Food and Agriculture Organization of the United Nations

Hand-in-Hand Initiative

Ethiopia Investment Cases

for Investment Forum

Investment Forum | Rome, Italy | 17-19 October 2022

Ethiopia: Context

Country Profile

- ✓ Total population: 115 mn
- ✓ Agricultural sector: income, employment for 65% of population (2021)
- ✓ 32.5% of GDP and 68.1 % of export value (NBE_2020/21Annual Report)
- ✓ 23.5% below poverty line;
- ✓ Malnutrition rates: 37% of children under age 5 are stunted, and of 21% children are underweight (2019/2020 mini DHS)
- ✓ 37% experience food insecurity (Baseline study, FAO 2022)

Policy Framework

- ✓ Government of Ethiopia adoption of SDGs (2015);
- ✓ The Pathway to Prosperity Ten Years Perspective Development Plan (2021 – 2030)
- ✓ Draft Revised Agriculture and Rural Development Policy (2020)
- ✓ Agriculture sector 10 Years Perspective Plan , and "10 in 10" National Programs focuses on raising production and productivity levels of priority commodities
- ✓ Ethiopian Food Systems Vision 2021

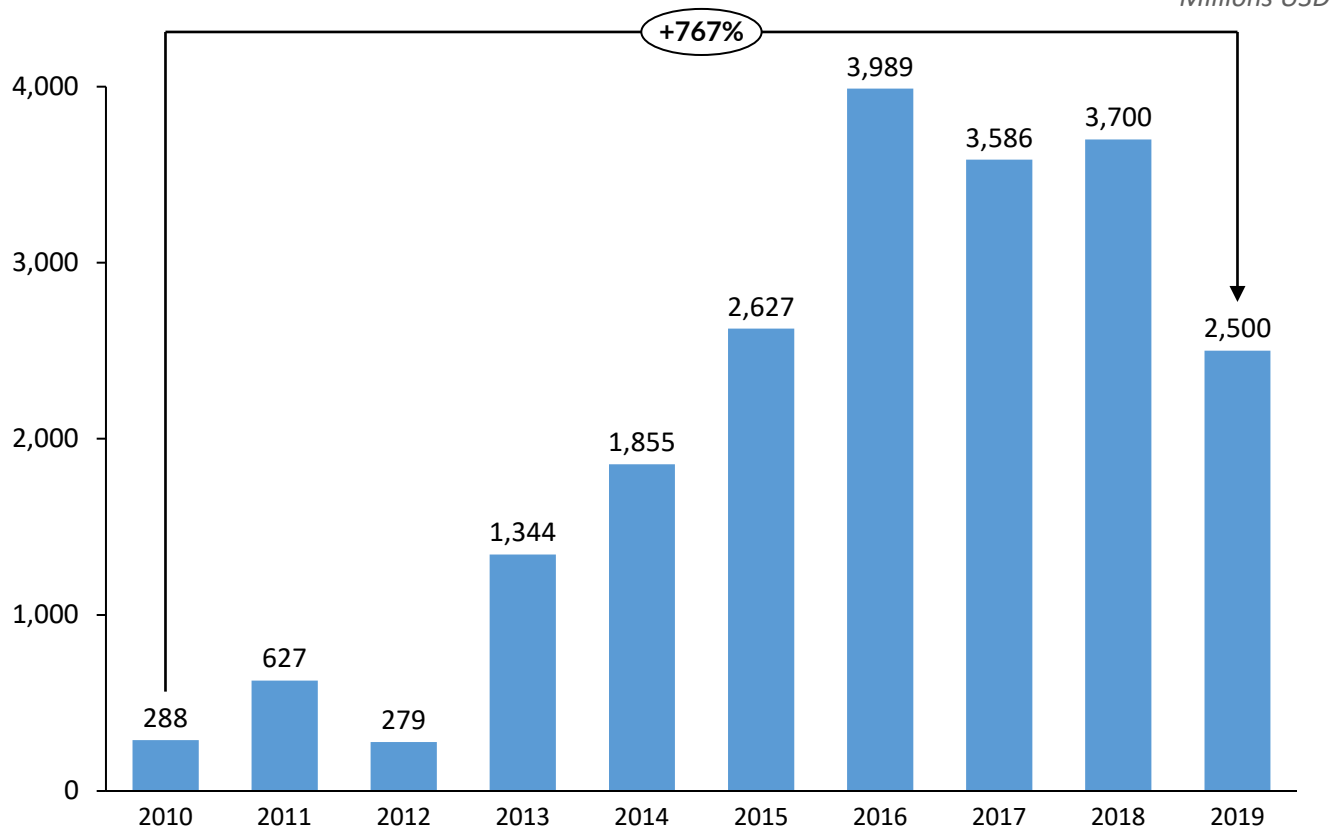
Significant investment inflow

Ethiopia remains the largest FDI recipient in East Africa, amassing 28.5% of total investment in 2019…

- FDI inflow grew by 27% CAGR between 2010 to 2019 (nine fold growth). However, growth slowed in 2019, declining 32% compared to 2018.
- Political instability, lack of infrastructure and limited investment remittance option are the major challenges to attracting FDI
- Total FDI flow in East Africa totalled USD 8.8 million in 2019, and Ethiopia recorded the largest share (29%) of USD 2.5 million FDI inflow
- The target of the government for the period was to register 65% of projects in FDI in the manufacturing sector, indicating massive interest of investors to engage in industries

…and with an average 27% annual growth in the past ten years

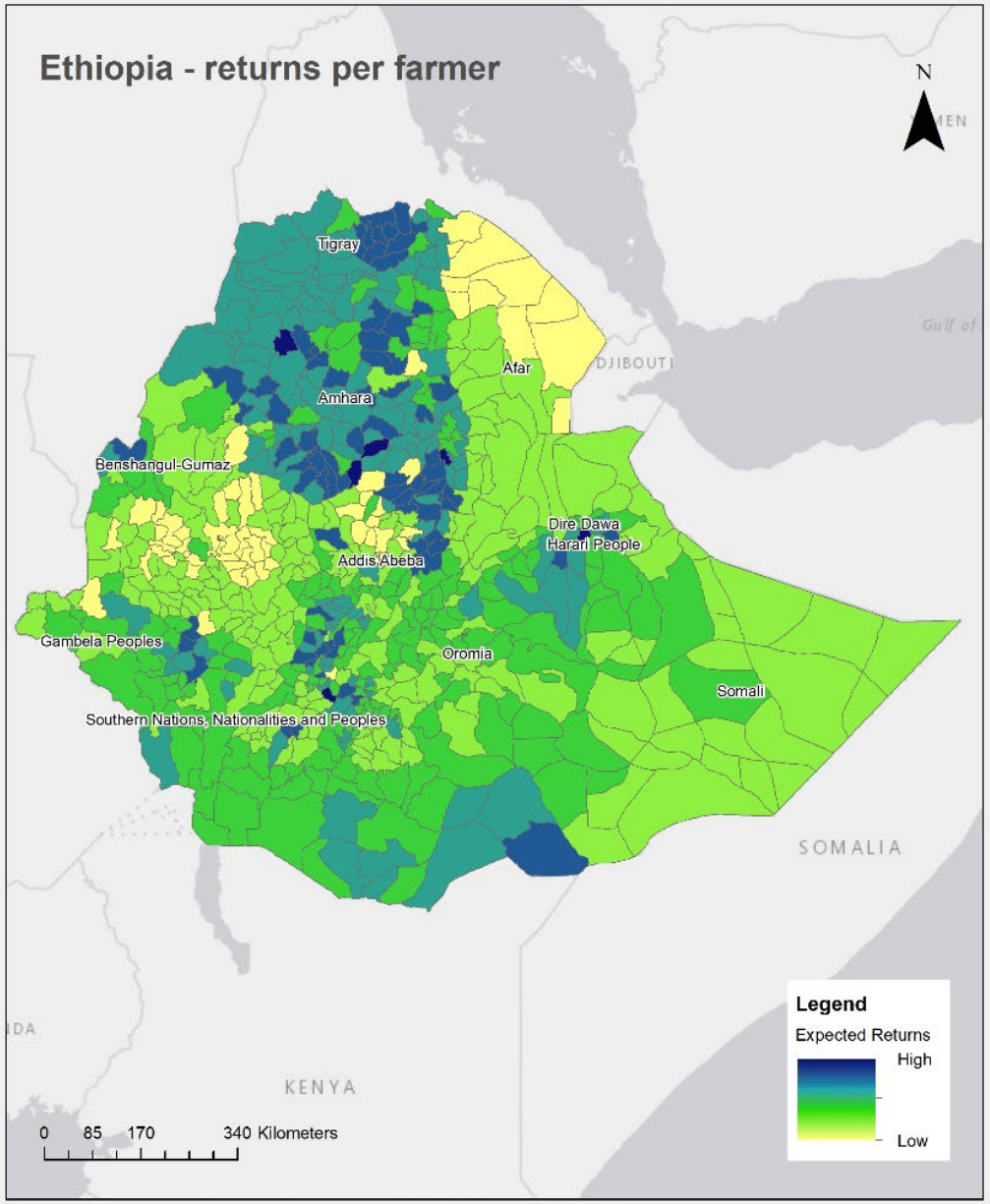
FDI inflow in Ethiopia, 2010 - 2019
Millions USD



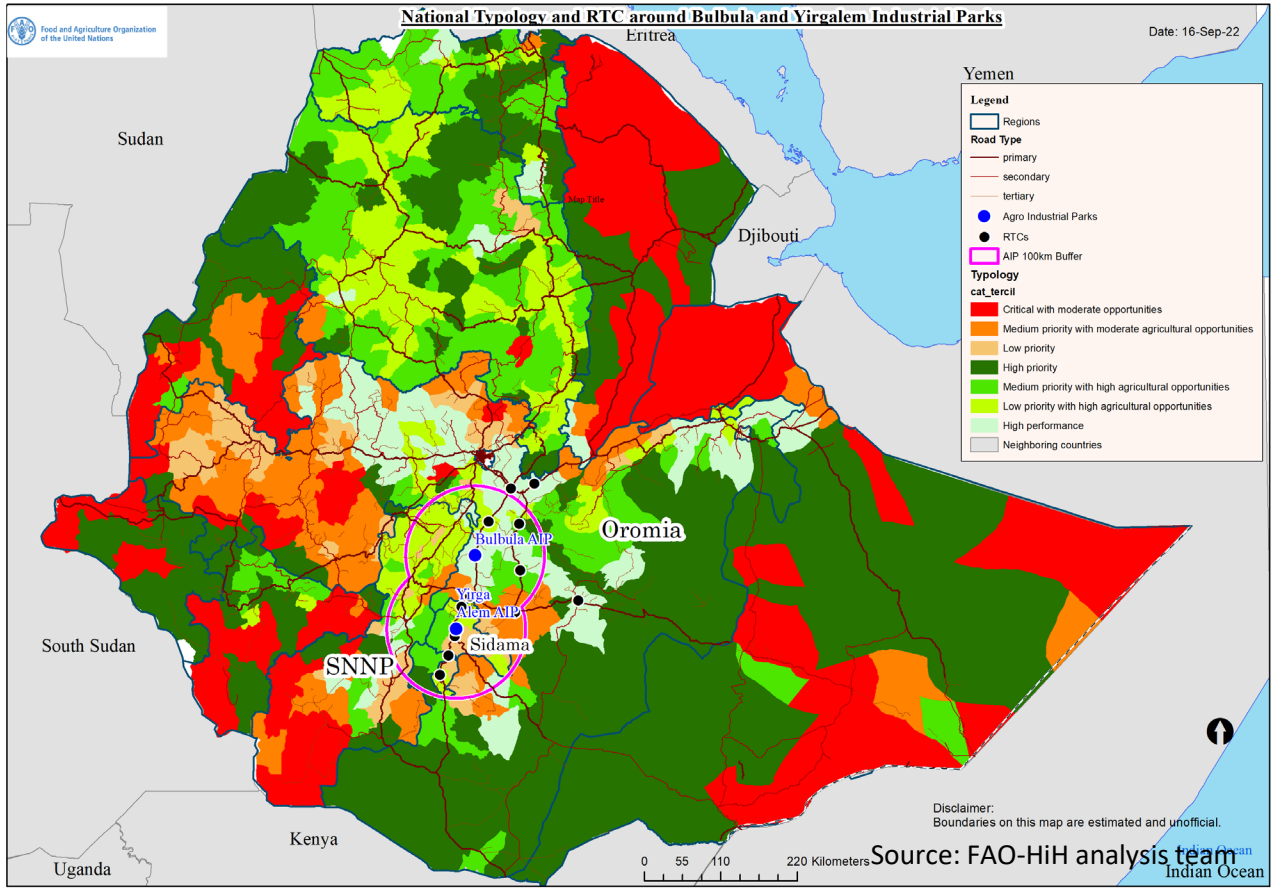
Source: World Bank; National Bank of Ethiopia

High opportunity for impact

- ✓ Unexploited potential in agriculture: for investors and farmers may yield high returns through inclusive investments
  - ✓ Promote social inclusion, entrepreneurship, farmer engagement and ownership at each step of aggregation chain
  - ✓ Avail access to capital and inputs: seeds, technology, ideas
  - ✓ Support farmer's access to natural resources: water and land
  - ✓ Ensure spill-overs on gender equality, nutrition and local economy
  - ✓ Build on existing structures: Labor sharing groups, pooling of land, business groups, SMEs, Cooperatives, Unions in place but lack market power



Source: OCHA, FAO, Stochastic frontier analysis FAO-HiH task force (2022), ESRI



Integrated Agro-Industrial Parks and ACPZ

- ✓ Growth corridor approach with Agro-Commodity Procurement Zones (ACPZ Territories)
- ✓ 8-9 Investors established in Yirgalem; sourcing from ACPZ (avocado, coffee, honey and dairy processing)
- ✓ Bulbula park pipeline investments (11): oil (2) coffee (2) meat (2) honey (1) avocado (2) tomato (2)

The Hand in Hand Initiative in Ethiopia:

Prioritizing areas identified having high agricultural potential and low efficiency to:

- Attract investments with **business models** that foster **inclusive** agricultural and rural **transformation**
- Increase net incomes of local population while **leaving no one behind**
- Foster **efficiency** in design and delivery of investments
- Strengthen the **institutional environment,** alignment with existing MoA policies, regional planning and coordination
- Assess **trade-offs** on different outcomes: poverty reduction, diets/nutrition, trade, climate and environment – through rigorous research and stakeholder consultation

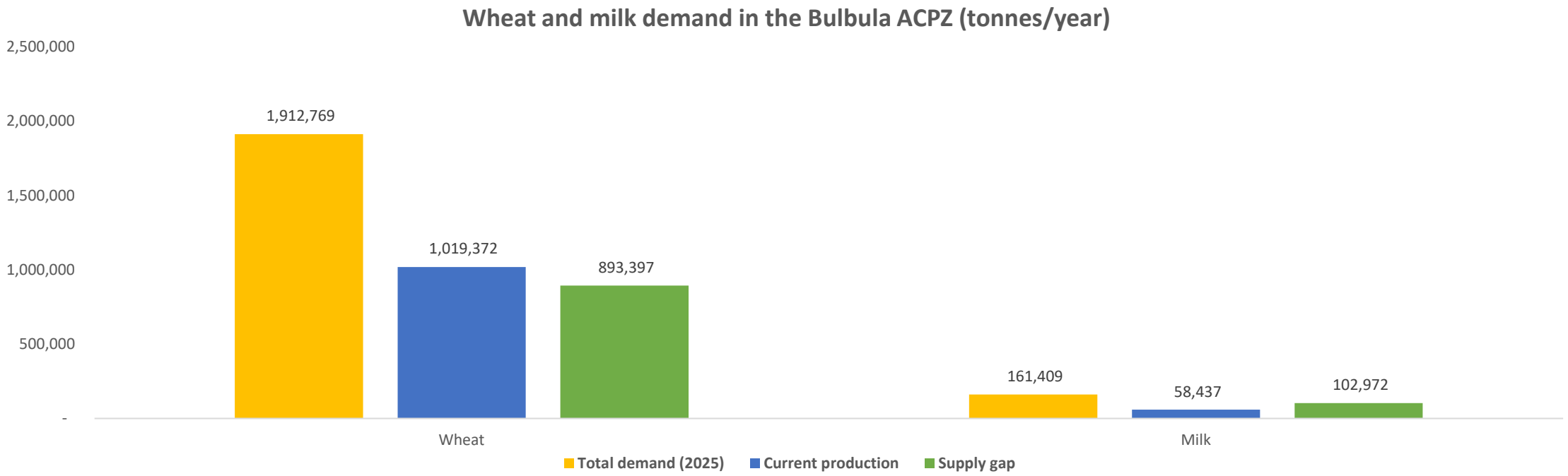
Bulbula Agro-Industrial Park priorities – wheat and milk

Wheat (soft)

- Yield gaps still prevalent: inputs, land sizes, post-harvest challenges
- Bulbula: Annual projected demand gap of 893k t
- In the same time, the national wheat production is increasing

Cow's Milk

- Per capita milk consumption (20 kg/year) is low but is projected to increase, particularly in urban areas (Addis Ababa: 40 kg/year)
- National milk production steadily increasing: 4.96 billion liters cow milk by 2020/21 (CSA)
- Poor cold chain developed; low commercialization due to low household production levels
- Bulbula: 30 existing dairy processors working 25% below capacity + new IAIP processors; projected demand gap of 103k t/year



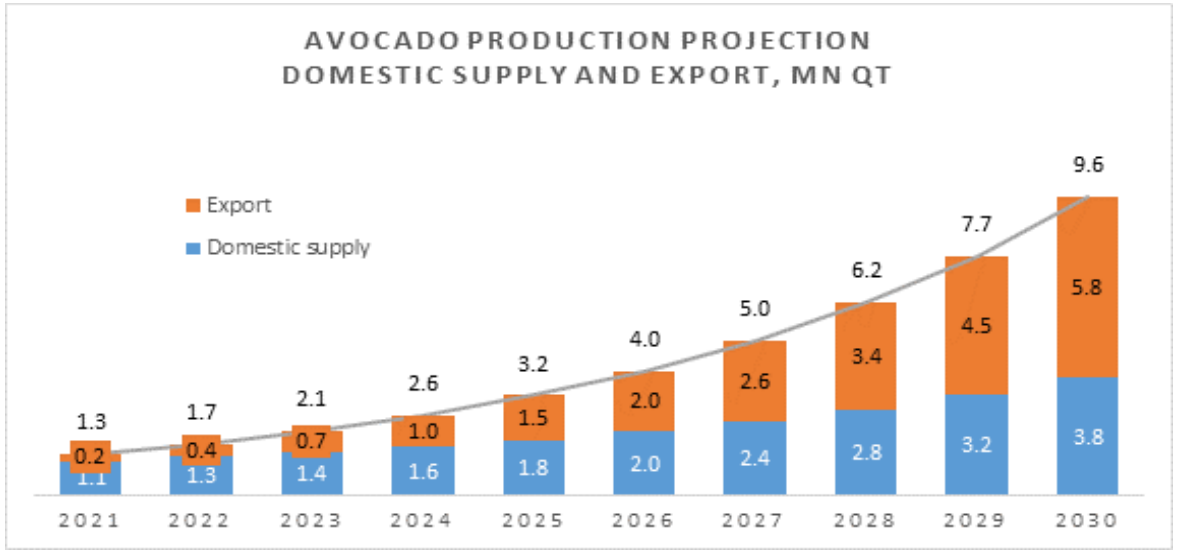
Yirgalem Agro-Industrial Park priorities – avocado and coffee

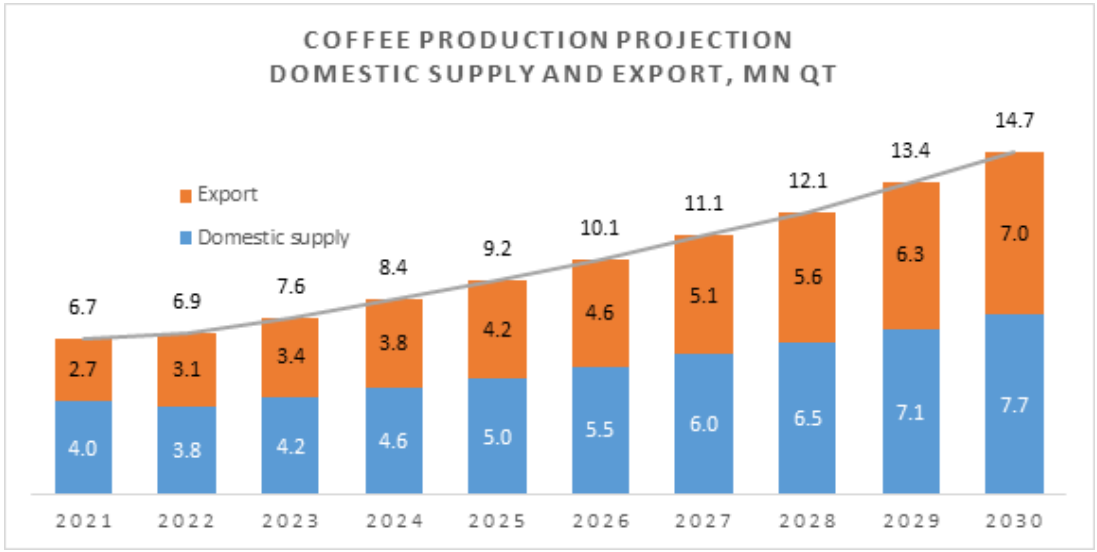
Avocado

- Productivity gap while a significant productivity increases observed since 2018; rainfed production in Sidama: Good agricultural practices, post-harvest handling challenging
- 65% of avocado harvest sold to local markets– so far, unmet demand
- Growing demand of lower-grade avocado for oil processing (3 processors established in Yirgalem and Hawassa; demand 240 t/day)
- Significant export target up to 60 % of the local production for avocado fruit and avocado oil export demand (up to USD 325m): Djibouti, Somalia, Sudan (ungraded) or UAE, UK, Netherlands (high grade)

Coffee

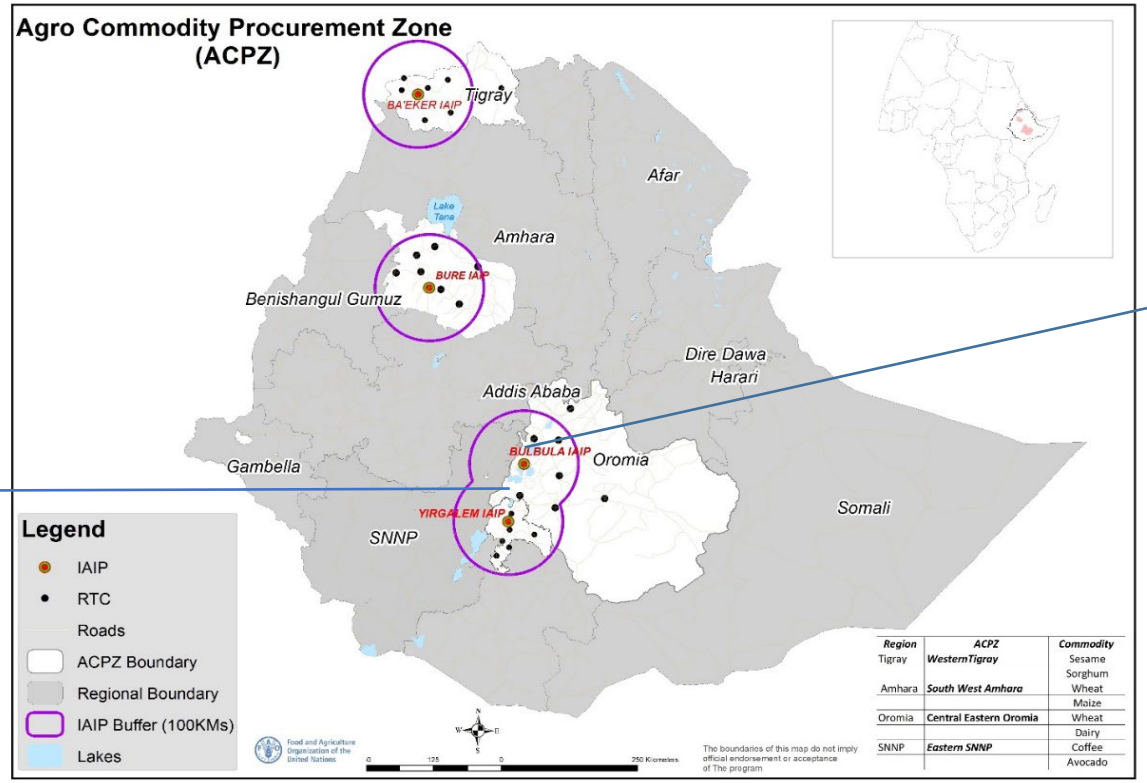
- Significant productivity gap but increasing production and export
- Coffee leading export: significant premium on wet processed over sundried
- The majority of coffee exports are wet processed (70 percent) and there is an opportunity to expand through direct trade
- Yirgalem ACPZ: home to some of the most valued specialty coffee origins that are in high demand. Investors have settled
- Diversify export destination and product (more value addition)





Investment Plans (2019) visualize steps to achieve:

Coordination, alignment and aggregation mechanisms in place: commitment of Government and partners is there!



Increase wheat production :

- From 1.9 million tons in 2019 to 2.7 million tons in 2025
- 72% marketed through formal channels (up from 60%)
- Carbon mitigation potential impact of –13,270,886 t CO2-e, over 20 years

Increase milk production :

- 330 K tons in 2019 to 478 K tons in 2025
- 55% marketed through formal channels (up from 34%)
- Carbon mitigation potential of -59 million t CO2-e, over 20 years

Increase rainfed avocado production :

- From 13 K tons in 2019 to 221K tons in 2025;
- 77% marketed through formal channels (up from 68 %)

Increase coffee production:

- From 75 K tons in 2019 to 308 K tons in 2025;
- 73% marketed through formal channels (up from 61%)

Investment cases
(Public goods)
USD 155 million
(public, multilateral)
(development)

=>

Wheat
organic fertilizer
walking tractors

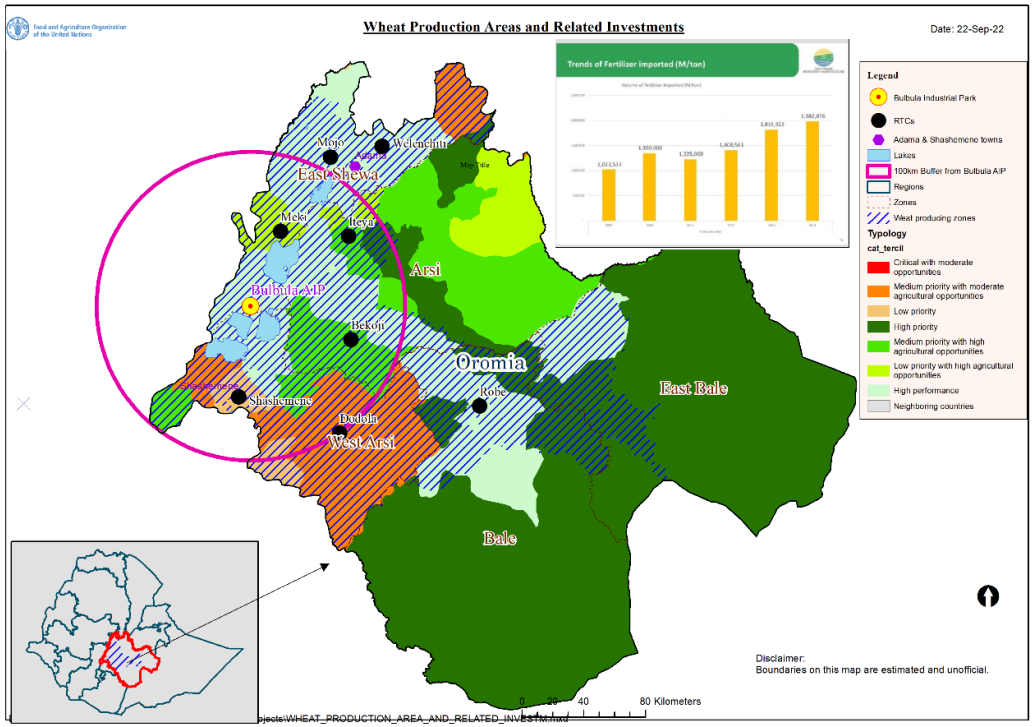
Avocado
beehives

Coffee
stumping fund
wet mills

Milk
animal feed
milk collection centers

Organic Fertilizer Production

- Existing wheat value chain actors form companies invest and/or receive loan-financing.
- 2 composting plants, 65t t/y
- Urban waste separated/collected manually; agro-industrial waste can supplement further
- Gradual implementation and adoption rates
- Fertilizer sold to farmers at factory gate cost (markup + VAT): USD 957/t



Rationale

- 40% depleted soils, yield gap
- Organic fertilizer to integrate into chemical fertilizer regiment implemented by small farmers
- In Shashemene, Adama: Suitable, solid urban waste available: 149,912 t/annum

Risks & considerations

- Business development skills of producer associations lacking – training to be provided
- Affordability/availability expected to increase uptake, shift from chemicals – awareness raising campaigns
- Association to own factories require business development support, technical assistance
- Patient capital requirements

Benefits

Profitability indicators:

- NPV (17% disc rate): USD 5.1m (2.6m per plant)
- IRR: 30%
- ROI: 3.8

Cost: USD 8.4m (4.2m per factory)

Impacts:

- 880 new jobs
- 300,000 farmers benefit from cheaper, better inputs
- Farmer income increase through yield increase: 40%
- Local economic development and spillover effects

Environment:

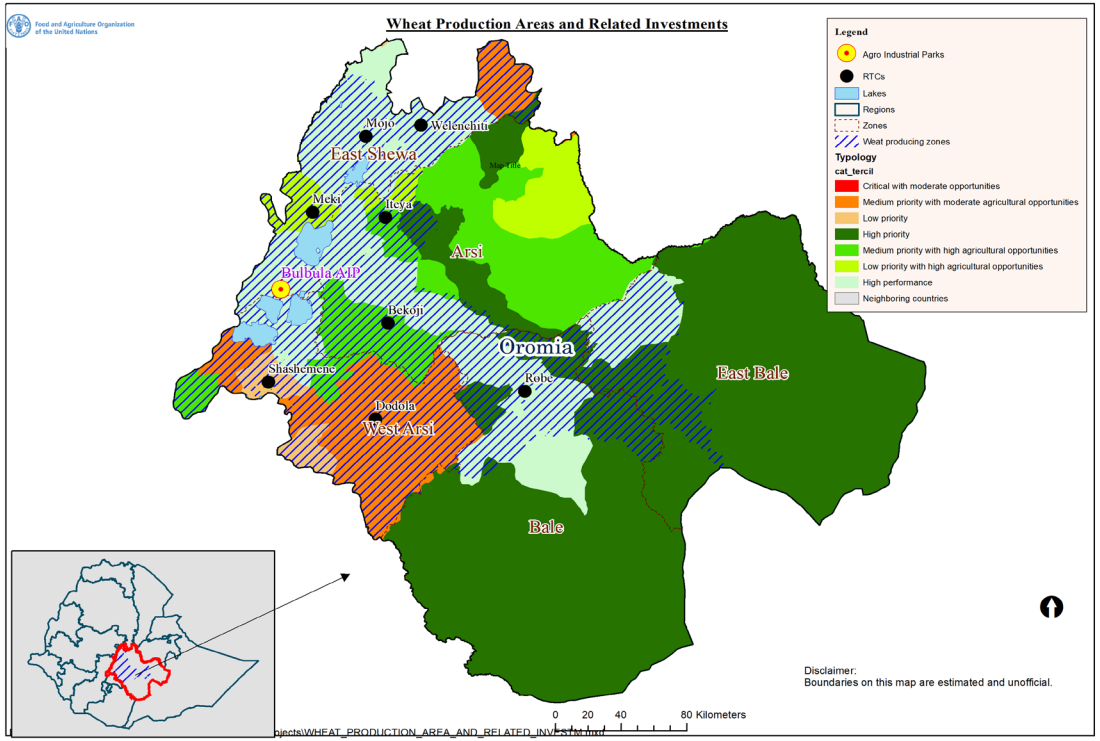
- Carbon mitigation potential of -170,164 tCO2-e, over 10 years
- Shift from chemical to organic assumption to offset increased emissions from fertilizer use

Walking Tractor Rental

Upgrading, modernizing existing Government-enterprise currently operates local production;

Establish 115 micro-businesses to rent out tractor services: (new or from Coops) as business entities for ploughing service

- Business model to be developed
- Linked with Hello Tractor



Rationale

- Wheat productivity gaps; low labor productivity (4 days/ha with oxen)
- Land under wheat often clustered making mechanization suitable

Risks & Considerations

- Business development skills of producer associations – training to be provided
- Digital/group based rental model untested locally – pilot needed
- Ensure equity access to business/ WT services - subsides for poorest families
- Technical and financial support needed to support SMEs
- Opportunity to employ poor/landless as WT operators
- Working with public enterprise

Benefits

Profitability indicators:

(Factory):

- NPV (17% discount rate): USD 690t
- IRR 22% ; ROI: 2.7

(per business)

- NPV (17% interest rate): USD 39.9t
- IRR: 35% ; ROI 4.1

Cost:

- USD 3.5 m facility upgrade
- USD 50t per business (=6.7M for 135)

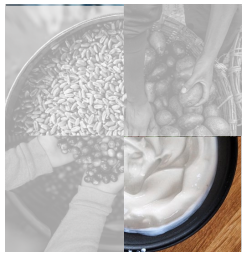
Impacts:

- 2,700 non-ag jobs created
- 100,000 farmers reached with labour saving technology at lower cost through rental
- Frees up womens' time from ploughing

Environment:

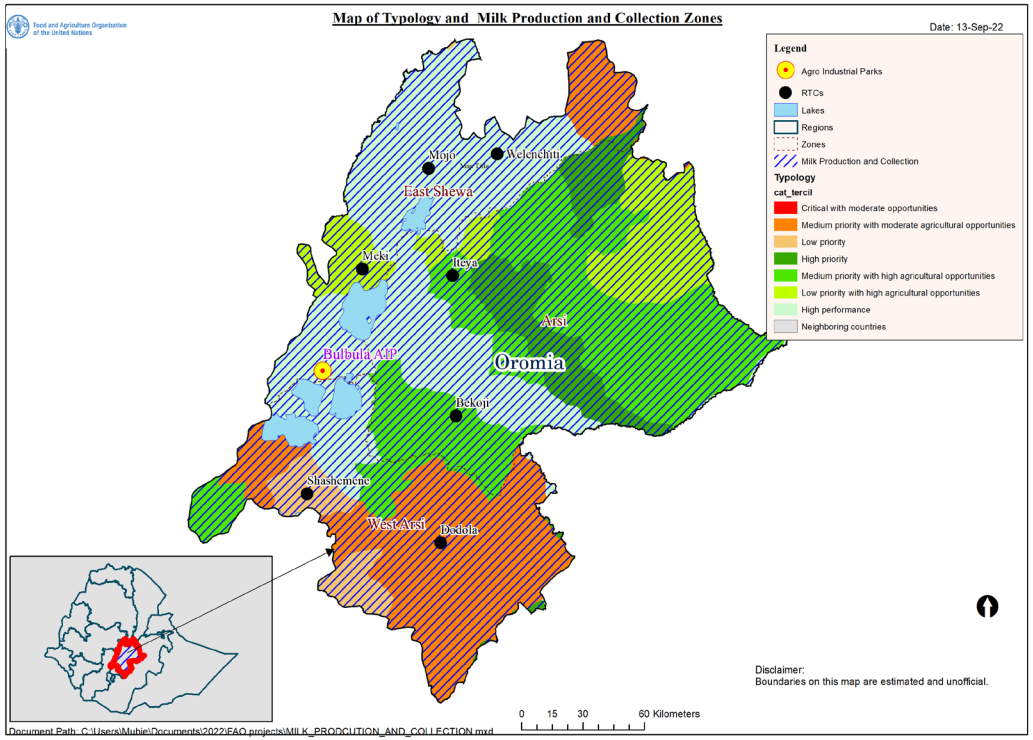
- Carbon mitigation potential of -71,838 tCO2-e, over 10 years
- Under assumption of WTs using reduced tillage implements

Compound Animal Feed Production



Company to produce & collect silage and produces feed compound in different locations (potentially agro-industry)

- 374,000 t of corn silage produced by milk-cooperatives; contract farming with off-taker;
- Company to lease idle /dry season land for silage production (9000 ha)
- Quintal of corn silage at <$3 to farmer



Rationale

- Low milk yields (1.482 l/c/d)
- <20% milk producers access to feeds (local and nationally)
- Idle land in dry season underutilized
- Centralized feed production due to land limitations

Risks & Considerations

- Irrigation of land during dry season – ensure water availability
- Large area for collection of materials – coordinate aggregation
- Affordability and willingness to adopt – awareness raising campaigns on productivity benefits; consider credit availability for poorest
- Contract farming model, buying from milk cooperatives
- Opportunity for in
- Organizing supply chains, support business development

Benefits

Profitability indicators:

- NPV (17% discount rate): USD 3m
- IRR: 28%
- ROI: 3.5

Cost: USD 6.2 million

Impacts:

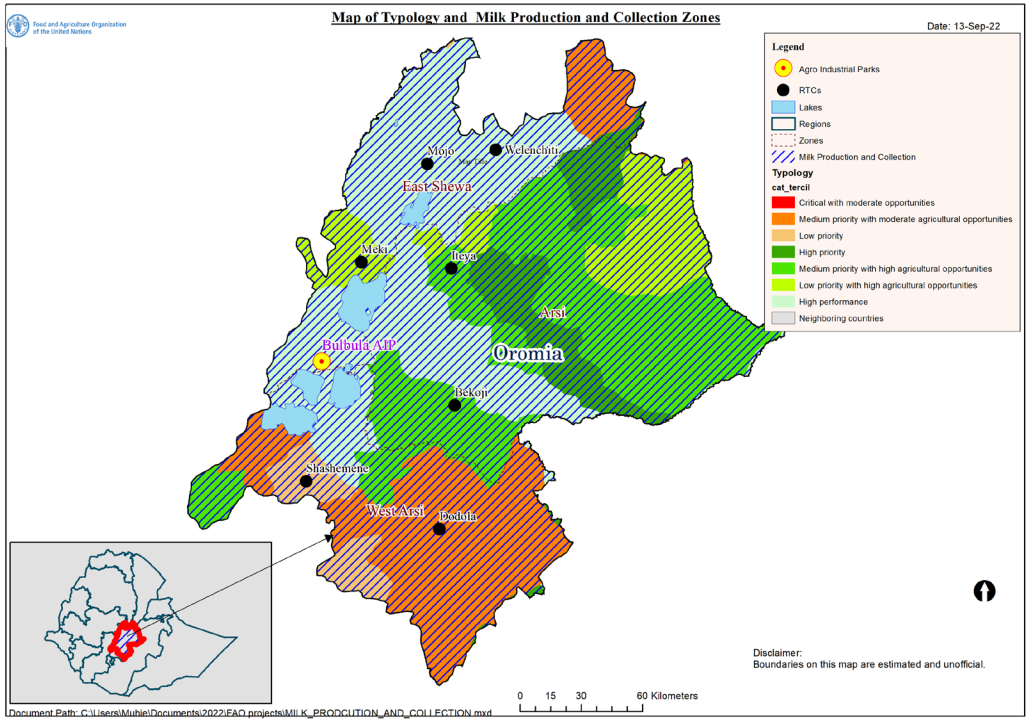
- 1165 new jobs
- Involvement of about 18,000 farmers in feed production; and 265,878 cow owners
- Rental income of up to USD 8 million/season for farmers, including most port
- Productivity increase from 1.5 to 5 l/c/d
- Improved cattle productivity will strengthen whole sector, economy

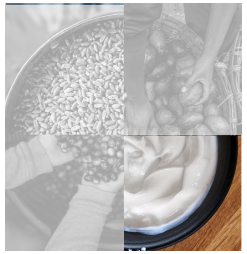
Environment:

- -24,915 tCO2-e, over 10 years
- Improved feed intake and health of animal off-sets increase in maize production, but highly sensitive to feed formula

Milk Collection Centers

- Establish 50 centers with adequate cold storage, transportation, collection services
- Milk collection centers will be managed by Coops who will also train milk producers supplying to centers
- Collection equipment to be owed and maintained by dairy processors.





Rationale

- High post harvest loss and poor milk quality
- Limited commercialization at household level (38% / non poor; 47% / poor households)
- Synergies expected from feed project, increased productivity for processing

Risks & Mitigation

- Maintenance of facilities – link to TVET training programmes
- Financial viability sensitive to raw milk price – value addition through processing
- Insufficient milk supply not profitable to enter value chain – link to feed project to increase productivity
- Opportunities to buy directly from poor famers
- Investments required to organize supply chains

Benefits

Profitability indicators:
- NPV (17% disc rate): USD 9.7 m
- IRR: 21 %
- ROI: 2.6

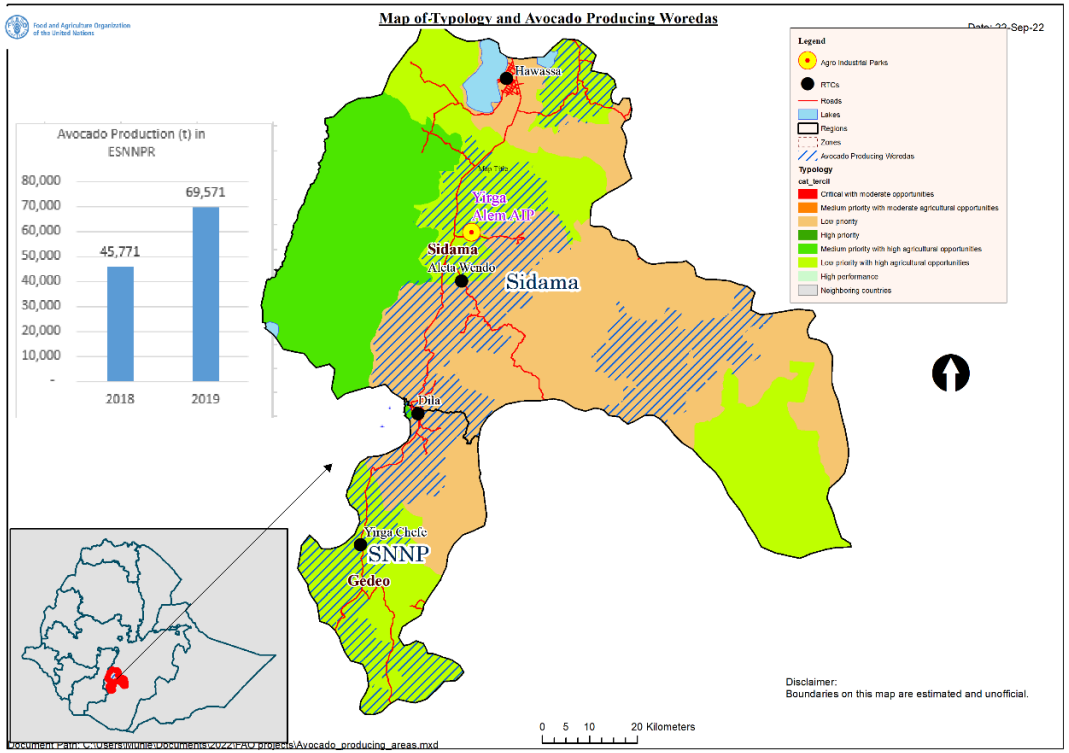
Cost: USD 64.5 m

Impacts:
- 9571 new jobs
- 265,378 cow owners reached (largely poor households, with opportunity of directly supporting the poor and women)
- Higher productivity enables hhs to sell while still ensuring home consumption

Environment:
- +58,000 tCO2-e, over 10 years
- additional processing requires offset; modern technology
- Buildings, fuel, electricity cause carbon emissions

Beekeeping for Avocado Fertilization and Income

- Establish SME's to install and maintain beehives – about 18 K beehives; 20 % for the business model
- **Rainfed** avocado production does not require irrigation but yield gap due to limited fruit set; potential productivity increase up to 30%
- Honey production and sales for poor beekeepers – with financial support and capacity building



Rationale

- Promising commercialization with significant sales (up to with 75%)
- Productivity/tree limited due to poor cross-pollination/low fruit set
- Adequate rainfall for production in smallholder plantations with intercropping

Risks & Considerations

- Limited skills amongst farmers in beekeeping – training required; potentially serviced by SMEs
- Potential diseases affecting bees – introduce biocontrol measures
- Elite capture by non-poor households of this opportunity - create links to PSNP
- Climate change & water consumption - training in climate smart agriculture and water harvesting
- Beehive construction targeted at poorest, landless individuals
- Price of beehives must be affordable

Benefits

Profitability indicators:
- NPV (17% discount rate): USD 3.5 m
- IRR: 73%
- ROI: 8.6

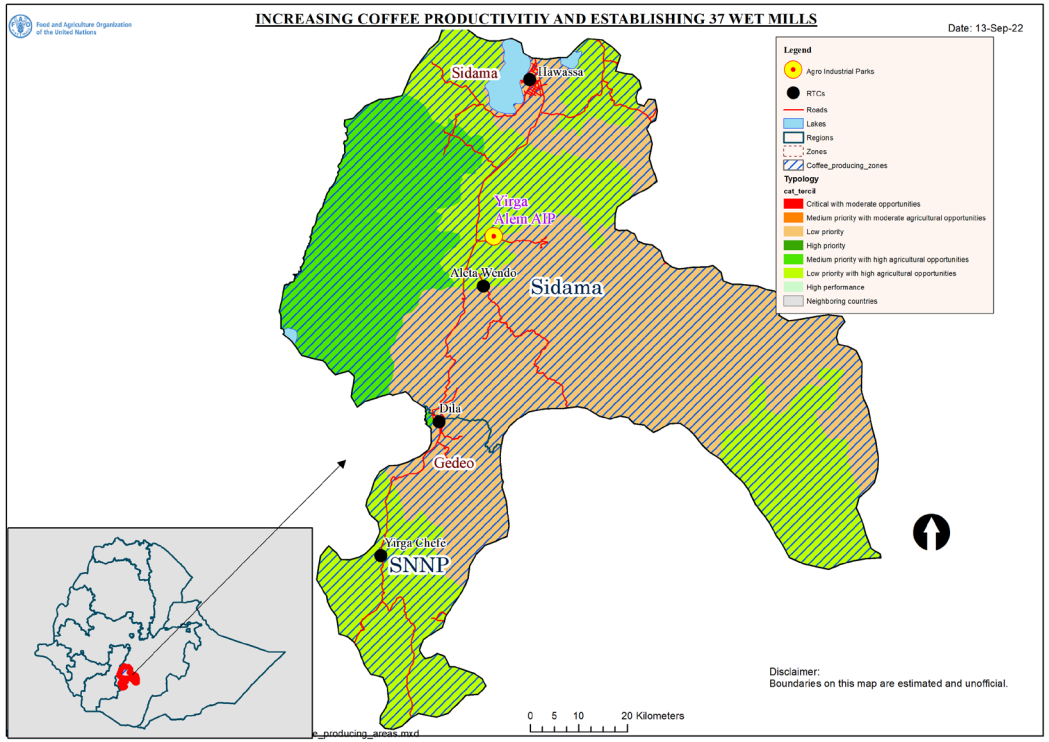
Cost: USD 1.2M

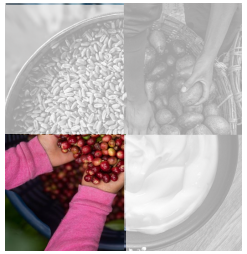
Impacts:
- 198,677 farmers reached
- 50% yield increase
- USD 10.5 million increase in farmers income and USD 3564 per ha
- Direct opportunity to support the poor (e.g. PSNP) as beehive fabricators, maintainers
- Gender impacts – avocado produced equally by men and women
- Nutrition benefits from household consumption - avocado and honey and diversification of income

Environment:
- Negligible carbon balance
- Yields offset beehive production emission
- Biodiversity strengthened

Coffee Stumping Fund

- Highly profitable for farmers to undertake stumping even with fluctuating prices;
- Incentive structure is needed, as well as shielding impacts of income loss for 2-4 years on up to 10% of a farmers field at a time
- Public-type fund can provide incentives and subsidies;
- Private cooperatives can be strengthened to support





Rationale

- 494 million old coffee tree need rejuvenation (1,026,052 growers)
- Current low adoption of stumping practices (expected at 25% of those trained) – Need for supplementary income and incentives

Risks & Considerations

- Climate change threats to productivity – training in climate smart practices
- Farmer income loss during regrowth – diversification/inter-cropping promoted
- Direct linkages to smallholders
- Requires patient/public investment and/or direct involvement elsewhere in value chain
- Investment model tried and tested on ground

Benefits

Profitability indicators:
- NPV (17% discount rate): USD 11.4 m
- IRR: 35%
- ROI: 5.2

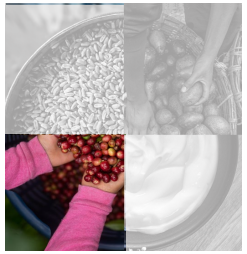
Cost: USD 10.6 million

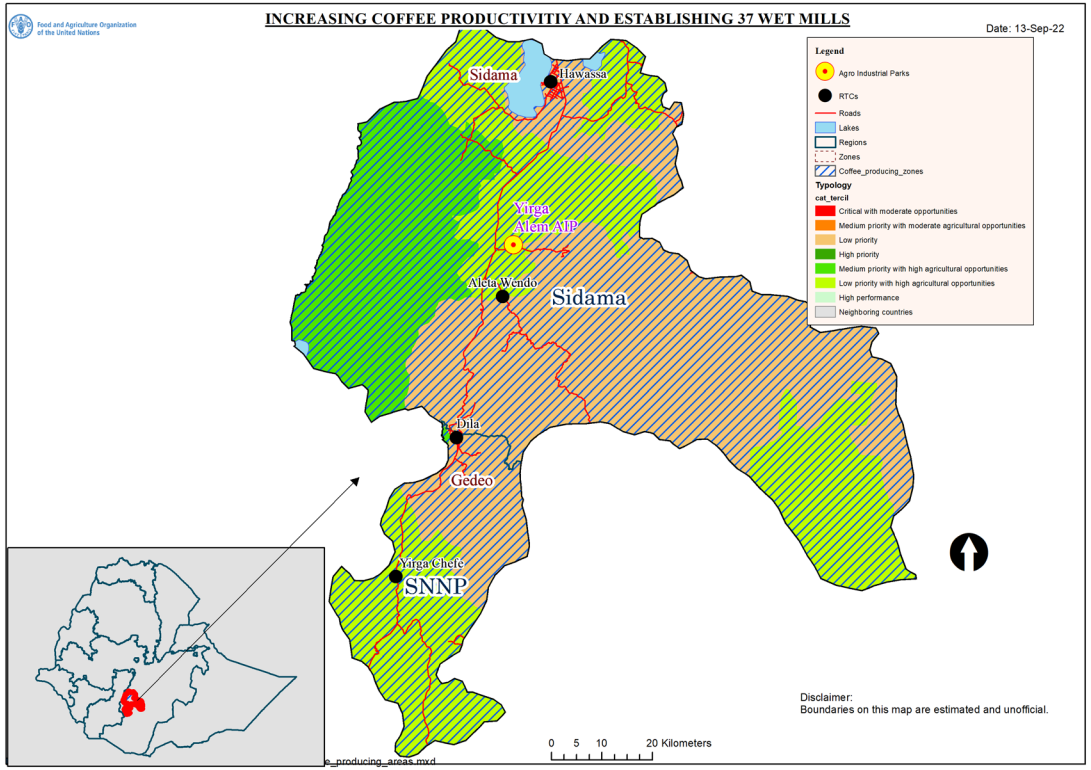
Impacts:
- Yield increase 3-5/fold
- Farmer income increase x3
- 41,297 farmers trained; 10,324 incentivized to stump 25% of trees

Environment:
- -59,000 tCO2-e, over 10 years
- Carbon sequestration through increased biomass
- Improved practices for negative carbon balance

Coffee Wet Mills

- Establishment of up to 245 mills required
- Union ownership of several washing branches at service charge
- Provision of extension services for producers
- Unions/companies can export direct





Rationale

- 1 mn coffee farmers
- Enhance the direct export opportunities of washed coffee (only 19%)
- 50% coffee produced is washed coffee

Risks & Mitigation

- Coffee price evolution - focus on value addition
- Exchange rate regulations – work with GoE to maintain enabling environment for exports
- Climate change threats to productivity – training in climate smart agriculture

Investor considerations

- Work with smallholder farmers

Benefits

Profitability indicators:

- NPV (17% discount rate): USD 30.3 mn
- IRR: 33 %
- ROI: 3.2

Cost: USD 53.5M / or 218,273 per facility

Impacts:

- 31,000 seasonal jobs created per month
- 500,000 to benefit from local value addition and increased price (USD 0.86/kg)
- Gross income to Union owners (farmers): USD 173 million in 10 years)
- Local value addition before export

Environment:

- +39,000 tCO2-e, over 10 years
- Buildings and fuels emissions; but off-set if combined with stumping fund

Ethiopia: Opportunity landscape

SUMMARY

US$155 M	27%	45,556	US$1.09 Billions	1,430,000	228,917
Investment Cost	Overall IRR	Jobs Created	Income to farmers	Farmer outreach	Tonnes carbon equivalents sequestered

KEY INVESTMENTS

1

Organic fertilizer production

INV Cost (USD)	US$8.3M
IRR (%)	30
NPV	US$5.1m

Sustainability Benefits

- Jobs Created: 880
- Benefits to farmers: 131 m
- Farmer outreach: :300t
- Agricultural improvements: 40% yield increase
- Carbon Emissions: -170,164

Walking tractor prod & renting

INV Cost (USD)	US$3.5M
IRR (%)	22
NPV	US$689,000

Sustainability Benefits

- Jobs Created: 2700
- Benefits to farmers: 16m
- Farmer outreach: 100t
- Agricultural improvements: x3 labour productivity
- Carbon Emissions: -71,838

2

Animal feed production

INV Cost (USD)	US$6.2M
IRR (%)	28
NPV	US$3M

Sustainability Benefits

- Jobs Created: 1165
- Benefits to farmers: 829M
- Farmer outreach: 56t
- Agricultural Improvements: +3.5 l/ cow/day
- Carbon Emissions: -24,915

Milk collection centers

INV Cost (USD)	US$64.5M
IRR (%)	21
NPV	US$9.6M

Sustainability Benefits

- Jobs Created: 9571
- Benefits to farmers: 18m
- Farmer outreach: 265t
- Agricultural Improvements: milk marketing increased
- Carbon Emissions: +58,000

3

Beehives for fertilization and income

INV Cost (USD)
US$1.2m

IRR (%)
73

NPV
US$3.5M

Sustainability Benefits

Jobs Created: 320

Benefits to Farmers: $10.5M/Y

Farmer outreach: 199t

Agricultural Improvements: avocado productivity increase

Carbon Emissions: 0

4

Coffee stumping fund

INV Cost (USD)	US$11.4M
IRR (%)	35
NPV	US$11.5M

Sustainability Benefits

- Jobs Created: n/a
- Benefits to Farmers: 67.6m
- Farmer outreach: 10,000
- Agricultural Improvements: yield x3/5
- Carbon Emissions: -59,000

Coffee wet mills

INV Cost (USD)	US$53.5M
IRR (%)	33
NPV	US$30.3M

Sustainability Benefits

- Jobs Created: 31,000
- Benefits to Farmers: 17.3m
- Farmer outreach: 500t
- Agricultural Improvements: coffee farm gate price increase 0.86/kg
- Carbon Emissions: +39,000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Thank You
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