



Food and Agriculture Organization
of the United Nations



Hand-in-Hand
Initiative

Bangladesh
for 2023 Investment Forum



Outline

1

Bangladesh at a glance

2

Why invest in Bangladesh

3

Overview of Investment Opportunities.
Develop Multiple Cold Storage facilities
Develop Agroprocessing facilities
Efficient irrigation and water management
Speed breeding & CSA: Distribute Climate Smart Rice seed

Section 1: Overview of Bangladesh

170M

8th highest Population,
Density 1,200/Km²

USD 2,657

(in current price)
Per capita income in 2022-23

580km

Of coastline containing the
Sunderbans, a complex
mangrove ecosystem

1/3rd

Of all area is wetlands,
characterized by unique haors

~11%

Of GDP is from the
agriculture sector

~45%

Of the labour force works
in agriculture

Section 2: Why Invest in Bangladeshi agriculture

1

Rapid national progress over the years, with specific future goals



2

Agriculture sector strong driver of employment and economy



3

The government is heavily investing in infrastructure and attractive fiscal policy



...combined with specific goals

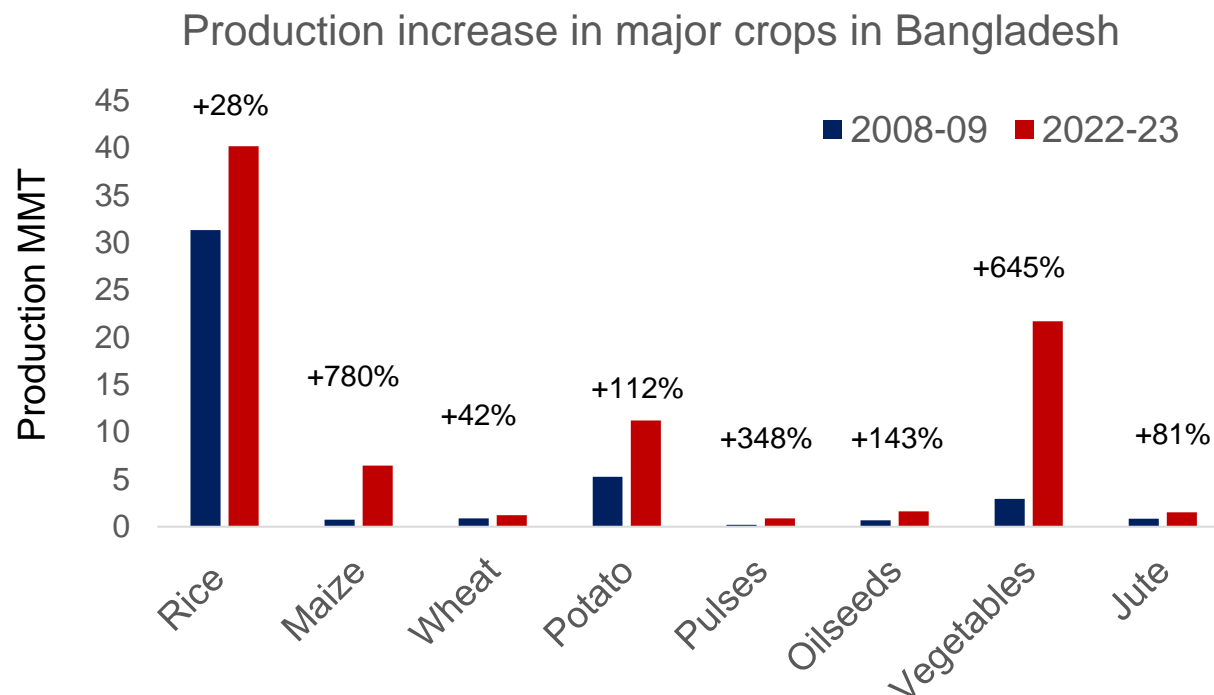
Rapid national successes....

- +300% GDP per capita since 2013
- Achieved Lower-Middle Income status in 2015
- 18.7% absolute Poverty rate; halved from 2005 to 2022
- Decline in undernourishment by 25% since 2000
- LDC graduation by 2026
- Upper-Middle Income status by 2031, High Income status by 2041
- Decreased agricultural emissions to meet NDC targets
- Growing processed food market to ~USD 6bn by 2030

Section 2: Why Invest in Bangladeshi agriculture



The agriculture sector presents huge opportunity for impact: it is core to the economy (11%), growing fast, and employs 45% of the workforce



- Globally, a **Top-3 producer** of rice, vegetables, onion, jackfruit, and jute
- **Top-7 producer** of Tea, Potato and Mango

Section 2: Why Invest in Bangladeshi agriculture

Rapid infrastructure development underway



Building 100 Special Economic Zones



New deepwater port and 4th international airport being built



New government facilities to ensure high quality of export-ready products



20% cashback incentives for export

Fiscal policies being rolled out to support foreign investment and exports



Exemption on regular tax for new agro investments



Free Trade Agreements that reduce trade costs

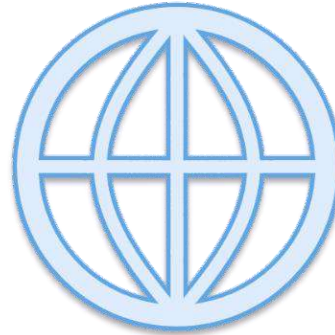
Government agencies to support private sector investments, including through Bangladesh Delta Plan 2100 and Mujib Climate Prosperity Plan- Decade 2030

Section 2: Strong and growing investment pipeline



**Ministry of Agriculture
funding is very strong**

Investment + commits of
USD 3.2bn



**USD 1bn+ commits from
development partners**



e.g. USD 543M PARTNER
program signed



**Growing interest from
private sector**



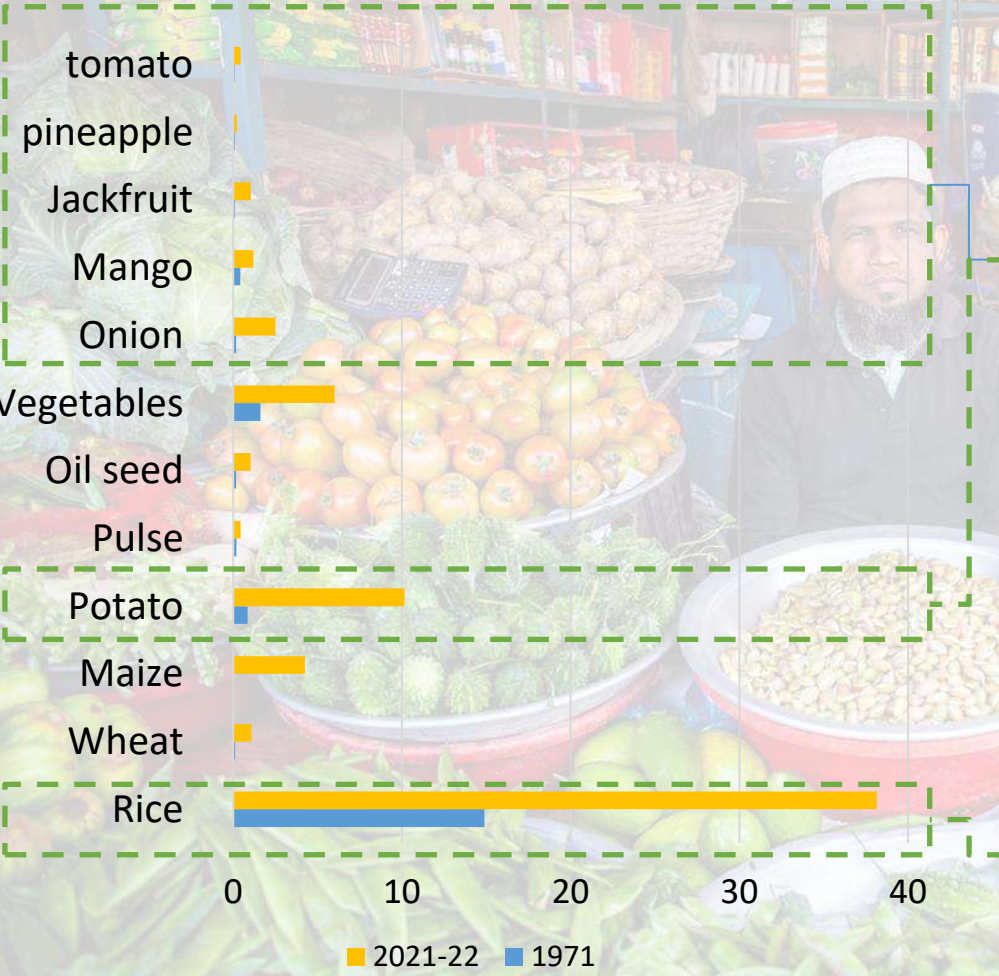
USD 1bn interest

**Bangladesh Agriculture
Investment Forum** held in Aug
2023 drew formal expressions of
interest for investment

Multistakeholder collaborations and joint fundraising also being facilitated by FAO's Hand in Hand Initiative

Section 3: HiH investments tackle 7 critical value chains

Production (million MT)



- **Post harvest losses are 25-40%**
- Agro Processing at ~15% of agriculture sector; **high export potential**
- Seasonal water scarcity impacts horticulture

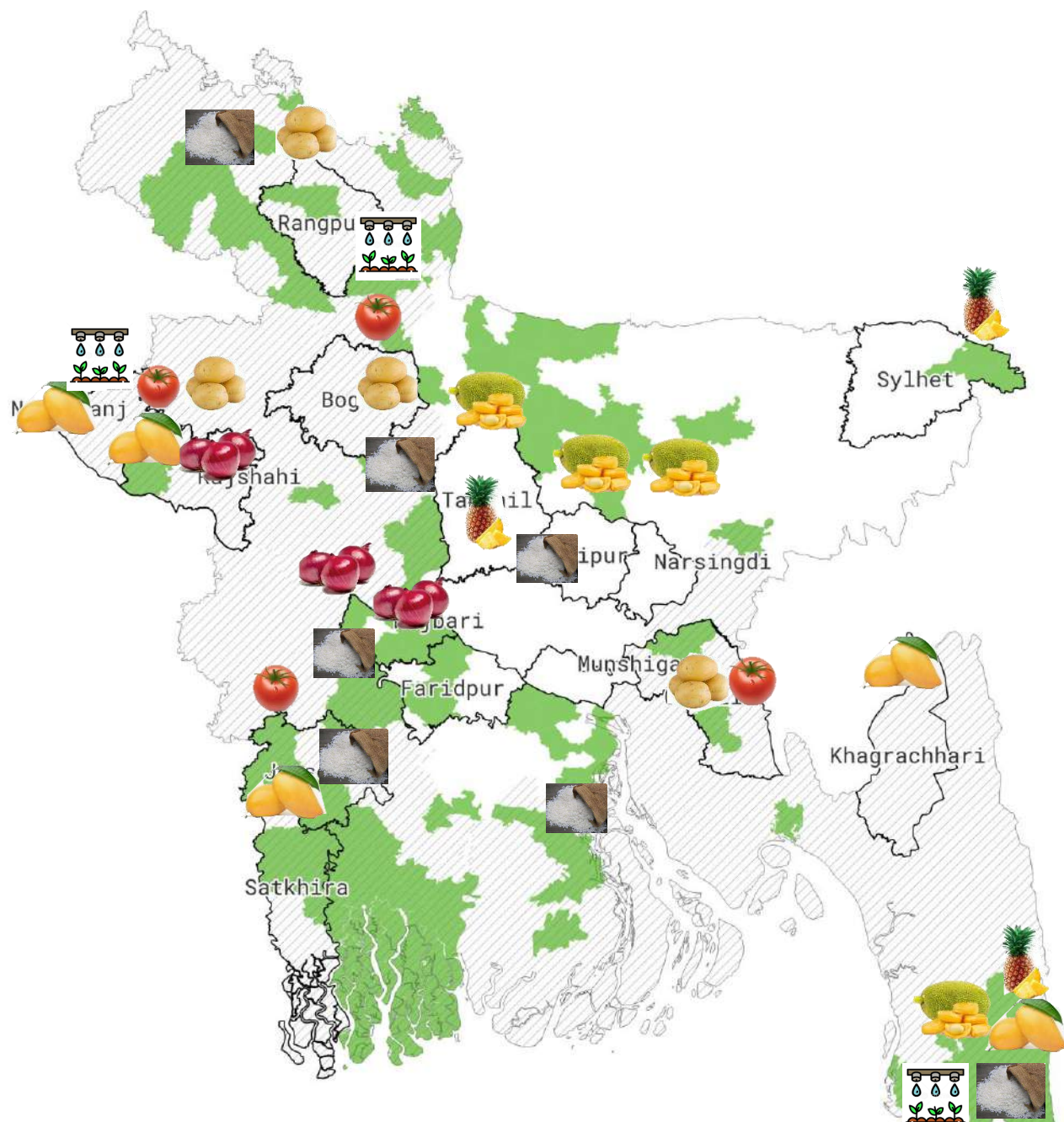
Top 3 producer of rice; production threatened by climate effects; global supply by export ban in India (July 2023)











HiH investments

- i **Develop cold storage facilities**
- ii **Develop Agroprocessing facilities**
- iii **Distribute alternative drip irrigation kits**
- iv **Distribute climate resilient rice seed**

Source: FAOSTAT and BBS, 2023

Section 3: Target investment areas chosen based on typologies (not exhaustive)



-  Potato
-  Pineapple
-  Mango
-  Onion
-  Jackfruit
-  Tomato
-  Rice
-  Rice
-  High Priority Areas (based on poverty, agriculture potential and agriculture efficiency)
-  Drip irrigation

**further tuning might require



i Opportunity 1: Develop Multipurpose Cold Storage Facilities





Opportunity 1: Develop Multipurpose Cold Storage Facilities

Investment Overview

Business model:

Farmers and farmer groups rent cold storage space ; services to be financed using credit vouchers in existing e-voucher system

Investment needed

USD 432mn

- Interrupted power supply; mitigated by using solar energy

Risks & mitigation

- Lowered uptake in the past driven by high rental cost and financial insolvency to be mitigated with farmer-friendly financial solutions

Why invest in Cold Storage?

- Win-win for all stakeholders due to reduced:
 - Price volatility for consumers
 - Income volatility for farmers
 - Reduced import dependency
- Improved food quality and safety
- Improved farmer incomes

Investment Outlay

Build ~1100 multipurpose cold storage facilities of 2000MT capacity each; which can store 6 key value chains



Opportunity 1: Develop Multipurpose Cold Storage Facilities

USD ~396M Investment for selected VCs

~15-18% Overall IRR

~3.5M Beneficiaries

~USD 251 Extra-Income Per Farmer

~6M T Emission Reduction



Investment goal

Incremental 5% capacity

Incremental 15% capacity

Incremental 30% capacity

Incremental 30% capacity

Incremental 30% capacity

Incremental 30% capacity

Selling markets

100% domestic

100% domestic

100% domestic

20% to Gulf, EU, USA, Japan
80% domestic

30% to Gulf, EU, USA, Japan
70% domestic

30% to Gulf, EU, USA, Japan
70% domestic

Investment need (USD)

~82M

~58M

~26M

~70M

~63M

~12M

IRR (%)

~15%

~16%

~17%

~18%

~15%

~17%

VPN (USD)

~27M

~22M

~9M

~26M

~21M

~4M

Beneficiaries

Direct

30,300

306,000

8,800

146,000

187,000

17,000

Indirect

123,000

1,243,000

35,000

590,000

760,000

70,000

Income increase per farmer (USD)

~164 /yr

~243 /yr

~410 /yr

~317/yr

~214/yr

~339/yr

Emission reduction (tonnes of CO2-e)

~1.9M

~1.5M

~0.5M

~1.0M

~0.17M

~0.3M

Sustainability benefits



ii Opportunity 2: Develop Agroprocessing Facilities



Opportunity 2: Develop Agroprocessing Facilities

Investment Overview

Business model: Processing facilities enter offtaker contracts with farmers and manufacture higher value products

Investment needed USD 242mn

Risks & mitigation

- Issues with power can be mitigated by using solar energy
- Shortage of skilled staff to be mitigated through training programs

Why invest in Agroprocessing?

- Win-win for all stakeholders due to increased:
 - Value addition for produce
 - Export potential
 - Income for farmers; reduced PHL
 - Food quality, longevity, and safety
- Reduced dependence on import



Develop 4% of production into chips

40 facilities of 10,000MT each

Reach of 88,000 producers



Develop 10% of production into juice and pulp

12 facilities of 10,000MT each

Reach of 48,000 producers



Develop 10% of production into chips

10 facilities of 10,000MT each

Reach of 63,000 producers

Opportunity 2: Develop Agroprocessing facilities

**USD ~242M Investment
for selected VCs**

**22-39%
IRR**

**~1M
Beneficiaries**

**~USD 259 Extra-Income
Per Farmer**

**~1.5M T
Emission Reduction**

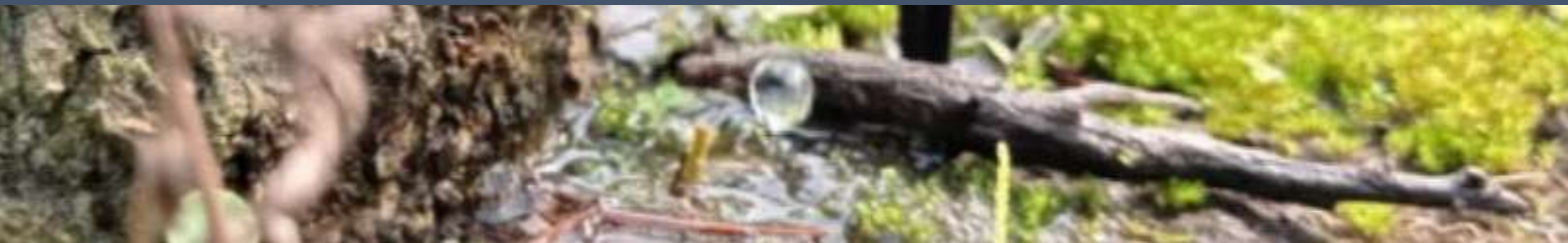


	Investment	Convert 4% of potato production to chips	Convert 10% of mango to juice and pulp	Convert 10% of jackfruit production to chips
Selling markets		50% to the Gulf 50% domestic	100% to the Gulf, EU, USA, Japan	50% to Gulf, EU, USA, Japan 50% domestic
Investment need (USD)		~154M	~46M	~42M
IRR (%)		~39%	~36% pulp; ~22% juice	~39%
VPN (USD)		~190M	~72M	~5M
Beneficiaries	Direct	88,000	48,000	62,500
	Indirect	360,000	196,000	256,000
Income increase per farmer (USD)		~197 /yr	~380 /yr	~256 /yr
Emission reduction (tonnes of CO2-e)		~1.4M	~0.07M	~0.03M



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Opportunity 3: Efficient irrigation and water management





Priorities: Buried pipes, drip and sprinkle irrigation; water harvesting; eliminating water logging

Example: for tomato

Why drip irrigation?

Drip irrigation allows irrigation with savings on:

- **Water** usage
- **Energy** as less groundwater gets pumped
- **Time** and **Labor** due to efficiency gain
- **Inputs** such as fertilizers and pesticide
- **Diseases** by minimizing water contact with leaves, stems and fruit of plants

- Heavy reliance on imports
- Dramatic price swings
- Increasing yields through drip irrigation will boost domestic supply; potentially reducing swings

Investment Overview

- Distribution of low-cost drip irrigation kit to tomato farmers in high producing regions to cover up to 8,000 Ha (or 50% of major tomato producing areas) by 2030

Opportunity 3: Drip irrigation for tomato cultivation

Business model:

- Farmers purchase low-cost drip irrigation toolkit from distributor company, which runs training programs to ensure proper dissemination

Investment needed

~USD 7M

Financials

NPV

~1.4 M

IRR

~14%

Sustainability Benefits

Beneficiaries:

Direct

~0.18M farmers

Indirect

~0.72M

New jobs created

~180

Additional profit per farmer

USD 186 p.a.

Risks & mitigation

Level of uptake of the drip irrigation may be ensured by temporary subsidy; HYV to be adopted to get full yields' improvement of drip irrigation



Opportunity 4: Speed breeding & Climate smart agriculture - Distribute Climate Resilient Rice Seed



The case for prioritizing rice production



Rice forms 5% of GDP
93% of irrigation water goes
to rice

Rice is prioritized for CSA

Rice production faces climate challenges

- Saline intrusion affecting the South
- Water scarcity affecting the North
- Serious threats posed by climate change which may reduce available cropland by 24%

Investment Overview

- **Seed development, sales, and distribution:**
 - Drought resistant short-duration *Aman/Aus* rice varieties on 30% of current rice area in Barind area (north-west) (1.15M ha)
 - Salt resistant short-duration *Aman/Aus* rice varieties on 30% of current rice area in Khulna, Barisal and Chattogram (1.26M ha)

Opportunity 4: Distribute Climate Resilient Rice Seed – operating model



Opportunity 4: Distribute Climate Resilient Rice Seed

Business model:

- Farmers purchase saline and/or drought resistant seed from distributor company, which runs training programs to ensure proper dissemination

Financials	Investment needed	~USD 180M	
	NPV	~218 M	IRR ~26%

Sustainability Benefits

Beneficiaries:		New jobs created	~4,400
Direct	~4.4M farmers	Additional profit per farmer	USD 365 p.a.
Indirect	~20M	Emissions saved (T CO₂-e)	~11.7M

Risks & mitigation

Shortage of skilled staff to run high quality training programs, extension services and communication campaigns on quality seeds to be mitigated by proper resourcing

Further investment opportunities-estimates ongoing

Production, multiplication and distribution of non-rice stress tolerant varieties

Mini low-cost solar powered community cold storage & processing facilities
Expanding Fertilizer storage

Speed breeding; biotech research-gene editing;
Smart and precision agriculture using 4IR Technology; IPM/ICM/GAP

HR & Institutional Capacity for research, extension, regulation and governance

Scale up investments in buried pipes and sprinkle irrigation from surface water;
water harvesting and elimination of water logging



HAND IN HAND INVESTMENT PLAN



Food and Agriculture Organization of the United Nations

SUMMARY

USD ~825M Investment for selected VCs	14-39% Overall Average IRR	~29M Beneficiaries	~USD 340 Income Increase Per Farmer	~20M T Emission Reduction
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KEY INVESTMENTS

KEY INVESTMENTS	GoB Investment + Commitments (USD)	GoB Investment + Commitments (USD)	GoB Investment + Commitments (USD)	GoB Investment + Commitments (USD)
GoB Investment + Commitments (USD) 88.5M	GoB Investment + Commitments (USD) 454.1M	GoB Investment + Commitments (USD) 725.5M	GoB Investment + Commitments (USD) 1,862.3M	GoB Investment + Commitments (USD) 1,862.3M
Investment Build ~1100 multipurpose cold storage facilities to store fruits & vegetables	Investment Grow processing capacity across mango (10%), potato (4%), jackfruit (10%)	Investment Distribute low-cost drip irrigation kit to tomato farmers to cover up to 8Th Ha in highly producing regions	Investment Convert 2.4M Ha of rice growing area to saline or drought resistant breeds	Investment Convert 2.4M Ha of rice growing area to saline or drought resistant breeds
Investment needed (USD) ~396M	Investment needed (USD) ~242M	Investment needed (USD) ~7M	Investment needed (USD) ~180M	Investment needed (USD) ~180M
IRR (%) 15-18%	IRR (%) 22-39%	IRR (%) ~14%	IRR (%) ~26%	IRR (%) ~26%
VPN (USD) ~108M	VPN (USD) ~267M	VPN (USD) ~1.4M	VPN (USD) ~218M	VPN (USD) ~218M
Sustainability Benefits Direct beneficiaries: ~0.7M Indirect beneficiaries: 2.8M Income increase per farm: ~USD 251/yr Emission reduction: ~6M T	Sustainability Benefits Direct beneficiaries: ~0.2M Indirect beneficiaries: 0.8M Income increase per farm: ~USD 259/yr Emission reduction: ~1.5M T	Sustainability Benefits Direct beneficiaries: ~0.18M Indirect beneficiaries: ~0.72M Income increase per farm: ~USD 186/yr	Sustainability Benefits Direct beneficiaries: ~4.4M Indirect beneficiaries: ~20M Income increase per farm: ~USD 365/yr Emission reduction: ~11.7M T	Sustainability Benefits Direct beneficiaries: ~4.4M Indirect beneficiaries: ~20M Income increase per farm: ~USD 365/yr Emission reduction: ~11.7M T

Way forward

- The estimates presented is a small part of the whole picture being pursued
- Dissect/evaluate past and ongoing investments—across themes, across geography, across beneficiaries/gender
- Formulate priority investment plan based on evidence (exhaustively costed) for crop sector based on targets set for 2030 & 2041
- Assess investments by Govt., private, public-private, public-DPs
- Mobilize resources towards planned investments/projects/programs— including global financing for CSA
- Evolve Result based monitoring and evaluation; data-driven decision support system