Revitalizing the agrifood sector to improve food and nutrition security and resilience in Yemen: the role of public and private investments
Yemen context: a protracted crisis affecting the agrifood sector, poverty, and food and nutrition security

The political instability, and macroeconomic vulnerability hinder investments, highlighting the role of development partners and International Financial Institutions (IFI) to support policy reforms and investments

- Agriculture has been one of the most resilient sectors in the economy, accounting for about 19.3% of the GDP and nearly 60% of the economically active population

- The war and consequent fragile political context have disrupted the agrifood sector and undermined interest for investment (public and private)
  - Cohesion between development partners and evidence-based policy reforms, institutional strengthening, and investments can have a major impact on reducing risks

- The protracted crisis is diverting attention from development efforts
  - Funds are skewed towards humanitarian response, but there are good efforts on resilience and livelihoods towards Humanitarian-Development-Peace (HDP) nexus

- The country faces a water scarcity and climate change double challenge: high vulnerability & low readiness
  - Crossing different data socio-economic, climate, etc. from existing and new sources (GIS, remote sensing, etc.) represent an opportunity for evidence-based planning and accountability

- COVID-19 outbreak and the war in Ukraine exacerbated instability
  - Major investment opportunities related to building resilience to shocks (climate smart technologies, water infrastructure, grain storage capacity, etc.)
Business enabling conditions: factors of production, agro-climatic conditions, logistics, and strategic planning

There are attractive untapped demand both **domestically** and in **foreign markets**, especially for some **high value products**.

**Evidence** highlights that subsectors with highest investment potential are: **tomatoes, peppers, onions, sorghum, coffee, fisheries/aquaculture, dairy, and apiculture**. In addition to other subsectors such as **date palm** and **poultry**.

To **unlock such high agrifood potential of socio-economic inclusion and environmental sustainability**, the country is endowed with a number of **enablers**:

- **a. A new policy and investment framework for SDG 1 and SDG 2** is being developed
- **b. Prioritized subsectors have great potential to benefit the poorest and minimize the environmental impacts** of agricultural activities
- **c. Yemen is in a strategic geographic position with port and road infrastructure easy to connect with main export markets**
- **d. Relatively affordable costs of labor** can help to offset the high transaction costs
- **e. Development of key subsectors may increase wages**, which would also provide opportunities for **skills development and productivity growth**
- **f. Technology adoption** can enable investors to add substantial value to water resources and the **excellent agro-climatic conditions** in key value chains
Opportunity: a new evidence-based policy and investment framework for SDG 1 and SDG 2

Estimated Financial Gap: 52%

Overall Budget: US$ 1,330 million

Prioritized Public Investment

For Donors, International Financial Institutions (IFIs) and Government financing

Unlocking and enabling private investment
Investment plan & opportunities: strengthening HDP nexus

Humanitarian Assistance (USD million)

Development Assistance (USD million)

NAFSIP 5-year investment Planning: estimated investment costs (USD million)

Source: Yemen HiH team

Need: US$ 1.33B

Gap: US$ 685M

Source: developed by Yemen HiH team based on data from Global Network Against Food Crisis, 2022.
Investments target zones of high impact (high poverty and efficiency gaps)

- Evidence-based geographic targeting through georeferenced data to fill investment gaps and maximize impact.
- Target areas are obtained by combining need factors (e.g., poverty levels) and estimated yield gaps.
IC: Fisherfolks Business Alliance (enterprise model)

Opportunity & reach

- **Opportunity**: high quality and better preserved fish is marketed with a 20-30% premium price. Preserving the cold chain is an opportunity to tap in that premium.
- **Scope**: Fisherfolks Business Alliances functioning on membership fee establish energy efficient ice producing units and cold storage facilities at landing site
- **Membership**: 15-20 members plus boats crews and business alliance employees
- **Production capacity**: 630 tons of higher value fish and 1,500 tons of ice per year
- **Focus on**: local and export markets

Main risks

- **Capacity risks**: fisheries value chain are segmented and fisherfolks are generally not involved in handling facilities at landing sites, and need capacity development
- **Institutional risks**: the weak institutional setup and outdated policy and regulatory framework represent an impediment to the development of the sector
- **Quality management risk**: investment in preserving fish may not attain market standards and undermine the value added of the alliances

Incremental benefit for multiple stakeholders

**Fisherfolk Alliance**: operating costs are covered by revenues deriving from: ice sales to Alliance’s members and external fisherfolks at a competitive price and produced with energy efficient technologies, coupled with a symbolic membership fee, allow to cover the operating costs. The payback of the investment is between 4 to 5 years.

**Boat Owners**: higher quality fish and cool storage generate gains on sales with incremental benefit of 220 USD per month.

**Fishing Crew**: the business would allow to increment the daily pay to the crew, with an average incremental gain of 25 USD/ person per month for an estimated 350 fishing days / year.

Impact indicators

- Fisherfolks gain US$ 2,600 net incremental benefits per year.
- For the Business Alliance, incremental net benefit are estimated at US$ 130,000 per year

Financials per FBA (10 years)

- Investment per FBA: $193,000
- National investment gap: $5.8m
- Project NPV: $229,300
- IRR: 26%
IC: Fisherfolks Business Alliance (enterprise model)

Photo credits: FAO-Yemen
IC: Dairy processing (enterprise model)

**Opportunity & reach**

- **Opportunity**: dairy facilities face major quality issues due to limited use of cooling technologies and poor quality milk (large unmet demand for quality dairy products)
- **Scope**: investment in farmer-driven joint dairy processing plant with capacity to process
- **Membership**: ~50 dairy producers per plant
- **Production capacity**: 700 tons of milk per annum, producing yoghurt (50%), labneh (30%) and white soft cheese (20%)
- **Focus on**: local markets with some export opportunities

**Main risks**

- **Adoption risks**: transaction costs, location proximity, and other factors need to be attractive enough for farmers to choose new facility over existing options
- **Competitiveness risks**: local dairy products may struggle to compete with quality and price levels of imported products

**Impact indicators**

- **Total direct impact**
  - Incremental benefit: $105,100 per year per facility ($545 per farmer)
  - Value added of $102 per cow
  - 54 beneficiaries per center

**Financials for one facility**

- **Investment per plant**: $100,900
- **Total investment gap**: $9.1 million
- **Project NPV**: $180,900
- **IRR**: 22%

**Incremental benefit over 20 years, $**

**Dairy collection and processing locations**
IC: Apiculture (honey)

Opportunity & reach

• **Opportunity:** premium prices offered to Yemeni niche honey products locally and especially in export markets has turned apiculture into a profitable activity
• **Scope:** this includes investments in beehives, bees, necessary equipment and training to start/expand an apiculture activity
• **Membership:** 5 beekeepers (50 beehives total)
• **Production capacity:** 75 kg of honey and 10 kg of new bee cells
• **Focus on:** local markets and especially exports (exports may increase by up to 1,500 tons per annum)

Main risks

• **Skills risks:** proper training is needed for high adoption and benefits generation
• **Market access risks:** limited access to export market access may lead to premium price planned not panning out
• **Environmental risks:** these may adversely affect apicultural activities and honey yield

Opportunities & reach

Annual incremental benefit

US$ 13,700 for 50 beehives

US$ 2,745 additional benefit per farmer per year (10 beehives)

Increasing availability nutritious foods

Key stakeholders

- **Bee and beehive providers**
- **Equipment providers**
- **Offtakers/exporters**
- **Trainers**

Impact indicators

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- Increasing availability nutritious foods

Financials per 50 beehives

Investment per hives: US$ 14,200
Total investment gap: US$ 114 million

Project NPV: US$ 17,800
IRR: 15%

Main investment costs (US$)

- Beehives with bees: 6,000
- Punching machine: 1,200
- Fusion pot of beeswax: 2,565
IC: Coffee terraces

Opportunity & reach

- **Opportunity:** Yemeni coffee can reach high prices in international markets and area cultivated can expand by 30% (untapped export potential is 60%)
- **Scope:** Plant coffee in rehabilitated terraces to reduce water loss/erosion and improve soil fertility and biodiversity
- **Focus on:** Mostly export markets

Project risks

- **Financing risks:** Insufficient financing for farmers to adopt new technologies and upgrade post-harvest processing may affect investment performance
- **Logistics risks:** Export logistics may affect transaction costs and product prices should the conflict continue active

Impact indicators

- Incremental benefit of USD 1,422 per ha per year (per farmer)
- Expansion of coffee industry will increase jobs, especially for women
- Major value chain to bring foreign currency to Yemen

Financials per hectare

- Investment per hectare: $4,375
- Total investment gap: $61.2 million
- Project NPV: $8,110
- IRR: 20%

Incremental benefit over 20 years, $

[Graph showing incremental benefit over 20 years]

Coffee cultivated areas and road access

[Map showing coffee cultivated areas and road access]

Coffee processing and storage locations

[Map showing coffee processing and storage locations]
YEMEN INVESTMENTS

SUMMARY

US$189.8M
Total Investment

~22%
Overall Average IRR

438 thousand
Beneficiaries

US$1,763
Income Increase Per Capita

2.33 MT
Emission Reduction Per Capita

KEY INVESTMENTS

1. Intervention
   Fisherfolk Business Association (cool storage)
   
   Cost (USD)
   US$5.8M
   
   IRR (%)
   29%
   
   NPV
   US$7.0M
   
   Sustainability Benefits
   Beneficiaries: 26,250
   Income increase per capita: US$625
   Emission reduction per capita: 0.8 CO2 MT

2. Intervention
   Dairy processing plant
   
   Cost (USD)
   US$9.1M
   
   IRR (%)
   22%
   
   NPV
   US$16.3M
   
   Sustainability Benefits
   Beneficiaries: 34,000
   Income increase per capita: US$544
   Emission reduction per capita: 1.2 CO2 MT

3. Intervention
   Apiculture
   
   Cost (USD)
   US$113.7M
   
   IRR (%)
   15%
   
   NPV
   US$143.2M
   
   Sustainability Benefits
   Beneficiaries: 280,000
   Income increase per capita: US$2,145
   Emission reduction per capita: 0.14 CO2 MT

4. Intervention
   Coffee terraces
   
   Cost (USD)
   US$61.2M
   
   IRR (%)
   20%
   
   NPV
   US$113M
   
   Sustainability Benefits
   Beneficiaries: 98,000
   Income increase per capita: US$1,415
   Emission reduction per capita: 9.37 CO2 MT

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INTRODUCTION

The Hand-in-Hand Initiative is a program aimed at improving the livelihoods of people in Yemen through investments in key areas such as agriculture and fisheries. This page provides an overview of the investments made, including their costs, financial returns, and sustainability benefits.

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CONCLUSION

The Hand-in-Hand Initiative has made significant investments in Yemen, generating a return on investment and providing substantial benefits to the beneficiaries. Through these investments, we aim to improve the economic stability and environmental sustainability of the region.
Thank you