is satisfactory.

61. **Procurement Capacity Assessment:** The proposed AF will use the same implementation structure and arrangement established for the ongoing AGP2 and AGP2 AF projects. Thus, the information collected during the supervision missions in the AGP2 is relevant and is primarily used in the procurement capacity assessment of the new project. Besides, the recently concluded Ethiopia’s procurement system assessment using Methodology for Assessing Procurement Systems II tools, covering the federal, sub national and local level procurement systems, served as a major source of information on the country’s



procurement system and its performance. In general, the existing procurement structure in the host agencies with support from the respective PIUs have prerequisite capacity to implement the activities financed by the AF.

62. Nevertheless, the assessments noted that there are still drawbacks in preparing quality procurement documents, inadequate application of post qualification criteria, weaknesses in handling complaints timely and adequately. In addition, the project procurement activities and contract implementation are susceptible to risks associated with COVID-19. Thus, the overall project procurement risk was assessed to be “Substantial”. The residual risk after implementation of agreed actions as stipulated in the parent project, is “Moderate”.

E. Social and Environmental Safeguards

63. The Project’s environmental category would remain unchanged at Category B, and no additional social or environmental safeguards policy would be triggered under the proposed AF.

64. The Borrower had prepared, during the original project and subsequently updated in the first AF, an Environmental and Social Management Framework (ESMF), including a template for the preparation of Environmental and Social Management Plan (ESMP) and an Environmental Guideline for Contractors to be included in bidding documents. Since the project triggered the Pest Management Plan (PMP), its procedure has been included as part of the ESMF. In addition, the ESMF describes the institutional responsibilities, capacities, financial resources and monitoring needs essential to implement mitigation measures.

65. The Borrower had also prepared a Resettlement Policy Framework (RPF) to guide and govern AGP2 subprojects that will entail involuntary resettlement. The RPF provides the basis for preparing Resettlement Action Plan (RAP) for individual subprojects (if required) once their location and scope are known. Whenever a project activity or subproject results in land acquisition, a land-acquisition plan or ARAP (Abbreviated RAP) or RAP, depending on the scope of the land take, will have to be developed and approved by the relevant AGP implementing agencies and the World Bank before the commencement of the sub-project activities. Likewise, as an integral part of the ESMF and RPF, the Social Assessment (SA) has been prepared to clearly define project affected persons who meet the criteria of OP 4.10. and those who fall under the category of vulnerable groups based on the National Social Protection Policy provisions. Besides, mitigation measures have been planned to address properly, those identified social risks and impacts. The ESMF, SA and RPF have been disclosed at MoA’s website and at the World Bank’s external website on August 6, 2020. The ESMF shall be updated before effectiveness of the AF project so that it could cover COVID-19 risk management activities. In addition, the existing Social Assessment will be updated to capture potentially disadvantaged groups or any vulnerabilities, created or exacerbated due to the impact of COVID-19, before effectiveness of the Project.

66. All subprojects that have been financed by the parent project were screened and approved by the respective regulatory bodies following the requirements of the ESMF. These subprojects include establishment of fruit, vegetable and coffee nursery, demonstration of agricultural technologies, equipping regional plant health clinics, construction and rehabilitation of small-scale irrigation dams. Based on the results of the screening reports, ESMPs were prepared for a total of 1447 sub projects. Moreover, 171 full Environmental and Social Impact Assessments (ESIAs) were prepared, reviewed and



approved for subprojects. New SSI subprojects, 2 RAPs prepared for micro dams and 82 Integrated Pest Management Plans (IPMPs) were prepared. As for the implementation of Dam Safety Policy, ESAs were prepared for the micro/small dams which were reviewed and approved by the regulatory agency. Qualified engineers were engaged in the design and construction of the small/ micro dams during the implementation of the parent project. Hence, the implementing agency has gained considerable experience in the preparation and implementation of environmental and social risk management tools.

67. The implementation arrangements for the AF remain the same as the parent project.

V. WORLD BANK GRIEVANCE REDRESS

68. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org

**VI. SUMMARY TABLE OF CHANGES**

| | Changed | Not Changed |
|--|---------|-------------|
| Components and Cost | ✓ | |
| Loan Closing Date(s) | ✓ | |
| Implementing Agency | | ✓ |
| Project's Development Objectives | | ✓ |
| Results Framework | | ✓ |
| Cancellations Proposed | | ✓ |
| Reallocation between Disbursement Categories | | ✓ |
| Disbursements Arrangements | | ✓ |
| Safeguard Policies Triggered | | ✓ |
| EA category | | ✓ |
| Legal Covenants | | ✓ |
| Institutional Arrangements | | ✓ |
| Financial Management | | ✓ |
| Procurement | | ✓ |
| Implementation Schedule | | ✓ |
| Other Change(s) | | ✓ |

VII. DETAILED CHANGE(S)**COMPONENTS**

| Current Component Name | Current Cost (US\$, millions) | Action | Proposed Component Name | Proposed Cost (US\$, millions) |
|--------------------------------------|-------------------------------|--------|--------------------------------------|--------------------------------|
| Agricultural Public Support Services | 129.00 | | Agricultural Public Support Services | 129.00 |
| Agricultural Research | 51.40 | | Agricultural Research | 51.40 |



| | | | | |
|---|---------------|---------|---|---------------|
| Small Scale Irrigation | 278.68 | Revised | Small Scale Irrigation Schemes | 279.43 |
| Agriculture Marketing and Value Chains | 131.57 | Revised | Agriculture Marketing and Value Chains | 135.07 |
| Project Management, Capacity Building and Monitoring and Evaluation | 71.15 | Revised | Project Management, Capacity Building, Monitoring and Evaluation and Learning | 71.90 |
| TOTAL | 661.80 | | | 666.80 |

LOAN CLOSING DATE(S)

| Ln/Cr/Tf | Status | Original Closing | Current Closing(s) | Proposed Closing | Proposed Deadline for Withdrawal Applications |
|-----------|-----------|------------------|--------------------|------------------|---|
| IDA-56050 | Effective | 10-Oct-2020 | 10-Jan-2022 | 15-Jun-2023 | 15-Oct-2023 |
| IDA-D7220 | Effective | 15-Jun-2023 | 15-Jun-2023 | 15-Jun-2023 | 15-Oct-2023 |
| TF-A4876 | Effective | 10-Oct-2020 | 10-Jan-2022 | 15-Jun-2023 | 15-Oct-2023 |
| TF-A7195 | Closed | 30-Sep-2020 | 30-Sep-2020 | 30-Sep-2020 | 30-Jan-2021 |

Expected Disbursements (in US\$)

| Fiscal Year | Annual | Cumulative |
|-------------|----------------|----------------|
| 2015 | 0.00 | 0.00 |
| 2016 | 16,786,270.22 | 16,786,270.22 |
| 2017 | 71,607,310.67 | 88,393,580.89 |
| 2018 | 111,563,165.19 | 199,956,746.08 |
| 2019 | 115,702,444.45 | 315,659,190.53 |
| 2020 | 83,256,735.64 | 398,915,926.17 |
| 2021 | 5,000,000.00 | 403,915,926.17 |
| 2022 | 70,000,000.00 | 473,915,926.17 |
| 2023 | 50,000,000.00 | 523,915,926.17 |
| 2024 | 11,682,000.00 | 535,597,926.17 |



SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

| Risk Category | Latest ISR Rating | Current Rating |
|--|-------------------|----------------|
| Political and Governance | ● Substantial | ● Substantial |
| Macroeconomic | ● Substantial | ● Substantial |
| Sector Strategies and Policies | ● Moderate | ● Moderate |
| Technical Design of Project or Program | ● Low | ● Low |
| Institutional Capacity for Implementation and Sustainability | ● Substantial | ● Substantial |
| Fiduciary | ● Substantial | ● Substantial |
| Environment and Social | ● Substantial | |
| Stakeholders | ● Moderate | ● Moderate |
| Other | ● Substantial | ● Substantial |
| Overall | ● Substantial | ● Substantial |

LEGAL COVENANTS – Second Additional Financing for the Second Agriculture Growth Project (P176564)

Sections and Description

No information available

Conditions

| Type | Financing source | Description |
|---------------|------------------|--|
| Effectiveness | Trust Funds | This Agreement shall not become effective until evidence satisfactory to the Bank has been furnished to the Bank that the ESMF and the Social Assessment have been updated in a manner satisfactory to the Bank. |



VIII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Ethiopia

Second Additional Financing for the Second Agriculture Growth Project

Project Development Objective(s)

The Project Development Objective is to increase agricultural productivity and commercialization of small holder farmers targeted by the project.

Project Development Objective Indicators by Objectives/ Outcomes

| Indicator Name | PBC | Baseline | End Target |
|--|------------|-----------------|-------------------|
| To increase agriculture productivity and commercialization of small holder farmers targeted | | | |
| Percentage increase in yield for selected crops in targeted households benefiting directly from the project- Cereals/pulses (baseline 15.30 quintals per ha) (Percentage) | | 0.00 | 21.80 |
| Female beneficiaries (baseline 13.70 quintals per ha) (Percentage) | | 0.00 | 22.90 |
| Percentage increase in yield for selected crops in targeted households benefiting directly from the project- Vegetables/Fruits (baseline 67.42 quintals per ha) (Percentage) | | 0.00 | 48.60 |
| Female beneficiaries (baseline 20.23 quintals per ha) (Percentage) | | 0.00 | 55.00 |
| Percentage increase in yield for selected livestock products in targeted households benefiting directly from the project - Milk | | 0.00 | 41.24 |



| Indicator Name | PBC | Baseline | End Target |
|--|-----|----------|------------|
| (Baseline 3.90 liters day/cow) (Percentage) (Percentage) | | | |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 10.52 |
| Percentage increase in yield for selected livestock products in targeted households benefiting directly from the project - Eggs (Baseline 4.20 eggs /week/chicken) (Percentage) (Percentage) | | 0.00 | 45.50 |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 85.25 |
| Percentage increase in yield for selected livestock products in targeted households benefiting directly from the project - Honey (Baseline 6 kg/bee hives/year) (Percentage) (Percentage) | | 0.00 | 85.75 |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 285.81 |
| Percentage increase in real revenue from selected crops in targeted household benefiting directly from the project - Cereals/Pulses (Baseline 6279 Birr) (Percentage) (Percentage) | | 0.00 | 128.00 |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 54.00 |
| Percentage increase in real revenue from selected crops in targeted household benefiting directly from the project - Vegetables/Fruits (Baseline 8038 Birr) (Percentage) (Percentage) | | 0.00 | 90.00 |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 29.00 |
| Percentage increase in real revenue from selected livestock products in targeted household benefiting directly from the project - Milk (Baseline 49 Birr) (Percentage) (Percentage) | | 0.00 | 214.00 |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 348.00 |
| Percentage increase in real revenue from selected livestock products in targeted household benefiting directly from the | | 0.00 | 54.00 |



| Indicator Name | PBC | Baseline | End Target |
|---|-----|----------|--------------|
| project - Honey (Baseline 112 Birr) (Percentage) (Percentage) | | | |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 35.00 |
| Percentage increase in real revenue from selected livestock products in targeted household benefiting directly from the project - Eggs (Baseline 62 Birr) (Percentage) (Percentage) | | 0.00 | 44.40 |
| Female beneficiaries (Percentage) (Percentage) | | 0.00 | 49.20 |
| Direct project beneficiaries (Number) | | 0.00 | 1,597,730.00 |
| Female beneficiaries (Percentage) | | 0.00 | 40.00 |

Intermediate Results Indicators by Components

| Indicator Name | PBC | Baseline | End Target |
|--|-----|----------|------------|
| Agricultural Public Support Services | | | |
| Percentage of farmers using public agricultural services (male farmers) (Percentage) | | 26.90 | 50.56 |
| Percentage of farmers using public agricultural services (female farmers) (Percentage) | | 20.10 | 40.56 |
| Number of technologies promoted to public extension services (total and disaggregated by gender sensitive, nutrition and climate smart) (Number) | | 0.00 | 280.00 |



| Indicator Name | PBC | Baseline | End Target |
|--|-----|----------|--------------|
| Climate Smart (Number) | | 0.00 | 20.00 |
| Nutrition (Number) | | 0.00 | 80.00 |
| Gender sensitive (Number) | | 0.00 | 101.00 |
| Percentage increase in crop diversity in targeted households benefiting directly from the project (Percentage) | | 26.50 | 39.75 |
| Clients who have adopted an improved agr. technology promoted by the project (CRI, Number) | | 0.00 | 1,530,000.00 |
| Clients who adopted an improved agr. technology promoted by project – female (Number) | | 0.00 | 608,800.00 |
| Number of gender sensitive technologies demonstrated in the project area (Number) | | 0.00 | 101.00 |
| Agricultural Research | | | |
| Collaborative research sub-projects under implementation/completed - Total FREGs (Number) | | 0.00 | 700.00 |
| Collaborative research sub-projects under implementation/completed - Total Women FREGs (Number) | | 0.00 | 280.00 |
| Collaborative research sub-projects - under implementation - Total FREGs (Number) | | 0.00 | 0.00 |
| Collaborative research sub-projects - under implementation of Total Women FREGs (Number) | | 0.00 | 0.00 |
| Collaborative research sub-projects - Completed for Total FREGs (Number) | | 0.00 | 700.00 |
| Collaborative research sub-projects - completed for Total Women FREGs (Number) | | 0.00 | 280.00 |
| Volume of breeder seeds and pre-basic seeds for criops produced by research centers (quintals/cumulative) (Metric ton) | | 0.00 | 6,290.00 |



| Indicator Name | PBC | Baseline | End Target |
|--|-----|----------|------------|
| Number of demand-driven improved agricultural technologies under research (total and disaggregated by gender sensitive, nutrition and climate smart technologies) (Number) | | 0.00 | 140.00 |
| Gender sensitive (Number) | | 0.00 | 40.00 |
| Nutrition (Number) | | 0.00 | 40.00 |
| Climate smart (Number) | | 0.00 | 40.00 |
| Small Scale Irrigation | | | |
| Water users provided with new/improved irrigation and drainage services (number) (Number) | | 0.00 | 190,000.00 |
| Water users provided with irrigation and drainage services - female (number) (Number) | | 0.00 | 78,000.00 |
| Percentage of functional water user associations managing effectively irrigation and drainage infrastructures (Percentage) | | 0.00 | 70.00 |
| Area provided with irrigation and drainage services (ha) (CRI, Hectare(Ha)) | | 0.00 | 55,000.00 |
| Area provided with irrigation and drainage services - new schemes (Hectare(Ha) (Hectare(Ha)) | | 0.00 | 15,238.50 |
| Area provided with irrigation and drainage services - Improved (ha) (CRI, Hectare(Ha)) | | 8,067.00 | 31,184.50 |
| Area provided with irrigation and drainage services – micro/HH irrigation schemes (Hectare(Ha)) | | 0.00 | 6,693.00 |
| Agriculture Marketing and Value Chains | | | |
| Percentage of CIGs undertaking a viable business activity (disaggregated female) (Percentage) | | 0.00 | 65.00 |



| Indicator Name | PBC | Baseline | End Target |
|---|-----|----------|------------|
| Percentage of CIGs undertaking a viable business activity (disaggregated youth) (Percentage) | | 0.00 | 50.00 |
| Percentage increase in volume of seeds supplied through diversified channels (disaggregated per supplier)- Total (Percentage) | | 0.00 | 15.00 |
| Private agents (Percentage) | | 0.00 | 15.00 |
| Farmers Groups (Percentage) | | 0.00 | 15.00 |
| Cooperatives (Percentage) | | 0.00 | 15.00 |
| Number of commercial partnerships or market contracts signed between producer groups or cooperatives (supported by the project) and domestic/international agribusiness actors (processors, wholesal (Number) | | 0.00 | 45.00 |
| Project Management, Capacity Building and Monitoring and Evaluation | | | |
| Percentage of trainings delivered using AGP agreed capacity development approach (Percentage) | | 0.00 | 90.00 |
| Percentage of GRM addressed from the total claim received (Addressed/received*100). (New Indicator) (Percentage) | | 0.00 | 96.00 |
| Percentage of PAPs whose land have been affected by AGP II and received compensation (in kind or in cash); (Percentage) | | 0.00 | 100.00 |
| Percentage of subprojects for which environmental mitigation measures have been implemented (Percentage) | | 0.00 | 100.00 |
| Annual progress reports meets World Bank quality and timely delivery requirements (Yes/No) | | No | Yes |



Monitoring & Evaluation Plan: PDO Indicators

| Indicator Name | Definition/Description | Frequency | Datasource | Methodology for Data Collection | Responsibility for Data Collection |
|--|--|---------------------------------------|-----------------------------|---------------------------------|---|
| Percentage increase in yield for selected crops in targeted households benefiting directly from the project- Cereals/pulses (baseline 15.30 quintals per ha) | Assess agricultural productivity by a proxy with yield for selected key crops in targeted households (MHH and FHH). The proposed key crops at this stage are the following: cereals (Teff, Barely, Wheat, Maize, Sorghum and sesame); pulse (chick-pea and horse-bean), vegetables including root crops (onions, tomatoes and potatoes) and fruits/Permanent crops (Avocado, Banana, Mangoes and coffee). Two indexes will be developed based on the selected crops (i) cereals and pulses and (ii) vegetables/fruits). The current list of crops will be further defined. | Baseline, mid-term and end of project | Household survey/evaluation | Household survey/evaluation | Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC |
| Female beneficiaries (baseline 13.70 quintals per ha) | Assess agricultural productivity by a proxy with yield for selected key crops in targeted households (MHH and | Baseline, mid-term and end of project | Household survey/evaluation | Household survey/evaluation | Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC |



| | | | | | |
|--|--|--|-------------------------------------|-------------------------------------|--|
| | <p>FHH). The proposed key crops at this stage are the following: cereals (Teff, Barely, Wheat, Maize, Sorghum and sesame) ; pulse (chick-pea and horse-bean), vegetables including root crops (onions, tomatoes and potatoes) and fruits/Permanent crops (Avocado, Banana, Mangoes and coffee). Two indexes will be developed based on the selected crops (i) cereals and pulses and (ii) vegetables/fruits). The current list of crops will be further defined.</p> | | | | |
| <p>Percentage increase in yield for selected crops in targeted households benefiting directly from the project- Vegetables/Fruits (baseline 67.42 quintals per ha)</p> | <p>Assess agricultural productivity by a proxy with yield for selected key crops in targeted households (MHH and FHH). The proposed key crops at this stage are the following: cereals (Teff, Barely, Wheat, Maize, Sorghum and sesame) ; pulse (chick-pea and horse-bean), vegetables including root crops (onions, tomatoes and potatoes)</p> | <p>Baseline, mid-term and end of project</p> | <p>Household survey/ evaluation</p> | <p>Household survey/ evaluation</p> | <p>Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC</p> |



| | | | | | |
|---|--|---------------------------------------|---------------------------------|-----------------------------|---|
| | and fruits/Permanent crops (Avocado, Banana, Mangoes and coffee).Two indexes will be developed based on the selected crops (i) cereals and pulses and (ii) vegetables/fruits). The current listof crops will be further defined. | | | | |
| Female beneficiaries (baseline 20.23 quintals per ha) | Assess agricultural productivity by a proxy with yield for selected key crops in targeted households (MHH and FHH). The proposed key crops at this stage are the following: cereals (Teff, Barely, Wheat, Maize, Sorghum and sesame) ; pulse (chick-pea and horse-bean), vegetables including root crops (onions, tomatoes and potatoes) and fruits/Permanent crops (Avocado, Banana, Mangoes and coffee).Two indexes will be developed based on the selected crops (i) cereals and pulses and (ii) vegetables/fruits). The current listof crops will be further defined. | Baseline, mid-term and end of project | Beneficiaries survey/evaluation | Household survey/evaluation | Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC |



| | | | | | |
|--|--|---------------------------|------------------------------------|------------------------------------|---|
| <p>Percentage increase in yield for selected livestock products in targeted households benefiting directly from the project - Milk (Baseline 3.90 liters day/cow) (Percentage)</p> | <p>Assess agricultural productivity by a proxy with yield for selected key livestock products in targeted households (THH and FHH). The proposed selected key livestock products at this stage are the following: cattle milk, honey and egg (poultry). May not need to aggregate /pack indicators at this level or it will be calculated independently.</p> | <p>End of the project</p> | <p>Household survey report</p> | <p>household survey/evaluation</p> | <p>FPCU (Consulting firm under responsibility and supervision of CU M&E Officer and TC)</p> |
| <p>Female beneficiaries (Percentage)</p> | <p>Assess agricultural productivity by a proxy with yield for selected key livestock products in targeted households (THH and FHH). The proposed selected key livestock products at this stage are the following: cattle milk, honey and egg (poultry). May not need to aggregate /pack indicators at this level or it will be calculated independently.</p> | <p>End of the project</p> | <p>Household survey report</p> | <p>household survey/evaluation</p> | <p>FPCU (Consulting firm under responsibility and supervision of CU M&E Officer and TC)</p> |
| <p>Percentage increase in yield for selected livestock products in targeted households benefiting directly from the project - Eggs (Baseline 4.20 eggs /week/chicken)</p> | <p>Assess agricultural productivity by a proxy with yield for selected key livestock products in</p> | <p>End of the Project</p> | <p>household survey/evaluation</p> | <p>Household survey/evaluation</p> | <p>FPCU(Consulting firm under responsibility and supervision of CU M&E Officer and TC)</p> |



| | | | | | |
|--|---|--------------------|------------------------------------|-----------------------------|---|
| (Percentage) | targeted households (THH and FHH). The proposed selected key livestock products at this stage are the following: cattle milk, honey and egg (poultry). May not need to aggregate /pack indicators at this level or it will be calculated independently. | | | | |
| Female beneficiaries (Percentage) | Assess agricultural productivity by a proxy with yield for selected key livestock products in targeted households (THH and FHH). The proposed selected key livestock products at this stage are the following: cattle milk, honey and egg (poultry). May not need to aggregate /pack indicators at this level or it will be calculated independently. | End of the Project | Household survey/evaluation | Household survey/evaluation | FPCU(Consulting firm under responsibility and supervision of CU M&E Officer and TC) |
| Percentage increase in yield for selected livestock products in targeted households benefiting directly from the project - Honey (Baseline 6 kg/bee hives/year) (Percentage) | Assess agricultural productivity by a proxy with yield for selected key livestock products in targeted households (THH and FHH). The proposed selected key livestock products at this stage are | End of the project | household survey/evaluation report | household survey/evaluation | FPCU |



| | | | | | |
|---|---|--------------------|------------------------------------|------------------------------------|---|
| | the following: cattle milk, honey and egg (poultry). May not need to aggregate /pack indicators at this level or it will be calculated independently. | | | | |
| Female beneficiaries (Percentage) | Assess agricultural productivity by a proxy with yield for selected key livestock products in targeted households (THH and FHH). The proposed selected key livestock products at this stage are the following: cattle milk, honey and egg (poultry). May not need to aggregate /pack indicators at this level or it will be calculated independently. | End of the project | Household survey/evaluation report | Household survey/evaluation report | FPCU(Consulting firm under responsibility and supervision of CU M&E Officer and TC) |
| Percentage increase in real revenue from selected crops in targeted household benefiting directly from the project - Cereals/Pulses (Baseline 6279 Birr) (Percentage) | Assess the level of commercialization of the crop production by targeted households (THH and FHH) for selected key crops. The proposed key crops at this stage are the following: Horticulture (fruits (TBD), vegetables (onions, tomatoes and potatoes)), Cereals (wheat, maize, | End of project | Household survey/evaluation report | Household survey/evaluation | FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC |



| | | | | | |
|-----------------------------------|---|----------------|-------------------------------------|------------------------------|--|
| | <p>coffee, sesame, chickpea, teff, sorghum, barley and fava beans). The current list of crops will be further defined. The indicator is disaggregated by cereals/pulses and vegetables/fruits groups. This indicator will be deflated by consumer price index</p> | | | | |
| Female beneficiaries (Percentage) | <p>Assess the level of commercialization of the crop production by targeted households (THH and FHH) for selected key crops. The proposed key crops at this stage are the following: Horticulture (fruits (TBD), vegetables (onions, tomatoes and potatoes)), Cereals (wheat, maize, coffee, sesame, chickpea, teff, sorghum, barley and fava beans). The current list of crops will be further defined. The indicator is disaggregated by cereals/pulses and vegetables/fruits groups.</p> | End of project | Household survey/ evaluation report | Household survey/ evaluation | FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC |



| | | | | | |
|--|---|----------------|-------------------------------------|-----------------------------|--|
| | This indicator will be deflated by consumer price index | | | | |
| Percentage increase in real revenue from selected crops in targeted household benefiting directly from the project - Vegetables/Fruits (Baseline 8038 Birr) (Percentage) | Assess the level of commercialization of the crop production by targeted households (THH and FHH) for selected key crops. The proposed key crops at this stage are the following: Horticulture (fruits (TBD), vegetables (onions, tomatoes and potatoes)), Cereals (wheat, maize, coffee, sesame, chickpea, teff, sorghum, barley and fava beans). The current list of crops will be further defined. The indicator is disaggregated by cereals/pulses and vegetables/fruits groups. This indicator will be deflated by consumer price index | End of Project | Household survey/evaluation reports | Household survey/evaluation | FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC |
| Female beneficiaries (Percentage) | Assess the level of commercialization of the crop production by | End of project | Household survey/evaluation | Household survey/evaluation | FPCU/Consulting firm under responsibility and supervision of CU M&E |



| | | | | | |
|---|--|----------------|------------------------------------|-----------------------------|--|
| | <p>targeted households (THH and FHH) for selected key crops. The proposed key crops at this stage are the following:</p> <p>Horticulture (fruits (TBD), vegetables (onions, tomatoes and potatoes)), Cereals (wheat, maize, coffee, sesame, chickpea, teff, sorghum, barley and fava beans). The current list of crops will be further defined. The indicator is disaggregated by cereals/pulses and vegetables/fruits groups. This indicator will be deflated by consumer price index</p> | | report | | Officer and TC |
| <p>Percentage increase in real revenue from selected livestock products in targeted household benefiting directly from the project - Milk (Baseline 49 Birr) (Percentage)</p> | <p>Assess the level of commercialization of the livestock production by targeted beneficiaries for Cattle Milk.</p> <p>This indicator will be deflated by consumer price index</p> | End of project | Household survey/evaluation report | Household survey/evaluation | FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC |



| | | | | | |
|---|--|---------------------------|--|------------------------------------|---|
| <p>Female beneficiaries (Percentage)</p> | <p>Assess the level of commercialization of the livestock production by targeted beneficiaries for Cattle Milk.</p> <p>This indicator will be deflated by consumer price index</p> | <p>End of project</p> | <p>Household survey/evaluation report</p> | <p>Household survey/evaluation</p> | <p>FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC</p> |
| <p>Percentage increase in real revenue from selected livestock products in targeted household benefiting directly from the project - Honey (Baseline 112 Birr) (Percentage)</p> | <p>Assess the level of commercialization of the livestock production by targeted beneficiaries for Honey.</p> <p>This indicator will be deflated by consumer price index</p> | <p>End of the project</p> | <p>Household survey/evaluation reports</p> | <p>Household survey/evaluation</p> | <p>FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC</p> |
| <p>Female beneficiaries (Percentage)</p> | <p>Assess the level of commercialization of the livestock production by targeted beneficiaries for Honey.</p> <p>This indicator will be deflated by consumer price index</p> | <p>End of the project</p> | <p>Household survey/evaluation reports</p> | <p>Household survey/evaluation</p> | <p>FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC</p> |



| | | | | | |
|--|--|------------------------------------|---------------------------------------|-----------------------------|--|
| Percentage increase in real revenue from selected livestock products in targeted household benefiting directly from the project - Eggs (Baseline 62 Birr) (Percentage) | Assess the level of commercialization of the livestock production by targeted beneficiaries for Eggs. This indicator will be deflated by consumer price index | End of the project | Household survey/evaluation reports | Household survey/evaluation | FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC |
| Female beneficiaries (Percentage) | Assess the level of commercialization of the livestock production by targeted beneficiaries for Eggs. This indicator will be deflated by consumer price index | End of the project | Household survey/evaluation reports | Household survey/evaluation | FPCU/Consulting firm under responsibility and supervision of CU M&E Officer and TC |
| Direct project beneficiaries | | M&E Officers (FPCU, RPCUs and IAs) | Baseline, mid-term and end of project | | Annually, starting year 2. |
| Female beneficiaries | | M&E Officers (FPCU, RPCUs and IAs) | Baseline, mid-term and end of project | | Annually, starting year 2. |



Monitoring & Evaluation Plan: Intermediate Results Indicators

| Indicator Name | Definition/Description | Frequency | Datasource | Methodology for Data Collection | Responsibility for Data Collection |
|--|---|--|---|---------------------------------|--|
| Percentage of farmers using public agricultural services (male farmers) | | Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC | Household survey/evaluation Qualitative study extension services | | Baseline, mid-term and end of project Mid-term and end of project |
| Percentage of farmers using public agricultural services (female farmers) | The percentage of farmers using public agricultural services (male and female) will be analyzed per type of services: (i) extension services (through (a) farmers training and demonstration at FTCs by | Consulting firm/university under responsibility and supervision of PCU M&E | Qualitative study extension services | | Mid-term and end of project |



| | | | | | |
|---|---|----------------------------|------------------|--|------------------------------|
| | DAs; (b) farmer field days; (c) advice/demonstrations by DAs (crops, livestock, NRM) on farmers plots and other site); (ii) animal health services (farmers using animal health clinics and animal health posts); and (iii) farmers benefiting from insemination services for their livestock. | Officer and TC | | | |
| Number of technologies promoted to public extension services (total and disaggregated by gender sensitive, nutrition and climate smart) | Assess if technologies reached the stage of being promoted to public extension services. Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; and technologies that are accessible and affordable by women farmers. Technologies for nutrition refers to technologies: (i) increasing production and consumption for a range of diverse nutrient dense food; and (ii) improving post harvest handling, | EIAR, RARIs, M&E Officers) | Progress Reports | | Bi-annually, starting year 2 |



| | | | | | |
|---------------|--|--|---------------------------------|--|---------------------------------|
| | <p>preservation and processing to improve availability of good nutritional quality and safe food. Climate smart technologies under the project refer to technologies that increase productivity and resilience (adaptation).. Not all technologies are gender sensitive or contributing to improved nutrition or climate smart, but it is still critical to know for the project how many are being promoted to public extension services.</p> | | | | |
| Climate Smart | <p>Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; (iii) and technologies that are accessible and affordable by women farmers. Technologies reducing women farm labor and the time that female farmers</p> | <p>Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC</p> | <p>Qualitative survey/study</p> | | <p>Annually starting year 2</p> |



| | | | | | |
|--|--|--|--|--|--|
| | <p>need to perform household duties could enable them to devote more time to productive farm activities. Qualitative studies will capture the type of gender sensitive technologies demonstrated including technologies for nutrition. Technologies for nutrition refers to technologies: (i) increasing production and consumption for a range of diverse nutrient dense food; and (ii) improving post harvest handling, preservation and processing to improve availability of good nutritional quality and safe food. Not all technologies are reducing the amount of women farm labor or reducing the time spent on household duties or contributing to improved nutrition, but it is still critical to know for the project if they are being demonstrated.</p> | | | | |
|--|--|--|--|--|--|



| | | | | | |
|-----------|--|---|--------------------------|--|--------------------------|
| Nutrition | <p>Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; (iii) and technologies that are accessible and affordable by women farmers. Technologies reducing women farm labor and the time that female farmers need to perform household duties could enable them to devote more time to productive farm activities. Qualitative studies will capture the type of gender sensitive technologies demonstrated including technologies for nutrition. Technologies for nutrition refers to technologies: (i) increasing production and consumption for a range of diverse nutrient dense food; and (ii) improving post harvest handling, preservation and</p> | Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC | Qualitative survey/study | | Annually starting year 2 |
|-----------|--|---|--------------------------|--|--------------------------|



| | | | | | |
|------------------|---|---|--------------------------|--|--------------------------|
| | processing to improve availability of good nutritional quality and safe food. Not all technologies are reducing the amount of women farm labor or reducing the time spent on household duties or contributing to improved nutrition, but it is still critical to know for the project if they are being demonstrated. | | | | |
| Gender sensitive | Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; (iii) and technologies that are accessible and affordable by women farmers. Technologies reducing women farm labor and the time that female farmers need to perform household duties could enable them to devote more time to productive farm activities. Qualitative | Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC | Qualitative survey/study | | Annually starting year 2 |



| | | | | | |
|--|--|--|------------------------------------|--|---|
| | <p>studies will capture the type of gender sensitive technologies demonstrated including technologies for nutrition. Technologies for nutrition refers to technologies: (i) increasing production and consumption for a range of diverse nutrient dense food; and (ii) improving post harvest handling, preservation and processing to improve availability of good nutritional quality and safe food. Not all technologies are reducing the amount of women farm labor or reducing the time spent on household duties or contributing to improved nutrition, but it is still critical to know for the project if they are being demonstrated.</p> | | | | |
| <p>Percentage increase in crop diversity in targeted households benefiting directly from the project</p> | <p>A crop diversity index will be constructed from the AGP2 production data collected through the household survey.</p> | <p>Consulting firm/university under responsibility and supervision</p> | <p>Household survey/evaluation</p> | | <p>Baseline, MTR and end of project</p> |



| | | | | | |
|--|--|--|---|--|---|
| | | of PCU M&E Officer | | | |
| Clients who have adopted an improved agr. technology promoted by the project | This indicator measures the number of clients of the project who have adopted an improved agricultural technology promoted by the project. | M&E Officers, (FPCU, RPCUs, IAs) Consulting firm/university under responsibility and supervision of PCU M&E Officer and TC | Progress Reports Qualitative study/survey | | Annually, starting year 2 MTR and end of project |
| Clients who adopted an improved agr. technology promoted by project – female | | No description provided. | No description provided. | | No description provided. |
| Number of gender sensitive technologies demonstrated in the project area | This indicator assesses the number of gender sensitive technologies demonstrated by the project. Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; and (iii) | M&E Officers, (FPCU, RPCUs, IAs) Consulting firm/university under responsibility and supervision of PCU | Progress Reports Qualitative survey/study | | Annually, starting year 2 Annually starting year 2 |



| | | | | | |
|--|--|-----------------------------|------------------|--|------------------------------|
| | technologies that are accessible and affordable by women farmers. | M&E Officer and TC | | | |
| Collaborative research sub-projects under implementation/completed - Total FREGs | This indicator refers to the FREGs and shows the growth in formal collaboration between the public research, extension services and farmers. "Under implementation" is defined as a FREG for which a contractual arrangement has been established. | (EIAR, RARIs, M&E Officers) | Progress Reports | | Bi-annually, starting year 2 |
| Collaborative research sub-projects under implementation/completed - Total Women FREGs | This indicator refers to the FREGs and shows the growth in formal collaboration between the public research, extension services and farmers. "Under implementation" is defined as a FREG for which a contractual arrangement has been established. | (EIAR, RARIs, M&E Officers) | Progress Reports | | Bi-annually, starting year 2 |
| Collaborative research sub-projects - under implementation - Total FREGs | This indicator refers to the FREGs and shows the growth in formal collaboration between the public research, extension services and farmers. | (EIAR, RARIs, M&E Officers) | Progress Reports | | Bi-annually, starting year 2 |



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| Collaborative research sub-projects - under implementation of Total Women FREGs | This indicator refers to the FREGs and shows the growth in formal collaboration between the public research, extension services and farmers. | Consulting firm/university under responsibility and supervision of CU M&E Officer and TC | Qualitative study | | MTR and end evaluation |
| Collaborative research sub-projects - Completed for Total FREGs | This indicator refers to the FREGs and shows the growth in formal collaboration between the public research, extension services and farmers | (EIAR, RARIs, M&E Officers) | Progress Reports | | Bi-annually, starting year 2 |
| Collaborative research sub-projects - completed for Total Women FREGs | This indicator refers to the FREGs and shows the growth in formal collaboration between the public research, extension services and farmers. | Consulting firm/university under responsibility and supervision of CU M&E Officer and TC | Qualitative study | | MTR and end evaluation |
| Volume of breeder seeds and pre-basic seeds for criops produced by research centers (quintals/cumulative) | This indicator assesses the capacity of research centers to provide breeder seeds and pre-basic seeds. The supply of breeder seeds and pre-basic seeds is critical to ensure the production of seeds (under | (EIAR, RARIs, M&E Officers) | Progress report | | Annually |



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| | component 4) by farmers, cooperatives and private agents. | | | | |
| Number of demand-driven improved agricultural technologies under research (total and disaggregated by gender sensitive, nutrition and climate smart technologies) | It is an indicator to assess the quality of the processes that led to the selection of technologies under research. The terms demand driven and improved refers to the quality of the processes to have the technology under research: (i) the identification of technologies under research is demand-driven: based on farmers, extension services and other actors demand to address specific issues; (ii) the technologies under research contributes to productivity and commercialization; (iii) the choice of technologies under research take into account mainstreaming of gender, nutrition, and climate smart; and (iv) the choice of technologies under research is in line with the value chains of the | (EIAR, RARIs, M&E Officers, TC) | Qualitative study/Desk review (process and potential impact) | | Annually |



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| | <p>project. If few technologies under research are selected through a qualitative process chances are that the number of technologies promoted to extension services will be very low. Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; (iii) and technologies that are accessible and affordable by women farmers. Technologies for nutrition refers to technologies: (i) increasing production and consumption for a range of diverse nutrient dense food; and (ii) improving post harvest handling, preservation and processing to improve availability of good nutritional quality and safe food. Climate smart technologies refer to</p> | | | | |
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| | technologies that increase productivity and resilience (adaptation. Not all technologies are gender sensitive or contributing to improved nutrition or climate smart, but it is still critical to know for the project how many are being under research. | | | | |
| Gender sensitive | It is an indicator to assess the quality of the processes that led to the selection of technologies under research. The terms demand driven and improved refers to the quality of the processes to have the technology under research: (i) the identification of technologies under research is demand-driven: based on farmers, extension services and other actors demand to address specific issues; (ii) the technologies under research contributes to productivity and commercialization; (iii) the choice of technologies | (EIAR, RARIs, M&E Officers, TC) | Qualitative study/Desk review (process and potential impact) | | Annually |



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| | <p>under researchtake into account mainstreaming of gender, nutrition, and climate smart; and (iv) the choice of technologies under research is in line with the value chains of the project.</p> <p>Gender sensitive technologies are defined as: (i) technologies based on needs and interestof female farmers; (ii) technologies that reduce time and labor for women farmers; (iii) and technologies that are accessible and affordable by women farmers.</p> <p>Technologies for nutrition refers to technologies: (i) increasing production and consumption for a rangeof diverse nutrient dense food; and (ii) improving post harvest handling, preservation and processing to improve availability of goodnutritional quality and safe food. Climate smart technologies refer to</p> | | | | |
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| | <p>technologies that increase productivity and resilience (adaptation. Not all technologies are gender sensitive or contributing to improved nutrition or climate smart, but it is still critical to know for the project how many are being under research. First year is dedicated to the demand assessment survey that will determine the exact number of technologies to be under research.</p> | | | | |
| Nutrition | <p>It is an indicator to assess the quality of the processes that led to the selection of technologies under research. The terms demand driven and improved refers to the quality of the processes to have the technology under research: (i) the identification of technologies under research is demand-driven: based on farmers, extension services and other actors demand to</p> | <p>(EIAR, RARIs, M&E Officers, TC)</p> | <p>Qualitative study/Desk review (process and potential impact)</p> | | <p>Annually</p> |



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| | <p>address specific issues; (ii) the technologies under research contributes to productivity and commercialization; (iii) the choice of technologies under research take into account mainstreaming of gender, nutrition, and climate smart; and (iv) the choice of technologies under research is in line with the value chains of the project.</p> <p>Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; (iii) and technologies that are accessible and affordable by women farmers.</p> <p>Technologies for nutrition refers to technologies: (i) increasing production and consumption for a range of diverse nutrient dense food; and (ii) improving post harvest handling,</p> | | | | |
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| | <p>preservation and processing to improve availability of goodnutritional quality and safe food. Climate smart technologies refer to technologies that increase productivity and resilience (adaptation. Not all technologies are gender sensitive or contributing to improved nutrition or climate smart, but it is still critical to know for the project how many are being under research. First year is dedicated to the demand assessment survey that will determine the exact number of technologies to be under research.</p> | | | | |
| Climate smart | <p>It is an indicator to assess the quality of the processes that led to the selection of technologies under research. The terms demand driven and improved refers to the quality of the processes to have the technology under research: (i) the</p> | <p>(EIAR, RARIs, M&E Officers, TC)</p> | <p>Qualitative study/Desk review (process and potential impact)</p> | | <p>Annually</p> |



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|--|---|--|--|--|--|
| | <p>identification of technologies under research is demand-driven: based on farmers, extension services and other actors demand to address specific issues; (ii) the technologies under research contributes to productivity and commercialization; (iii) the choice of technologies under research take into account mainstreaming of gender, nutrition, and climate smart; and (iv) the choice of technologies under research is in line with the value chains of the project.</p> <p>Gender sensitive technologies are defined as: (i) technologies based on needs and interest of female farmers; (ii) technologies that reduce time and labor for women farmers; (iii) and technologies that are accessible and affordable by women farmers.</p> <p>Technologies for nutrition</p> | | | | |
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| | refers to technologies: (i) increasing production and consumption for a range of diverse nutrient dense food; and (ii) improving post harvest handling, preservation and processing to improve availability of good nutritional quality and safe food. Climate smart technologies refer to technologies that increase productivity and resilience (adaptation. Not all technologies are gender sensitive or contributing to improved nutrition or climate smart, but it is still critical to know for the project how many are being under research. First year is dedicated to the demand assessment survey that will determine the exact number of technologies to be under research. | | | | |
| Water users provided with new/improved irrigation and drainage services (number) | This indicator measures the number of water users who are provided with irrigation and drainage services | M&E Officers, (FPCU, RPCUs, | Progress report | | Bi-annually, starting year 2 |



| | | | | | |
|---|--|--|---|--|---|
| | under the project. | BoW) | | | |
| Water users provided with irrigation and drainage services - female (number) | | | | | |
| Percentage of functional water user associations managing effectively irrigation and drainage infrastructures | Assesses the functionality IWUAs and their effective management of irrigation and drainage infrastructures of the project—as a proxy for measuring their efficient use of irrigation water. The efficiency of water use will also be assessed more in depth through a qualitative study of a sample of irrigation water user associations and irrigation and drainage infrastructures. Functional irrigation water user associations refer to an association with: (i) registered with supervising body (to be designated by each regional states); (ii) trained members (water management, water savings method, irrigation farming methods, new irrigation technologies, | M&E Officers, (FPCU, RPCUs, BoW) Consulting firm supervised by M&E Officer | Progress report Qualitative evaluation (including evaluation of efficiency use of water) | | Bi-annually, starting year 2 MTR and end of project |



| | | | | | |
|--|--|----------------------------------|-----------------|--|------------------------------|
| | <p>maintenance of infrastructure, book keeping, financial management, etc.); (iii) has by laws (rules for consumption of irrigation water and collect fees); (vi) collect fees; and (vi) 30 percent women members (if sufficient women have land use right in the specific irrigation scheme) in addition the project will push as much as possible for at least 50 percent of the women members in leadership position. Managing effectively refers to (i) effective maintenance and operation of the irrigation and drainage system; (ii) development of specific scheduling of water delivery; and (iii) delivery of water to farmers plots in the right quantity and at an appropriate time.</p> | | | | |
| Area provided with irrigation and drainage services (ha) | | M&E Officers, (FPCU, RPCUs, BoW) | Progress report | | Bi-annually, starting year 2 |



| | | | | | |
|---|---|--|--|--|-----------------------------------|
| Area provided with irrigation and drainage services - new schemes (Hectare(Ha | As above, for new services. | M&E Officers, (FCU, RCUs, BoW) | Progress report | | Bi-annually, starting year 2 |
| Area provided with irrigation and drainage services - Improved (ha) | | Semi-annually starting from 2021 | Progress reports | | M&E Officers, (FCU, RCUs and BoW) |
| Area provided with irrigation and drainage services – micro/HH irrigation schemes | Irrigation and drainage services refers to the better delivery of water to, and drainage of water from, arable land, including better timing, quantity, quality, and cost-effectiveness for the water users. The data are disaggregated by new SSI and improved. New includes new SSI, Micro irrigation structures and HHI, as women farmers are mostly beneficiary from HHI. | Semi-annual | Progress reports | | M&E Officers, (FCU, RCUs and BoW) |
| Percentage of CIGs undertaking a viable business activity (disaggregated female) | It assesses the sustainability of the business for the CIGs. It means that: (i) the members make profit with the activity they undertake as an individual in the CIG; | M&E Officer, (FPCU, RPCUs, USAID) Qualitative evaluation | Progress report MTR and Final Evaluation | | Annually, starting at MTR |



| | | | | | |
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| | (ii) the CIG itself makes profit; (v) the reserves of the group are increased until they are sufficient to cover the costs of a full business cycle. | | | | |
| Percentage of CIGs undertaking a viable business activity (disaggregated youth) | It assesses the sustainability of the business for the CIGs. It means that: (i) the members make profit with the activity they undertake as an individual in the CIG; (ii) the CIG itself makes profit; (v) the reserves of the group are increased until they are sufficient to cover the costs of a full business cycle. | M&E Officer, (FPCU, RPCUs, USAID) Qualitative evaluation | MTR and Final Evaluation | | Annually, starting at MTR |
| Percentage increase in volume of seeds supplied through diversified channels (disaggregated per supplier)- Total | This indicator measure the percentage increase in volume of seeds produced per VCs per type of channels (private agents; farmers groups; and cooperatives). Seeds are defined as grain crops. | USAID, CU M&E Officer | Progress report | | Annually, starting year 2 |
| Private agents | This indicator measure the percentage increase in volume of seeds produced per VCs per type of channels (private agents; | USAID, CU M&E Officer | Progress report | | Annually, starting year 2 |



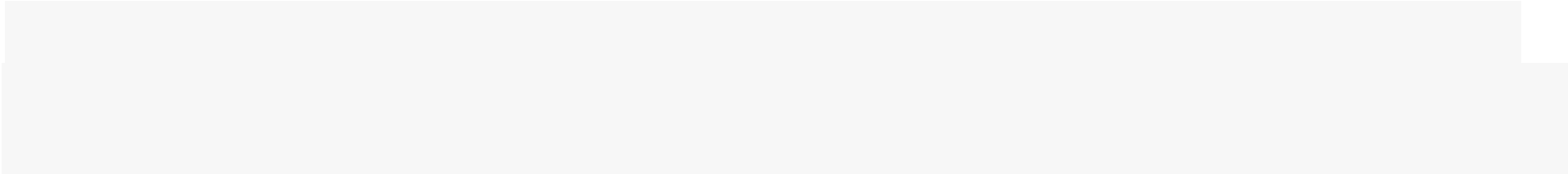
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| | farmers groups; and cooperatives). Seeds are defined as grain crops. | | | | |
| Farmers Groups | This indicator measure the percentage increase in volume of seeds produced per VCs per type of channels (private agents; farmers groups; and cooperatives). Seeds are defined as grain crops. | USAID, CU M&E Officer | Progress report | | Annually, starting year 2 |
| Cooperatives | This indicator measure the percentage increase in volume of seeds produced per VCs per type of channels (private agents; farmers groups; and cooperatives). Seeds are defined as grain crops. | USAID, CU M&E Officer | Progress report | | Annually, starting year 2 |
| Number of commercial partnerships or market contracts signed between producer groups or cooperatives (supported by the project) and domestic/international agribusiness actors (processors, wholesal | This indicator assesses the effectiveness of component 4 at improving market access and establishing commercial linkages between farmer groups or cooperatives and domestic, regional and international agribusiness actors such as processors, wholesalers, retailers, exporters, etc. Producer groups are | USAID, PCU M&E Officer | Survey/Evaluation | | Bi-annually starting year 2 |



| | | | | | |
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| | defined as CIGs. | | | | |
| Percentage of trainings delivered using AGP agreed capacity development approach | This indicator measures the quality of the capacity building under the project. The definition of capacity development approach will be defined once AGP2 has developed a detailed capacity development approach for the overall project. It is expected the assessment will be conducted by the capacity building facility supported by DFATD. | TA for capacity development supervised by M&E Officer and Capacity Building Officer | Qualitative evaluation of a sample of trainings | | Annually |
| Percentage of GRM addressed from the total claim received (Addressed/received*100). (New Indicator) | Assess the number of grievances presented, documented and addressed at all level of GRM established Percentage of grievance presented by female from total grievance, documented and solved ; this includes FHH and MF | Quarterly | Monitoring and evaluation reports | Monitoring and evaluation | Federal Social Safeguard and Environmental safeguard Specialists and Regional ESSs |
| Percentage of PAPs whose land have been affected by AGP II and received compensation (in kind or in cash); | Assess percentage of PAPs who have been affected by AF for cost overrun and received compensation from the total | Quarterly | Monitoring and supervision reports | Monitoring and supervision | Federal Social Safeguard and Environmental safeguard Specialists and Regional ESSs |



| | | | | | |
|---|--|--------------------------|-----------------------------------|--|--|
| | Percentage of female whose land or asset have been affected by the project; this includes FHH and MF | | | | |
| Percentage of subprojects for which environmental mitigation measures have been implemented | Assess percentage of sub projects for which appropriate environmental mitigation measures have been implemented | Quarterly | Monitoring and evaluation reports | | Federal Social Safeguard and Environmental safeguard Specialists and Regional ESSs |
| Annual progress reports meets World Bank quality and timely delivery requirements | This indicator only measures whether or not the M&E system ensure its basic function of providing quality and timely data for: identification of issues, tracking of progress towards intermediate outcomes and outcomes and support effective decision-making for project coordination unit. Quality requirements refer to the agreed format for reporting (data, analysis, recommendations, etc.) and therequired data (such as results framework and other critical indicators/data agreed upon). | M&E Officers /World Bank | Progress reports/Review | | Annually |





ANNEX 1: IMPACT OF THE COVID-19 PANDEMIC ON THE COUNTRY AND GOVERNMENT RESPONSE

- 1. The outbreak of the COVID-19 pandemic has had a serious health impact.** As of June 17, 2021, over 274,775 COVID-19 cases with 4,262 fatalities were registered, with a sharp acceleration in recent months. These figures are the second largest in absolute terms among Sub-Saharan African countries, after South Africa, though the caseload and mortality as a percentage of the population are near the median for the overall region. The pandemic has overstretched the health system and affected the delivery of essential health services. Other socio-economic impacts being felt across Ethiopia are already wide-ranging and serious, with the potential to become severe, depending on the combination of the pandemic's trajectory and the effects of countermeasures.
- 2. COVID-19 is seriously threatening Ethiopia's gains in growth and poverty reduction.** Ethiopia grew at 6.1 percent in Fiscal Year 2020, compared to 9 percent in Fiscal Year 2019, as the impact of the COVID-19 pandemic took place largely in the final quarter of the fiscal year. However, the collapse in external demand experienced since the onset of the COVID-19 crisis, coupled with the effects of restrictions in domestic demand, is expected to result in a further growth slowdown in Fiscal Year 2021. Merchandise exports, excluding gold, declined by 11.9 percent during July-September 2020 (year-on-year). Both exports and imports of services, dominated by air transport, recorded negative growth in Fiscal Year 2020. Meanwhile, foreign direct investment has been severely hit, with inflows declining by 20 percent in Fiscal Year 2020, contributing to weakening reserve levels. The consequent reduction in government revenue is putting pressure on its provision of social services. Government spending and investment has been an important engine of poverty reduction in the past and reduced spending resulting from decreased government revenue and foreign exchange may have detrimental long-term effects on the poor.⁹
- 3. Economic impacts of COVID-19 are already being felt by households, and although impacts are more severe in urban areas, rural households are also affected.** High-frequency monitoring surveys of households conducted by the World Bank in Ethiopia since April 2020 shows that the COVID-19 pandemic is affecting economic activity, households' incomes, and food security. The survey results indicate that by April 2020 about half of households had experienced either a reduction or a total loss of income since the viral outbreak. Though fewer households have subsequently reported further income erosion, apparently income losses have not yet bottomed out: a quarter of them reported reductions between August and September. Food security is a major concern in Ethiopia, particularly for rural residents, and is at the heart of the country's social protection system. According to the COVID-19 monitoring survey about four in ten rural households in Ethiopia were still experiencing moderate or severe food insecurity in September compared to 30 percent in urban areas. An estimated 1.4 million jobs, accounting for 19 percent of current employment, were estimated to be threatened due to the crisis during the second half of 2020.
- 4. The pandemic and associated containment measures have adversely impacted the private sector, particularly in the horticulture, hotel, tourism and travel sectors as well as manufacturing firms in the industrial parks.** In Fiscal Year 2019, export revenues generated from the horticulture sector, which

⁹ World Bank. 2020. "COVID-19: Potential Poverty and Social Impacts in Ethiopia and Policy Responses." *Poverty and Equity Global Practice: Ethiopia COVID Response Notes*.



includes flowers, fruits, vegetables, herbs and spices, stood at US\$318 million. Following the outbreak in early March 2020, most European and Middle Eastern countries closed their borders. As a result, the horticulture sector has suffered a significant loss. In a similar vein, the private sector in the apparel and garment industry experienced an unprecedented global demand shock. Disruptions to the global value chains continue to weigh on the supply of intermediate inputs and imported raw materials, which are vital for the manufacturing sector. Against this backdrop, several small and micro enterprises have shifted their production lines to fulfill the growing need for both PPE and items for consumer use such as masks and hand sanitizers. As most workers in industrial parks are women, the pandemic weighs more adversely on women's participation in the labor force.

5. **The government health services response to COVID-19 has been robust.** The GoE declared a state of emergency under Article 93 of the constitution on April 8, 2020. It moved quickly to institute measures to limit the spread of COVID-19, including outreach activities for awareness raising and behavioral changes, expanding COVID-19 testing capacity and institutions to provide clinical care and quarantine for COVID-19 suspects and patients; and establishment of a multisectoral COVID-19 response taskforce and coordination platforms at each level of government.

6. **The government has also adopted several measures to address the social and economic impacts of the pandemic.** Measures aimed at mitigating the impacts on people include additional expenditure on healthcare, indexation of safety net benefits, provision of temporary incomes support and/or emergency food aid to the vulnerable, introduction of guidelines to ensure the distribution of agricultural inputs. To support firms, authorities have adopted temporary tax exemptions and preferential access to currency for those firms importing raw materials and equipment to be used in the prevention and containment of COVID-19, and have allowed businesses to carry forward the loss incurred this fiscal year, as well as to take advantage of some tax deferrals and waivers. In the financial sector, the National Bank of Ethiopia has provided ETB 15 billion liquidity in support of private commercial banks to allow them to provide debt relief and refinancing to customers in need, and forbearance limits have been extended. In addition, mobile banking limits at the CBE has been increased, and a new eTransactions proclamation has been adopted by the Parliament. The government adjusted quickly its rural and urban Productive Safety Net Programs (PSNPs) by waiving the work requirements, increasing coverage to more beneficiaries and increasing temporarily the benefit amounts paid to particularly vulnerable households. The government also decided to expand the urban PSNP to more cities more quickly to provide support for particularly affected urban poor households (including refugees and host communities), and also promote youth employment and enhance job search services to support the economic and social recovery. To address the negative impacts of the pandemic on education, the government is promoting adjustments in the sector such as advancing the establishment of digital learning platforms and providing additional school grants to support the re-opening of schools.

7. **The government is proactively managing its unanticipated financing needs.** Revenue mobilization at the federal level is estimated to have declined by the equivalent of 0.5 percent of GDP in Fiscal Year 2020, with domestic direct and indirect tax collection impacted by COVID-19. Preliminary data suggests despite the surge in healthcare spending in response to the pandemic, expenditure execution fell short from budgeted amounts. Overall, the federal government's fiscal deficit is estimated to have widened from 2.5 percent of GDP in Fiscal Year 2019 to 2.8 percent of GDP in Fiscal Year 2020. The deficit is expected to further increase in Fiscal Year 2021, to 3 percent of GDP, as the economic impacts of the crisis continue to be felt. Meanwhile, the external financing gap has increased by an estimate of US\$1.8



billion with respect to pre-COVID-19 projections, to a total of about US\$5.2 billion in Fiscal Year 2021. Expected financing sources include official transfers and prospective budget support (US\$2.3 billion, including IDA grants), International Monetary Fund (IMF) disbursements (US\$0.9 billion), privatization proceeds (US\$1.1 billion), debt service reprofiling (US\$0.6 billion) and gains from the debt service suspension initiative (US\$0.2 billion). As part of its response to the financing challenges, the government has performance and policy actions to adopt a state-owned-enterprise debt resolution framework to facilitate debt repayments and minimize risks to macroeconomic instability. Implementation of a new Excise Tax Proclamation in Fiscal Year 2021 aims to mitigating the fall in revenue.

World Bank Group support for responding to the crisis

8. **The WBG's approach in Ethiopia has been adjusted to meet the challenges posed by COVID-19 while maintaining a longer-term strategy to sustain transformational structural reforms embedded in the CPF for Ethiopia for FY2018-22.** These adjustments have been made within the CPF's focus areas and objectives, particularly the second focus area of Building Resilience and Inclusiveness which includes objectives to improve safety nets, healthcare systems, basic education, water supply and sanitation, and management of natural resources which impacts livelihoods. Focus Area 1 also provided strategic underpinning for addressing COVID-19 impacts, particularly in improving access to finance and agricultural productivity. As a result, support is being provided across four pillars consistent with the overall World Bank Group approach: (a) Saving lives, (b) Protecting poor and vulnerable people, (c) Ensuring sustainable business growth and job creation, and (d) Strengthening policies, institutions and investments. World Bank Group support has been primarily focused on the first two of the three expected stages of crisis response: relief—emergency assistance to confront the immediate threat to public health, as well as short-term economic, financial and social impacts; restructuring—strengthening health systems, restoring human capital, and pursuing economic reforms, debt resolution, and recapitalization of firms and FIs; and resilient recovery—exploiting new opportunities for more inclusive, resilient, and sustainable longer-term development.

9. **World Bank lending has been rapidly adjusted to support Ethiopia across several dimensions of its response to the pandemic.** Ethiopia was among the first countries to receive financing from the World Bank's COVID-19 rapid response facility, with US\$82.6 million COVID-19 operation approved on April 2, 2020 just weeks after the crisis became evident in the country. This operation is already two-thirds disbursed and has been critical in providing medical supplies; capacity building; information outreach; and supporting quarantine, isolation, and treatment centers. This was followed by the rapid preparation of a supplemental US\$250 million DPF approved in June 2020 to augment an earlier US\$500 million approved in March 2020 to support the country's growth and competitiveness agenda. New social protection operations were fast-tracked and levels of financing were increased, with the US\$400 million Urban Productive Safety Net and Jobs Project (UPSNJP, P151712) approved in September and the US\$512.5 million Strengthening Ethiopia's Adaptive Safety Net Project (SEASN, P172479) approved in November 2020. These operations build on preceding support for productive safety nets and support cash transfers, food aid, public works, self-employment through start-up grants, and labor market integration of youth. Employment and development in the agriculture and rural areas were pursued through US\$80 million in Additional Financing of the Second Agriculture Growth Project (P148591) approved in September 2020 and a US\$165 million Additional Financing for the Ethiopia Resilient Landscapes and Livelihoods Project (P163383) approved in December 2020, financed by the Green Climate Fund. These latter two operations



had been previously planned but were accelerated and design was adjusted to meet COVID-19 challenges. A US\$14.9 million COVID-19 Education Response project, financed by the Global Partnership for Education, was approved in August 2020 to complement the ongoing General Education Quality Improvement Project (P163050). A new US\$100 million Additional Financing for the Women Entrepreneurship Development Project (P122764) was rapidly prepared and approved in December 2020. A US\$500 million Access to Distributed Electricity and Lighting, central to improving connectivity, was approved in March 2021. A US\$200 million Digital Foundations Project was approved in February 2021, recognizing the central role of connectivity to help overcome the human development and commercial impacts of COVID-19 restrictions. A second phase under the COVID-19 Emergency Response Multiphase Programmatic Approach was approved in April 2021 to support Ethiopia’s anticipated rollout of vaccines in 2021. Support for small businesses and jobs creation is being fast-tracked through a previously unplanned US\$200 million Additional Financing for Small and Medium Enterprise Support Project, was approved in April 2021. Finally, a new US\$250 million AF for the Enhancing Shared Prosperity through Equitable Services Program for Results operation was approved in June 2021 to help sustain service delivery improvements at the local level.

Table 1.1. Ethiopia World Bank Program lending adjustments triggered by COVID-19 Impacts

| | | | | COVID-19 Impacts Addressed | | | |
|---|--|---------------------------------|----------------|----------------------------|--------------------------------|--------------------------|--------------------------------------|
| Operations | Adjustment triggered by COVID-19 Impacts | Commitment amount, millions USD | Approval | Saving lives | Protecting poor and vulnerable | Business growth and jobs | Strengthen policies and institutions |
| <i>Approved Since April 2020</i> | | | | | | | |
| COVID-19 Emergency Response (Health Services) | New (not planned prior to pandemic) | 82.60 | April-2020 | X | | | X |
| Supplemental DPF | New | 250.00 | June-2020 | | | X | X |
| COVID-19 Education Response Project | New | 14.85 | August-2020 | | X | | |
| Urban Productive Safety Net and Jobs Project | Fast-Tracked | 400.00 | September-2020 | | X | X | X |
| Strengthen Ethiopia’s Adaptive Safety Net | Fast-Tracked | 512.50 | November-2020 | | X | | X |
| AF Women’s Entrepreneurship Development Project | New | 100.00 | December-2020 | | | X | |
| AF Small and Medium Enterprises Finance Project | New | 200.00 | Q3 FY21 | | | X | |
| Access to Distributed Electricity and Lighting | Fast-Tracked | 500.00 | Q3 FY21 | | | X | X |
| Ethiopia Digital Foundations Project | Fast-Tracked | 200.00 | Q3 FY21 | | | X | X |
| 2nd phase, COVID-19 Emergency Response (prep for vaccination) | New | 200.00 | Q3 FY21 | X | | | X |
| AF for the Enhancing Shared Prosperity | New | 250.00 | | | X | | X |



| | | | | COVID-19 Impacts Addressed | | | |
|---|--|---------------------------------|----------|----------------------------|--------------------------------|--------------------------|--------------------------------------|
| Operations | Adjustment triggered by COVID-19 Impacts | Commitment amount, millions USD | Approval | Saving lives | Protecting poor and vulnerable | Business growth and jobs | Strengthen policies and institutions |
| <i>Approved Since April 2020</i> | | | | | | | |
| through Equitable Services | | | | | | | |
| Additional Financing to GEQIP-E for Refugees Integration (Partially funded by Global Partnership for Education) | Design adjusted | 122.50 | Q3 FY21 | | X | | |
| <i>Planned in Remainder of FY2021</i> | | | | | | | |
| Second Agricultural Growth Project Additional Financing for COVID 19 Response (GAFSP Grant) | New | 5.00 | Q4 FY 21 | | X | | |

10. Implementation of several ongoing operations has been adjusted to address COVID-19 impacts.

With respect to saving lives, the Ethiopia Health Millennium Development Goal Program-for-Results (PforR) operation is financing critical inputs to the national response, such as PPE for frontline health workers. Ongoing operations supporting the water sector (One WASH), the Second Urban Water Supply and Sanitation Project (restructured) and urban development have had implementation adjusted to focus more on addressing emergency water rehabilitation, providing access to WASH services in priority health institutions and quarantine centers and hygiene interventions to curb the potential spread of the virus. The rural and urban PSNPs temporarily waived the work requirements to allow for social distancing. Payments to beneficiaries were made in advance for three months instead of monthly payments, and hygiene measures, protective gear and intensive information accompanied the implementation of the safety net programs. Implementation support by the World Bank has been similarly constrained owing to distancing requirements. In addition to supporting connectivity for World Bank staff in Ethiopia as well as key operational counterparts within the framework of projects, the Ethiopia program is accelerating the use of the geo-enabled monitoring system and analogues in its operations, particularly in the transportation and agriculture sectors.

11. International Finance Corporation’s (IFC) FY2020-24 strategy for Ethiopia is incorporating responses to COVID-19 to protect livelihoods and minimize destruction of markets.

Prior to the onset of the COVID-19 pandemic, the strategy envisaged investment adjustments in the Financial Institutions Group, Manufacturing Agribusiness and Services (MAS) and infrastructure sectors for Fiscal Year 2020-Fiscal Year 2024. At present the economic and humanitarian impacts of the pandemic has pushed IFC’s work in sectors to scale back investment services (IS) targets and increase advisory services (AS) to protect, and then support the subsequent recovery and creation of, new markets. In particular, based on the findings of IFC deep dive on two Ethiopian banks prior to the COVID-19 pandemic, risks associated with the Ethiopian financial sector were considered very high. With COVID-19, these risks have become even higher (for example, higher Non-Performing Loans, increased liquidity crunch, higher impact on capital



adequacy). Regarding MAS sectors, IFC is looking to provide working capital lines to firms with headroom to take on debt. In particular, the MAS team is supporting clients operating in the agribusiness sector to enter new regional export markets with the aim to increase diversification and minimize longer supply chain risk. The infrastructure sector, given the specific case of Ethiopia, private sector involvement is already limited so there is not much to protect/restructure as a result of the COVID-19 pandemic. As of June 2020, IFC's potential program size in Ethiopia stands at US\$285 million in Investment Services (IS) (base case) and US\$25.5 million in Advisory Services (AS) for the five-year period. In line with IFC's COVID-19 response framework, going forward the strategy will aim to reduce market destruction and subsequently restructure and create new opportunities in the tourism, agribusiness and health sectors.

12. Going forward, the unprecedented global nature of the COVID-19 crisis, coupled with Ethiopia's structural bottlenecks, hamper prospects for private sector engagement in key sectors.

- *Financial Sector.* The COVID-19 fallout will likely exacerbate shortages of foreign exchange, in part due to reduced exports, remittances, and tourism receipts. In addition, given the financial sector's mounting vulnerabilities, the pandemic will likely result in a local currency liquidity crisis, putting additional strain on the private sector's limited access to finance. Lastly, FIs will likely require additional working capital to provide liquidity support to their SME clients.
- *Agribusiness.* A prolonged COVID-19 outbreak in Ethiopia, including protracted containment measures and transport restrictions will impede farmers' access to markets and disrupt fresh food supply chains, thereby exacerbating food shortages created by the ongoing locust invasion. On the demand side, the closure of restaurants and street food outlets removes a key market for many producers and processors that may result in a temporary glut or trigger upstream production cuts as shown in some countries in the meat and beverage (malt) sectors.
- *Manufacturing.* The COVID-19 crisis has adversely impacted the sector, as evidenced by a decline in investment inflows, disruption in supply chains, and a loss of revenue and jobs as a result of a contraction in global economic growth and demand.

13. The WBG's knowledge agenda has similarly been adjusted to support Ethiopia on evidence and analysis for dealing with the pandemic's impacts. The World Bank has supported several rounds of rapid phone surveys administered to firms (eight rounds) and households (seven rounds) between April and November 2020. The results of these surveys have been communicated with the Jobs Commission. Online briefs highlighting the main findings in each round and special topic reports focusing on firm's behavior during the pandemic, and gender effects have been published on the website of the World Bank Group. The findings have also been used to inform the response to COVID-19 in World Bank Group operations. The World Bank's regular biannual Ethiopia Economic Update (the 8th in the series) issued in the summer of 2020 assesses the macroeconomic and microeconomic impacts and policy responses to COVID-19. In addition, a Country Economic Memorandum is under preparation for completion in early FY22 and will help identify additional reforms to support inclusive and sustainable growth going forward. Analytical work in Human Development sectors, particularly health, has been recalibrated to address the changed circumstances for service delivery.

14. The WBG's efforts are closely coordinated with other development partners. The World Bank coordinated closely with the IMF as well as major bilateral partners of Ethiopia on financing support to cushion against the impacts of COVID-19 in the context of the government's robust policy response. This included the US\$250 million supplemental DPF (following the approval in March 2020 of the previously



prepared US\$500 million Second Growth and Competitiveness DPF) alongside the IMF's approval in May 2020 of a Rapid Credit Facility of US\$410 million which supplemented its own three-year US\$2.9 billion program for Ethiopia. With respect to financing for health services to save lives, the World Bank's provision of US\$82.6 million was complemented by support from the Global Fund, GAVI, the Jack Ma foundation and other bilateral and multilateral donors. The World Bank also played a central coordination role for managing financing for the productive safety nets programs. In particular, the rural safety nets program will be complemented by US\$190 million in financing in Fiscal Year 2021 from eight other development partners (and US\$967 million over five years). The World Bank also plays a similar coordinating role for development partner funding for water and sanitation via the One WASH program and basic education through the General Education Quality Improvement Project. For One WASH the World Bank mobilized additional grant funding from the Dutch government and is in talks to mobilize additional resources from the Danish government for One WASH interventions.



ANNEX 2: ECONOMIC AND FINANCIAL ANALYSIS

A. Introduction

1. This annex presents the Economic and Financial Analysis (EFA) of AGP2): GAFSP AF. The methodological approach of the EFA follows that of Gittinger (1982)¹⁰, Belli et al. (2001)¹¹ and is in line with recent guidelines published by International Fund for Agricultural Development (IFAD) and the World Bank on economic and financial analysis¹². The financial analysis was performed from the perspective of beneficiaries. The economic analysis also differed from the financial analysis due to a shadow price that was assumed for the main project inputs and outputs.

2. The financial analysis shows that the targeted activities are sound. The economic analysis also shows that the Project is economically viable. Taking into account the current assumptions the EIRR for the overall project is equal to 17.20 percent and the Net Present Value (NPV) equals to US\$15.70 million. The Project is sensitive to changes in some of the model's variables (variations on benefits and costs, various lags in the realization of benefits and adoption rates).

B. Financial Analysis

Methodology and benefits

3. The financial analysis was performed from the perspective of beneficiary households. The Project direct beneficiaries will be farmers. Specifically, farmers will be benefitting from: (i) fertilizers and seed provision; and (ii) irrigation pumps and farm tool. Furthermore, ministry members and extension workers will be equipped with PPE for prevention and control of the COVID-19 pandemic.

4. Based on the objective, results framework and costing structure, the GAFSP-AF is expected to generate benefits of different types. Such benefits include: (i) increased yields; (ii) increased agricultural income; (iii) improvement in market linkages and post-harvest management; (iv) employment generation; (v) increased resilience to climate change due to irrigation schemes and water management; and (vi) ensured food security and rural poverty reduction.

5. Based on these benefits, three financial farm models based on 13 one-hectare crop models, each of them with a 'with' and 'without' project situation, were developed to analyze the financial performance of the economic activities that were supported by the AGP2-AF. The financial discount rate used is 10 percent; the duration is 10 years for the agricultural-farm models. The financial models are detailed in the main EFA file and discussed below, structured in three groups: (a) crop and farm models; (b) HHR and (c) HHI models.

¹⁰ Gittinger, P., 1982, Economic analysis of agricultural projects.

¹¹ Belli, P., J.R. Anderson, H.N. Barnum, J.A. Dixon, and J-P. Tan (2001), Economic Analysis of Investment Operations: Analytical Tools and Practical Applications. WBI Development Studies, World Bank Institute, World Bank, Washington, D.C.

¹² IFAD, 2015, Economic and Financial analysis of rural investment projects, basic concepts and rationale.



Crop and Farm models

6. The purpose of elaborating on typical crop and farm models is to assess whether improved technologies and associated risks linked to their adoption under the “with project” situation are likely to attract the interest and participation of targeted smallholders, generate enough additional income for them and increase their food security and resilience to shocks.

7. Typical crop models (per ha basis) have been developed for the main crops currently cultivated by targeted smallholders in the six regions. These are the following: (i) Cereals: teff, wheat, maize; (ii) Vegetables (both rainfed and irrigated): tomato, green pepper; head cabbage, (iii) Tubers: potato; and (iv) Onion.

8. The calculations should enable us to compare the “without project” and the expected “with project” (that is adoption of improved technology) situations. Detailing, for each type of the crop budget: unit, quantities, cost per unit (in ETB), value (in ETB) for both the “without project” and “with project” situations. Specifying cropping practices and cultural operations and notably labor use that could be a bottleneck in some operations/farming systems (whether family labor or hired labor). Calculating total revenue as well as cash income (cash derived from the share of sales). Detailing input, services and equipment replacement as well as financial services (if any) costs (including or excluding own input costs such as family labor and aggregates); calculating production costs (per ha and per kg), gross margins, and net cash income (sales – cash input costs).

9. The typical “without project” situation is represented by the current average situation of most smallholders targeted under AGP2. Typically, smallholders that have not yet adopted any of the improved “crop extension packages” follow a traditional cropping pattern/practice that is characterized by the following: (i) use of locally/own produced seeds and broadcasting, and (ii) little use of fertilizer.

10. It is estimated that the average yields by crop recorded at national (and regional) level by the Central Statistics Agency¹³ would fairly represent the current “without project” situation of AGP2 smallholders, in the absence of a recent baseline survey of AGP 2 targeted areas/smallholders. The crop models have been developed on the data provided by the MoA and the national team involved in AGP2. Table 2.1 shows the productivities in kg per hectare, for all the crops related to this analysis during the “without project” and “with project” situation both for rainfed and irrigated and the cost/benefit ratio and percentage of yield increase.

¹³ Report on area and production of major crops- Central Statistical Agency (Agricultural Sample Survey 2017/18 (2010 E.C.)).



Table 2.1. Yields assumptions

| Crop | Yield assumptions (kg/ha) | | Cost/Benefit | % Increase in yields |
|--------------------------------|---------------------------|--------|--------------|----------------------|
| | WOP | WP | | |
| Cereals (rainfed) | | | | |
| Teff | 1.553 | 2.500 | 1,38 | 61% |
| Wheat | 2.706 | 4.500 | 1,18 | 66% |
| Maize | 3.810 | 6.000 | 1,26 | 58% |
| Vegetables (rainfed) | | | | |
| Onion | 9.512 | 17.900 | 1,50 | 88% |
| Tomato | 4.904 | 13.400 | 1,05 | 173% |
| Cabbage | 6.164 | 15.000 | 1,03 | 143% |
| Green Pepper | 6.241 | 7.800 | 1,29 | 25% |
| Potato | 13.844 | 22.500 | 1,11 | 63% |
| Vegetables (irrigation) | | | | |
| Onion | 9.512 | 24.100 | 1,73 | 153% |
| Tomato | 4.904 | 28.500 | 1,86 | 481% |
| Cabbage | 6.164 | 25.200 | 1,60 | 309% |
| Green Pepper | 6.241 | 12.500 | 1,72 | 100% |
| Potato | 13.844 | 23.000 | 1,05 | 66% |

Source: Data provided by the MoA, in February 2021

11. In consequence, the “without project” situation to be represented in the crop models cannot assume that all farmers would start from the traditional practice; it should rather assume some use of the proposed improved practices and a higher yield than the ones obtained under the traditional practices. The Project intervention will allow smallholders to enhance access to: (i) improved technologies (use of improved certified seeds, higher doses of fertilizers, pooled mechanization services); (ii) output markets; (iii) financial services; and (iv) higher yields.

12. To avoid the risk of overestimate on the revenue/cash income under each crop model, for both scenarios, “without project” and “with project” situations, it is assumed that surpluses are sold at different times and prices after harvest. In both situations various share of the surplus production would be marketed: a) the largest share of surplus would be sold at harvest (at the lowest price as per available market data); b) a lower share after short storage - maximum 1-2 months (at medium price); and c) limited share after 2-5 months storage - depending on crop types – at a peak price during the lean season. Thanks to increased marketing opportunities offered to smallholders, increased cash incomes and savings capacity, lesser dependence on collectors and pressure to sell at harvest to meet urgent expenses, it can be assumed that the share of surpluses sold at higher prices after storage would increase in the “with project” situation.

Household Rainfed (HHR) models

13. HHR to be supported under AGP2 GAFSP AF would cover 10,250 ha. The crops that can be produced under HHR technologies cover mainly cereals and the land size per household is equal to 0.35ha. It is assumed that the HHR that will receive provision of inputs such as improved seeds and fertilizers to be supported under AGP2 would aim not only at diversifying the household diet but also at generating income.



14. The cropping practices are based on the discussions with the national team involved in AGP2. All output prices have been collected by the Central Statistical Agency. All the parameters and data were collected from the MoA.

15. The distribution of the crops of the HHR model (0.35ha) is presented in Table 2.2. Although a large variety of crops could be cropped, the model considers the three staple cereals: (i) teff; (ii) wheat; and (iii) maize.

Table 2.2. Household Rainfed Model (0.35 ha) - Cropping Pattern "without project " and "with project"

| Share of crop area: | WOP | WP |
|-------------------------------------|-------------|------|
| Teff | 0,12 | 0,12 |
| Wheat | 0,12 | 0,12 |
| Maize | 0,11 | 0,11 |
| Onion | 0,00 | 0,00 |
| Tomato | 0,00 | 0,00 |
| Cabbage | 0,00 | 0,00 |
| Green pepper | 0,00 | 0,00 |
| Potato | 0,00 | 0,00 |
| Total HHI land | 0,35 | 0,35 |
| Total number of hectares WOP | 0,35 | |
| Total number of hectares WP | 0,35 | |

Table 2.3. Financial Results Summary – Household Rainfed Model (0.35ha)

| Model | Net Benefit (after labour cost) | | Total operating costs | |
|---------------------------------------|---------------------------------|-------|-----------------------|-------|
| | WOP | WP | WOP | WP |
| Household Rainfed Model (HHR) Cereals | 1.523 | 2.938 | 2.967 | 5.229 |

16. Table 2.3 shows financial results for the HHR model representing an increase in total net benefit (after labor costs): the net income per HH, derived from project intervention is about two fold, increasing from about ETB 1,523 (US\$38) per year in the “without project” situation to ETB 2,938 (US\$73) per year in the “with project” situation. The operating costs augmented from ETB 2,967 (US\$74) to ETB 5,229 (US\$130). The Financial Internal Rate of Return (FIRR) is equal to 100 percent. The benefit/cost ratio is 1.31.

Household Irrigation (HHI) models

17. Household Irrigation (HHI) to be supported under AGP2 AF would cover irrigation water pumps and small hand tool. The number of hectares to be implemented are equal to 3,748 ha. With regards to the technology to model, it was decided to study a moderately expensive technology such as irrigation pump (US\$800 each pump) that allows the irrigation of 4ha. HHI technology can be made available for a group of smallholders, although the average plot size per household is equal to 0.35ha. This assumption was retained in building the typical HHI model.

18. The crops that can be produced under HHI technologies cover a large range (cereals, vegetables and tubbers). It will vary considerably according to specific site conditions (rainfall, altitude, soil type, water availability), farmers’ preference and cultural techniques mastering, the HHI project main objective,



availability and access to input, access to financial services and to main buyers, road to markets conditions, and so on. It is assumed that, in most cases, that the HHI infrastructure and technologies to be supported under AGP2 would aim not only at diversifying the household diet but also at generating income.

19. All the parameters and data were collected from the MoA and the national team involved in the implementation of AGP2.

(i) HHI two cycles

20. Based on the cropping intensity, two different scenarios/models for the HHI have been identified: (i) two cycles; and (ii) three cycles. The first scenario or HHI two cycles is assumed that it would be cropped with cereals and vegetables during the wet “Meher” season (June to November/December) and one harvest with only vegetables with full or supplementary irrigation during the dry season (November/December to June). However, in without project situation, there is only one cycle during the wet season under rained conditions.

21. The distribution of the crops of the HHI models (0.35ha) are presented in the following tables. Although a large variety of vegetables could be cropped, the model considers the five: (i) onions; (ii) tomatoes; (iii) green pepper; (iv) head cabbage; and (v) potatoes.

22. Three-quarters of the total farmers under irrigation will cover 2,813ha, generally aim at fully cropping the land twice under HHI, this model considers a cropping intensity of 200 percent (for example, a total cropped area of 0.70ha per year). Out of this total cropped area, it is assumed that the share of each crop for vegetable is: onions (45 percent); tomatoes (25 percent); cabbage (30 percent); green pepper (35 percent); and potatoes (35 percent), The share of each cereals is: (i) teff (15 percent); (ii) wheat (5 percent); and maize (10 percent). Table 2.4 shows the cropping pattern for both with and without project situation.

Table 2.4. HHI two cycles - Cropping Pattern "without project" and "with project"

| Cropping pattern | WOP | | | WP | | | WOP | | | WP | | |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|
| | Wet Season | Dry Season | Total (ha) | Wet Season | Dry Season | Total (ha) | Wet Season | Dry Season | Total (%) | Wet Season | Dry Season | Total (%) |
| Teff | 0,12 | 0,00 | 0,12 | 0,05 | 0,00 | 0,05 | 35% | 0% | 35% | 15% | 0% | 15% |
| Wheat | 0,07 | 0,00 | 0,07 | 0,02 | 0,00 | 0,02 | 20% | 0% | 20% | 5% | 0% | 5% |
| Maize | 0,07 | 0,00 | 0,07 | 0,04 | 0,00 | 0,04 | 20% | 0% | 20% | 10% | 0% | 10% |
| Onion | 0,02 | 0,00 | 0,02 | 0,05 | 0,11 | 0,16 | 5% | 0% | 5% | 15% | 30% | 45% |
| Tomato | 0,02 | 0,00 | 0,02 | 0,04 | 0,05 | 0,09 | 5% | 0% | 5% | 10% | 15% | 25% |
| Cabbage | 0,02 | 0,00 | 0,02 | 0,05 | 0,05 | 0,11 | 5% | 0% | 5% | 15% | 15% | 30% |
| Green pepper | 0,02 | 0,00 | 0,02 | 0,05 | 0,07 | 0,12 | 5% | 0% | 5% | 15% | 20% | 35% |
| Potato | 0,02 | 0,00 | 0,02 | 0,05 | 0,07 | 0,12 | 5% | 0% | 5% | 15% | 20% | 35% |
| Total of HHI ha | 0,35 | 0,00 | 0,35 | 0,35 | 0,35 | 0,70 | 100% | 0% | 100% | 100% | 100% | 200% |

(ii) HHI three cycles

23. This second scenario or HHI three cycles is assumed that would be harvested with cereals and vegetables during the wet season (June to November/December) and two more harvests with full or supplementary irrigation for only vegetables during the dry season (November/December to March and



March to May/June). While during the without project situation there is only one cycle during the wet season under rained conditions, with project situation there are three cycles, one in the wet season and two in the dry season with irrigation.

24. The remaining quarter of the farmers under irrigation will cover 938ha, having three cycles in their lands. The model reflects a cropping intensity of 300 percent (for example, a total cropped area of 1,05ha per year). Out of this total cropped area, it is assumed that the share of each crop for vegetable is: onion (70 percent); tomatoes (55 percent); cabbage (55 percent); green pepper (40 percent); and potatoes (50 percent), The share of each cereals is: (i) teff (15 percent); (ii) wheat (5 percent); and maize (10 percent). Table 2.5 presents the cropping pattern for both with and without project situation.

Table 2.5. HHI three cycles - Cropping Pattern "without project" and "with project"

| Cropping pattern | WOP | | | WP | | | WOP | | | WP | | |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|
| | Wet Season | Dry Season | Total (ha) | Wet Season | Dry Season | Total (ha) | Wet Season | Dry Season | Total (%) | Wet Season | Dry Season | Total (%) |
| Teff | 0,12 | 0,00 | 0,12 | 0,11 | 0,00 | 0,11 | 35% | 0% | 35% | 15% | 0% | 15% |
| Wheat | 0,07 | 0,00 | 0,07 | 0,00 | 0,00 | 0,00 | 20% | 0% | 20% | 5% | 0% | 5% |
| Maize | 0,07 | 0,00 | 0,07 | 0,00 | 0,00 | 0,00 | 20% | 0% | 20% | 10% | 0% | 10% |
| Onion | 0,02 | 0,00 | 0,02 | 0,07 | 0,18 | 0,25 | 5% | 0% | 5% | 20% | 50% | 70% |
| Tomato | 0,02 | 0,00 | 0,02 | 0,05 | 0,14 | 0,19 | 5% | 0% | 5% | 15% | 40% | 55% |
| Cabbage | 0,02 | 0,00 | 0,02 | 0,05 | 0,14 | 0,19 | 5% | 0% | 5% | 15% | 40% | 55% |
| Green pepper | 0,02 | 0,00 | 0,02 | 0,04 | 0,11 | 0,14 | 5% | 0% | 5% | 10% | 30% | 40% |
| Potato | 0,02 | 0,00 | 0,02 | 0,04 | 0,14 | 0,18 | 5% | 0% | 5% | 10% | 40% | 50% |
| Total of HHI ha | 0,35 | 0,00 | 0,35 | 0,35 | 0,70 | 1,05 | 100% | 0% | 100% | 100% | 200% | 300% |

Table 2.66. Financial Results Summary – Household Irrigation Model (0.35 ha) two and three cycles

| Models | Net Benefit (after labour cost) | | Total operating costs | |
|---|---------------------------------|--------|-----------------------|--------|
| | WOP | WP | WOP | WP |
| Household Irrigation Model (HHI) two cycles | 11.536 | 32.127 | 3.477 | 23.208 |
| Household Irrigation Model (HHI) three cycles | 11.536 | 51.328 | 3.477 | 35.446 |

25. Table 2.6 displays the financial results for the two scenarios/models for HHI. The HHI two cycles model shows an increase in total net benefit (after labor costs): the net income per HH, derived from irrigated vegetables is about three fold, increasing from about ETB 11,536 (US\$287) per year in the “without project” situation to ETB 32,127 (US\$799) per year in the “with project” situation. The operating costs augmented from ETB 3,477 (US\$87) to ETB 23,208 (US\$577). The FIRR is equal to 24 percent. The benefit/cost ratio is 1.30.

26. The HHI three cycles model represents a significant increase in total net benefit (after labor costs): the net income per HH, derived from three cycles (under irrigation) is roughly five fold, increasing from about ETB 11,536 (US\$287) per year in the “without project” situation to ETB 51,328 (US\$1,277) per year in the “with project” situation. The operating costs increased from ETB 3,477 (US\$87) to ETB 35,446 (US\$882). The FIRR establishes at 32 percent. The benefit/cost ratio is 1.27.

27. These financial results suggest the attractiveness and profitability of HHI activities both two cycle and three cycles, even when considering quite expensive running costs (use of fertilizers mainly). Use of



cheaper water lifting technologies (less expensive well types; treadle, washer or rope pumps) or reduce the use of chemical fertilizer might translate into an even higher profitability and return.

Summary of the Performance of the Financial Models

28. Table 2.7 summarizes the financial performance of the agricultural-farm models. The FIRR, NPV, and benefit/cost ratio for the models are good, indicating the financial viability of the proposed activities.

Table 2.7. Financial Performance of the Financial Models¹⁴

| FINANCIAL ANALYSIS | | Models' net incremental benefits -NIB (in ETB) | | |
|--------------------|-------------------------|--|---|---|
| | | Farm models (agriculture) | | |
| | | Model 1: Household Rainfed Model (HHR) Cereals | Model 2: Household Irrigation Model (HHI) Horticulture (2 cycles) | Model 3: Household Irrigation Model (HHI) Horticulture (3 cycles) |
| | PY1 | -2.085 | -33.340 | -49.332 |
| | PY2 | 2.415 | -10.151 | -12.644 |
| | PY3 | 1.415 | 1.208 | 5.947 |
| | PY4 | 2.415 | 12.134 | 24.104 |
| | PY5 | 1.415 | 20.591 | 39.792 |
| | PY6 | 2.415 | 23.061 | 42.262 |
| | PY7 | 1.415 | 20.591 | 39.792 |
| | PY8 | 2.415 | 21.826 | 41.027 |
| | PY9 | 1.415 | 23.061 | 42.262 |
| | PY10 | 2.415 | 21.826 | 41.027 |
| | B/C | 1,31 | 1,30 | 1,27 |
| | NPV (ETB) @ 10% | 8.439 | 35.242 | 87.498 |
| | IRR | 100% | 24% | 32% |
| | Return to family labour | 207 | 501 | 548 |

C. Economic Analysis

Main Assumptions

29. **Economic benefits and costs.** The period of analysis is 20 years to account for the phasing and realization of benefits of the proposed interventions. Economic benefits from the agricultural-farm models have been aggregated using average incremental net benefits and assuming a single adoption rate, extracted from the costing exercise. Economic benefits from agricultural models have been aggregated using an expected number of hectares under rainfed and irrigation and the expected average size of each type of beneficiary to be supported by the project. All models are expressed in 2021 constant prices. Conservative assumptions and parameters have been applied, to avoid overestimation of benefits and provide realistic results.

30. In line with estimates from the Economist Intelligence Unit, the official exchange rate has been set at US\$1.00: ETB 40.20, the forecast average rate for 2021.

31. **Social discount rate.** In conformity with the World Bank Technical Note on Discounting Cost and Benefits in Economic Analysis, a 6 percent discount rate has been used to reflect the social opportunity

¹⁴ Financial analysis for over 15 years at 10 percent discount rate, for consistency with the other models.



cost of capital in Ethiopia.¹⁵ This discount rate has been applied to calculate the economic NPV and future net incremental benefits.

32. **Economic prices.** Financial prices have been converted into economic prices by applying the standard conversion factors (SCFs), presented in Table 2.8. For non-tradable goods, the SCF of 1 was used since they are generally purchased at a local level, without significant tax distortions. For labor, the opportunity cost conversion factor is 0.77,¹⁶ based on the rural unemployment rate. For the tradeable goods and equipment, the SCF of 0.86 has been calculated. Import parity prices have also been calculated for urea and wheat, which are the main outputs of the project. Both have been derived from international market prices. The SCF is 0.93 for urea and 0.94 for wheat.

Table 2.8. Standard Conversion and Social Discount Factors

| Item | Conversion factor |
|----------------------|-------------------|
| Urea | 0,93 |
| Wheat | 0,94 |
| Non-tradable goods | 1,00 |
| CF tradable goods | 0,86 |
| Labour | 0,77 |
| Social discount rate | 6% |

Aggregation of Beneficiaries and Phasing

33. The target population was estimated to be 40,000 households involved in the agricultural activities. The total number of hectares targeted are 14,000, of which 10,250 are for rainfed agriculture and the remaining 3,750 for irrigated agriculture. Table 2.9 provides an overview of the phasing of households, benefitting from the project interventions during the GAFSP AF period, which was used as aggregation in the economic analysis.

¹⁵ Technical Note on Discounting Costs and Benefits in Economic Analysis of World Bank Projects (World Bank 2016).

¹⁶ Rural youth and employment in Ethiopia (December 2016, Ethiopia Strategy Support Program - EDRI and IFPRI).



Table 2.9. Phasing and Number of Beneficiaries and Hectares

| Table D: Beneficiaries adaption rates and phasing | | | | | | |
|--|----|--------|-------|----|----|--------|
| | | Y1 | Y2 | Y3 | Y4 | Total |
| Number of hectares | | | | | | |
| FARM - Household Rainfed Model (HHR) Cereals | ha | 10.250 | - | - | - | 10.250 |
| FARM - Household Irrigation Model (HHI) Horticulture - 2 cycles : O | ha | 1.575 | 1.238 | - | - | 2.813 |
| FARM - Household Irrigation Model (HHI) Horticulture - 3 cycles : O ₁ | ha | 525 | 413 | - | - | 938 |
| Subtotal | ha | 12.350 | 1.650 | - | - | 14.000 |
| Number of beneficiaries | | | | | | |
| Farm models | | | | | | |
| FARM - Household Rainfed Model (HHR) Cereals | HH | 29.286 | - | - | - | 29.286 |
| FARM - Household Irrigation Model (HHI) Horticulture - 2 cycles : O | HH | 4.500 | 3.536 | - | - | 8.036 |
| FARM - Household Irrigation Model (HHI) Horticulture - 3 cycles : O ₁ | HH | 1.500 | 1.179 | - | - | 2.679 |
| Total Households | HH | 35.286 | 4.714 | - | - | 40.000 |

Results of the Economic Analysis

34. The Project’s economic cash flow represents the overall project aggregation of economic costs and benefits. It includes the net incremental benefits of each financial model in economic terms, converted with shadow prices, and multiplied by the number of direct beneficiaries of each category.

35. The Project components financed by the GAFSP AF were taken into account in calculating the economic cost of the project. Economic costs associated with improving agriculture productivity were estimated at US\$11.25 million. After the Project period, an annual cost of US\$0.5 million is assumed to maintain the results of the Project. The economic costs of the Project were generated using Excel. To avoid double counting, some deductions were made directly in Excel before generating economic costs. In particular, the financing of the irrigation systems and the provision of seeds and fertilizers for the targeted area of 14,000 hectares (it was deducted from the project cost, as these expenses have already been considered in the models).

36. Based on this methodology and assumptions, the cash flows from the financial models developed for the various activities were transformed into economic values, which made it possible to obtain additional net benefits at economic prices. In order to take into account the possibility that, for various reasons, there may be incidents or difficulties in the development of the business and to take into account prudent assumptions, a 70 percent adoption rate has been applied.

37. The economic costs were then deducted from the overall flow of economic benefits to obtain the net flow of additional project benefits. The economic analysis shows satisfactory results, with a net present value of US\$15.70 million at an opportunity cost of capital of 6 percent and an EIRR of 17.2 percent (excluding the environmental benefits), suggesting that the overall project is economically profitable.



Table 2.10. Summary of Economic Analysis (cash flow)

| | | NET AGGREGATED INCREMENTAL BENEFITS (US\$) | | | | NET INCR. ECONOMIC COSTS (US\$) | Cash Flow (US\$) |
|--------------------------|------|--|--|--|----------------------|---------------------------------|------------------|
| | | Model 1: Household Rainfed Model (HHR) | Model 2: Household Irrigation Model (HHI) Two cycles | Model 3: Household Irrigation Model (HHI) Three cycles | Total Ec. NIB (US\$) | | |
| ECONOMIC ANALYSIS | PY1 | (1.741.519) | (3.833.039) | (1.942.552) | (5.261.977) | 1.204.242 | (6.466.219) |
| | PY2 | 808.232 | (4.424.998) | (2.197.647) | (4.070.089) | 295.750 | (4.365.839) |
| | PY3 | 808.232 | (1.428.345) | (602.973) | (856.160) | 500.000 | (1.356.160) |
| | PY4 | 808.232 | 479.427 | 444.963 | 1.212.836 | 500.000 | 712.836 |
| | PY5 | 808.232 | 2.072.689 | 1.388.062 | 2.988.289 | 500.000 | 2.488.289 |
| | PY6 | 808.232 | 2.954.630 | 1.863.328 | 3.938.333 | 500.000 | 3.438.333 |
| | PY7 | 808.232 | 2.895.381 | 1.843.578 | 3.883.034 | 500.000 | 3.383.034 |
| | PY8 | 808.232 | 2.816.384 | 1.817.246 | 3.809.303 | 500.000 | 3.309.303 |
| | PY9 | 808.232 | 3.063.252 | 1.899.535 | 4.039.714 | 500.000 | 3.539.714 |
| | PY10 | 808.232 | 3.033.628 | 1.889.660 | 4.012.064 | 1.249.462 | 2.762.602 |
| | PY11 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY12 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY13 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY14 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY15 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY16 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY17 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY18 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY19 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | PY20 | 808.232 | 2.925.006 | 1.853.453 | 3.910.684 | 500.000 | 3.410.684 |
| | | <u>NPV@ 6 %</u> | | 15.704.798 | | | |
| | | <u>(000 US\$)</u> | | | | | |
| | | EIRR | | 17,2% | | | |

38. **The environmental externalities** were calculated by using EX-ACT, a tool developed by the FAO, to calculate the economic value from the GHG mitigated. EX-ACT enables investment planners to design program activities that target high-return outcomes in terms of climate change mitigation and is intended to complement conventional ex ante economic analysis.¹⁷ (See annex 3: Greenhouse Gas Accounting for more information).

39. The World Bank Guidance Note on the Shadow Price of Carbon in Economic Analysis (2017) recommends that a project’s economic analysis uses an estimation range of carbon price starting from US\$41 up to US\$78 respectively in 2019 and 2025, and increasing to US\$50 by 2030. The economic

¹⁷ EX-ACT. User Manual: “Estimating and Targeting Greenhouse Gas Mitigation in Agriculture”, FAO, WB and IRD.



indicators have been calculated for (i) excluding environmental benefits, the EIRR is 17.2 percent; (ii) environmental benefits at constant market price (US\$10, the EIRR is equal to 17.5 percent; (iii) at low estimate range (average US\$51), the EIRR is about 18.8 percent; and finally (iv) at high estimate range (average US\$102), the EIRR is around 20.4 percent.

Table 2.11. Results of the Economic Analysis (including environmental benefits)

| Indicators | A) Results excl. ENV benefits | B) Results incl. ENV benefits, valued @ market cost (10 US\$/tCO ₂ e) | C) Results incl. ENV benefits, valued @ low estimate range (average 51 US\$/tCO ₂ e) | D) Results incl. ENV benefits, valued @ high estimate range (average 102 US\$/tCO ₂ e) |
|-----------------------------|-------------------------------|--|---|---|
| NPV (US\$, @6%) | 15.704.798 | 16.160.709 | 17.936.351 | 20.161.302 |
| ERR | 17,2% | 17,5% | 18,8% | 20,4% |
| NPVb (US\$, @6%) | 31.915.502 | 32.566.804 | 35.103.436 | 38.281.936 |
| NPVc (US\$, @6%) | 6.636.054 | 6.636.054 | 6.636.054 | 6.636.054 |
| B/C ratio | 4,81 | 4,91 | 5,29 | 5,77 |
| Discount rate | 6% | 6% | 6% | 6% |
| Switching values - Benefits | -79% | -80% | -81% | -83% |
| Switching values - Costs | 381% | 391% | 429% | 477% |

40. **Sensitivity analysis.** Results were tested for sensitivity to variations in benefits and costs and for various lags in the realization of benefits. The two most impactful scenarios are a delay of two years in the generation of benefits or a decline of 20 percent relative to the base scenario, which would reduce the EIRR to 14.8 percent and 15.9 percent, respectively, substantially above the discount rate. Cost overruns would have a similar moderate impact, with the EIRR falling to 16.1 percent with a 20 percent increase. Individually taken, all scenarios show robust results under all hypothetical situations.

Table 2.12. Results of the Sensitivity Analysis

| Δ% | | Link with the risk matrix | IRR (%) | NPV (US\$) |
|---------------------------|---------|---|--------------|-------------------|
| | | Base case | | |
| | | | 17,2% | 15.704.798 |
| Decrease in benefits | -10% | Combination of risks affecting output prices, yields and adoption rates | 16,6% | 13.470.713 |
| | -20% | | 15,9% | 11.236.627 |
| Increase in project costs | 10% | Increase of input prices or construction material | 16,6% | 15.041.192 |
| | 20% | | 16,1% | 14.377.587 |
| Delay of benefits | 1 year | Risks affecting adoption rates and low implementation capacity | 16,0% | 13.289.872 |
| | 2 years | | 14,8% | 11.011.641 |



ANNEX 3: GREENHOUSE GAS ACCOUNTING

1. Motivation. The World Bank Environment Strategy (2012) adopted a corporate mandate to account for the GHG emissions for investment lending. The quantification of GHG emissions is an important step in managing and ultimately reducing emissions as it provides an understanding of the project’s GHG mitigation potential and can support sectoral strategies toward low-carbon development.

2. GHG accounting methodology. The World Bank has adopted EX-ACT, developed by the FAO in 2010¹⁸ to estimate the impact of agricultural investment lending on the GHG emission and carbon sequestration in the project area. EX-ACT allows the assessment of a project’s net carbon balance, which is defined as the net balance across all GHGs expressed in CO2 equivalents that will be emitted or sequestered due to project implementation (with project), as compared to a business-as-usual scenario (without project). EX-ACT is a land-based accounting system, estimating CO2eq stock changes (that is, emissions or sinks of CO2) expressed in equivalent tons of CO2 per hectare and year. The tool was designed mostly using data from the Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories (2006), which furnishes EX-ACT with recognized default values for emission factors and carbon values in soils and biomass (the so-called ‘Tier 1 level’ of precision).

3. Assumptions in the EX-ACT model. The Project proposes several activities that were captured with the GHG accounting tool EX-ACT. The assumptions for this analysis were informed by discussions during project preparation stages and are aligned to the assumptions of the EFA presented in annex 2. The project area covers six regions of Ethiopia. The climate and moisture regime in these regions is assumed to be warm temperate. The dominant soil type is High Activity Clay. The project implementation duration for the AF is 2 years, and the capitalization period is assumed to be 18 years. Dynamics of implementation are assumed to be linear over the project period. Default Tier 1 coefficients are used. The Project aims to increase agricultural productivity and commercialization of smallholder farmers targeted by the Project and contributes to dietary and consumption at HH level.

4. The Project direct beneficiaries will be farmers. Specifically, farmers: (i) benefiting from fertilizers and seeds; and (ii) benefitting from irrigation tool kits. Furthermore, ministry members, extension workers will be equipped with PPE for prevention and control of the COVID-19 pandemic.

5. The assumptions for the GHG calculation are summarized in Table 3.1 and 3.2 below.

Table 3.1. Data inputs to EX-ACT in the Without Project and With Project Scenario

| Activities | Without Project Scenario | With Project Scenario |
|------------------------|---|---|
| Agriculture: crop land | 14,000 ha under traditional cultivation thereof: <ul style="list-style-type: none"> • 10,250 ha of rainfed agriculture (cereals) 1 cycle • 2,813 ha of rainfed agriculture (cereals and horticulture) 1 cycle | 14,000 ha under improved agronomic practices: <ul style="list-style-type: none"> • 10,250 ha of improved rainfed agriculture (cereals) 1 cycle • 2,813 ha of improved irrigated agriculture (cereals and horticulture) 2 cycles |

¹⁸ <http://www.fao.org/tc/exact/ex-act-home/en/>



| Activities | Without Project Scenario | With Project Scenario |
|---|--|--|
| | <ul style="list-style-type: none"> 938 ha of rainfed agriculture (cereals and horticulture) 1 cycle | <ul style="list-style-type: none"> 938 ha of improved irrigated agriculture (cereals and horticulture) 3 cycles |
| Consumption of fertilizer and agro-chemicals (insecticides, herbicides) | Use (ton/ha/year): <ul style="list-style-type: none"> Urea: 1,635 ton/year N- fertilizers: 365 ton/year Phosphorus: 1,184 ton/year Potassium: 773 ton/year | Use (ton/ha/year): <ul style="list-style-type: none"> Urea: 3,322 ton/year N- fertilizers: 942 ton/year Phosphorus: 3,139 ton/year Potassium: 1,570 ton/year |
| Consumption of fuel and electricity for all the project coordination | No project vehicles or offices | Fuel consumption for a vehicle is 15litre/100km. Assumption for annual consumption per vehicle is 60 km * 12 days (regular use) + 200 km * 12 days (missions) = 3,120 km/month. Annually 37,440 km/vehicle. Assumption of 10 vehicles per region, 70 vehicles to be considered (10x7=70) $15\text{litres} * (37,440/100) = 5,616$ liter/year/vehicle. Total annual consumption of fuel for the 70 vehicles is equal to $393,120$ liters / 1000 = 393.12 m3 There is not real data on AGPI on electricity consumption. |

6. **Results** show that the project can constitute a sizeable net carbon sink of -113,567 tCO₂eq over 20 years, thus -5,678 tCO₂eq annually, due to the introduction of use of fertilizers, agricultural management practices, and livestock productivity. The annual agricultural activities represent a decrease of -31,368 tCO₂eq per year. The use of electricity, fuel and fertilizer lead to an increase of 25,690 tCO₂eq per year to transportation and processing due to improved market and the increased of use of fertilizer.



Table 3.2. Detailed Results EX-ACT

| Project Name | Agricultural Growth Project, Ph | | Climate | Warm Temperate (Moist) | | | Duration of the Project (Years) | | 20 | | |
|-------------------------------------|-------------------------------------|----------------|-----------------------------|------------------------------|-----------------|----------------|---------------------------------|-----------------|-----------------|---------------|---------------|
| Continent | Africa | | Dominant Regional Soil Type | HAC Soils | | | Total area (ha) | | 14000 | | |
| Components of the project | Gross fluxes | | | Share per GHG of the Balance | | | | | Result per year | | |
| | Without | With | Balance | All GHG in tCO2eq | | | N ₂ O | CH ₄ | Without | With | Balance |
| | All GHG in tCO2eq | | | CO ₂ | | | | | | | |
| | Positive = source / negative = sink | | | Biomass | Soil | Other | | | | | |
| Land use changes | | | | | | | | | | | |
| Deforestation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Afforestation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other LUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Agriculture | | | | | | | | | | | |
| Annual | 14.010 | -613.351 | -627.361 | 0 | -624.578 | 0 | 7.384 | -10.168 | 701 | -30.668 | -31.368 |
| Perennial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grassland & Livestocks | | | | | | | | | | | |
| Grassland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Livestocks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Degradation & Management | | | | | | | | | | | |
| Coastal wetlands | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Inputs & Investments | | | | | | | | | | | |
| Inputs & Investments | 453.044 | 966.838 | 513.794 | 0 | 0 | 311.619 | 202.175 | 0 | 22.652 | 48.342 | 25.690 |
| Fishery & Aquaculture | | | | | | | | | | | |
| Fishery & Aquaculture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 467.054 | 353.487 | -113.567 | 0 | -624.578 | 311.619 | 209.559 | -10.168 | 23.353 | 17.674 | -5.678 |
| Per hectare | 33 | 25 | -8 | 22,3 | -44,6 | 22,3 | 15,0 | -0,7 | | | |
| Per hectare per year | 1,7 | 1,3 | -0,4 | 1,1 | -2,2 | 1,1 | 0,7 | 0,0 | 1,7 | 1,3 | -0,4 |

7. The monetary value of the GHG balance has been estimated and considered as economic benefit of the project in the Economic and Financial Analysis. The recent draft Guidance Note on Shadow Price of Carbon in Economic Analysis (September 2017) recommends that a project's economic analysis uses an estimation range of carbon price starting from US\$41 up to US\$78 respectively in 2019 and 2050, and increasing to US\$50 by 2030. Marginal abatement costs are designed to reflect the carbon price necessary to achieve various climate change targets. Carbon market prices are the market value of CO₂e emission reductions or sequestration (offsets) that are registered and sold through various market structures. The sensitivity analysis of the EFA shows different scenarios. The economic indicators have been calculated for (i) excluding environmental benefits, the EIRR is 17.2 percent; (ii) environmental benefits at constant market price (US\$10, the EIRR is equal to 17.5 percent; (iii) at low estimate range (average US\$51), the EIRR is about 18.8 percent; and finally (iv) at high estimate range (average US\$102), the EIRR is around 20.4 percent.