



Global Innovation Lab
for Climate Finance

Secured Climate-linked Agri Lending Ecosystem (SCALE)



October 2026

About the Lab

The Global Innovation Lab for Climate Finance, hosted by the Climate Policy Initiative, identifies, develops, and launches sustainable finance vehicles that can drive billions of dollars into a low-carbon economy. The Lab is an independent, neutral third-party which stress-tests vehicles (design & capital structure, impact framework, implementation plans) to support their development into market-ready solutions.

This Blueprint document is a summary of the analytical results from the rigorous incubation program. The Lab aims to inform the market on the structures and concepts that have been designed to enable innovation to cross-pollinate, implementation to scale, and partnerships to form.

The authors of this blueprint are Amandeep Singh and Shiven Trivedi. Publication date October 2026.

The concept has been proposed and is currently under development by International Food Policy Research Institute and Dvara E-Registry (proponents). The authors would like to acknowledge Berber Kramer, Tarun Katoch, Senthil Kumar, Pankaj Gaur, Subhransu Pattnaik and Brendan Rice for their cooperation and engagement with the Lab program.

The authors would also like to thank Amanda Brasil, Ben Broché, Jen Grosman Fernandez, Michaela Nesson, and Carla Orrego for their advice and internal review; Daniela Chiriac, Liam Maguire, Mudrit Kandpal, Amanda Lonsdale, Ricardo Narvaez, Holly Page, and Morgan Richmond for their guidance and subject matter expertise; Daniela Álvarez, Júlio Lubianco, and Annie Woscoboinik for editing; and Pauline Baudry, Elana Fortin, and Angela Woodall for layout and design.

More information at www.climatefinancelab.org.

FUNDERS

**Bloomberg
Philanthropies**

Canada

 Federal Ministry
for the Environment, Climate Action,
Nature Conservation and Nuclear Safety

 Foreign, Commonwealth
& Development Office

 Department for
Energy Security
& Net Zero



SECRETARIAT

 CLIMATE
POLICY
INITIATIVE

Working Group

The following organizations and individuals contributed to technical review across impact, structuring, and TAF aspects during SCALE's incubation.

Organization	Name	Job Title
cKers Finance	Jayant Prasad	Executive Director
CPI	Uma Pal	Manager
Cyril Amarchand Mangaldas	Manasvini Raj	Partner
Independent	Rita Roy	-
GIZ	Sandeep Bhattacharya	Advisor, Climate Change
IFAD	Jack Rossiter	Climate Finance Officer
RR Corporate Ltd	Ravindra Rathee	-
Independent	Vidya Iyer	-
Setuka	Aman Khanna	Founder and Managing Partner
TATA AIG	Azad Mishra	Vice President – Crop Insurance



Table of Contents

1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation
6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results
9. Impact
10. Implementation and Fundraising
11. References

1. Executive Summary

2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation
6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results
9. Impact
10. Implementation and Fundraising
11. References

What is S.C.A.L.E.?

Enabling climate resilience and financial inclusion through credit and climate-smart agriculture adoption.

The **Secured Climate-linked Agri Lending Ecosystem (SCALE)** is an investment facility deploying credit with embedded insurance and repayment reduction incentives linked to CSA adoption to enable smallholder farmers to adopt climate-smart agriculture in India.

Target Facility Size

USD 87.3M

USD 58.8M in partner lending, USD 25.2M in direct credit and USD 3.3M of philanthropic grant capital.

Geography

India

States of Maharashtra, Odisha, Madhya Pradesh, and Rajasthan with focus on major rice, cotton, soyabean and gram.

tCO₂ equivalent avoided annually

32,500+

Estimated tCO₂ equivalent avoided or sequestered by portfolio rice producers per year.

Annual water saving (ML)

75,000+

Estimated reduction in water usage across the portfolio through smart rice cultivation and drip irrigation.

Farmers supported

120,000

Estimated number of smallholder farmers supported with over 36% loans with women as primary borrowers and 64% as co-borrowers.

What is SCALE

SCALE addresses a financing gap in Indian agriculture: More than 70 million farmers remain dependent on informal credit,¹ while climate risk and limited capital constrain investment in climate-smart agriculture (CSA). Led by Dvara E-Registry and IFPRI, SCALE uses existing agricultural lending channels to combine seasonal credit, voluntary insurance, CSA advisory, and adoption-linked incentives, supporting proven practices such as water-efficient rice, drip irrigation, bio-inputs, and climate-resilient seeds.

Innovative: Combines alternative credit underwriting, farm-level insurance, agri-advisory, and repayment reduction incentives linked to CSA adoption to address collateral, transition-risk, capability, and affordability-related barriers.

Actionable: A 5,000-farmer pilot will launch in October 2026 with required lender and insurer partnerships already in place. The vehicle will be tested across four cropping cycles through 2028.

Financially Sustainable: Commercial capital funds lending, while grants support temporary insurance subsidies, adoption incentives, and advisory, with reliance declining as scale increases.

Catalytic: Highly scalable as SCALE is designed to work through existing agricultural lending channels, partner lender relationships, and Dvara E-Registry's established farmer network, rather than requiring a new parallel distribution system.

Secretariat Recommendation:

SCALE meets the Lab Criteria, and the Lab Secretariat recommends endorsing the vehicle for market launch.

¹ NABARD 2026

1. Executive Summary

2. Team

3. Problem and Opportunity

4. Vehicle Mechanics

5. Innovation

6. Investment Strategy

7. Capital Structuring

8. Projected Financial Results

9. Impact

10. Implementation and Fundraising

11. References

Combining technical depth, financial expertise, and local presence to provide finance for Climate Smart Agriculture (CSA)



An AgriFinTech that enables smallholder farmers and farmer collectives in India to access finance, having engaged with over 150,000 farmers to date.



A global research institute that provides evidence-based policy solutions to reduce hunger, improve nutrition, and build sustainable food systems.



Tarun Katoch

Co-Founder and
Head of Value
Chain



Senthil Kumar

Co-Founder and
Head of
Agronomy &
Analytics



Pankaj Gaur

Head of Product &
Partnerships



Berber Kramer

Markets, Trade,
and Institutions
Unit Senior
Research Fellow



**Subhransu
Pattnaik**

Research
Consultant
Göttingen



Brendan Rice

Markets, Trade,
and Institutions
Unit Research
Specialist

The facility builds on proven technology, established capabilities, and an existing operational footprint

Dvara E-Registry's lending infrastructure and farmer-facing technology, combined with IFPRI's global research and implementation expertise, provide a strong foundation for the facility's deployment and scale.

Dvara E-Registry (DER)

Existing operations & verified tech

- Mobilized ~USD 21M in loan disbursements across five states

KhetScore*

- In-house Satellite and climate data-driven alternate credit assessment tool for smallholder farmers

Doordrishti

- Farmer-facing digital platform for crop planning, CSA advisory and input recommendations

International Food Policy Research Institute (IFPRI)

Global Research Footprint

- Food security, agricultural innovation, and climate resilience across Asia, Africa, and Latin America

Strong Prior Experience

- IFPRI has implemented projects spanning climate insurance and crop analytics, irrigation-as-a-service to strengthen agricultural and climate resilience, with a strong focus on gender and inclusion

*"Khet" means "farm" in Hindi; KhetScore is DER's farm-level credit assessment tool which allows assessment of risk profile of farmers without collateral based on data on productivity of the land they farm.

1. Executive Summary
2. Team

3. Problem and Opportunity

4. Vehicle Mechanics
5. Innovation
6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results
9. Impact
10. Implementation and Fundraising
11. References

Financing constraints leave India's smallholder farmers increasingly exposed to climate risk

85%

Small and marginal farmers account for **85% of India's operational farm holdings**.¹

17M

Extreme weather events affected over **17M hectares of cropland in India in 2025**, increasing production and repayment risks.²

70M

Over **70M farmers remain dependent on informal credit (~50%)**, constraining their ability to invest in climate resilient and responsible agri-practices.³

6.1%

Farm loans also account for a significant share of stressed lending, with agricultural loans demonstrating a **6.1% gross NPA** rate against an **industry average of ~2%**.⁴

14%

Agri-lending carries an inherent gender bias, as land ownership often determines access and only **~14% of women farmers** own operational landholdings.⁵

USD
14.3
Billion

An estimated **USD 14.3 billion** is required to finance the transition of currently underserved farmers toward climate-smart agriculture.

¹ NABARD 2025

² Centre for Science and Environment 2025

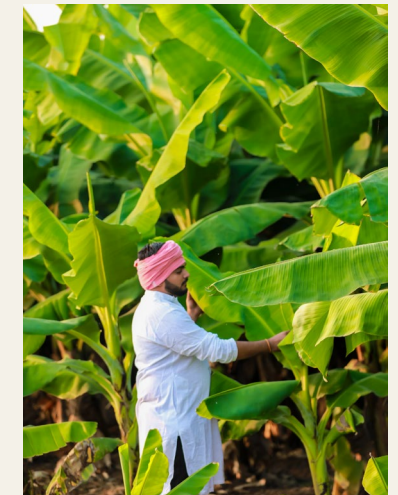
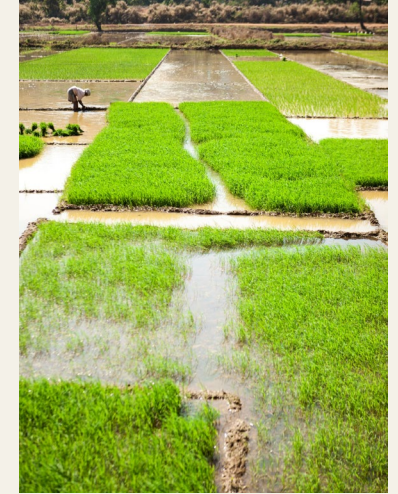
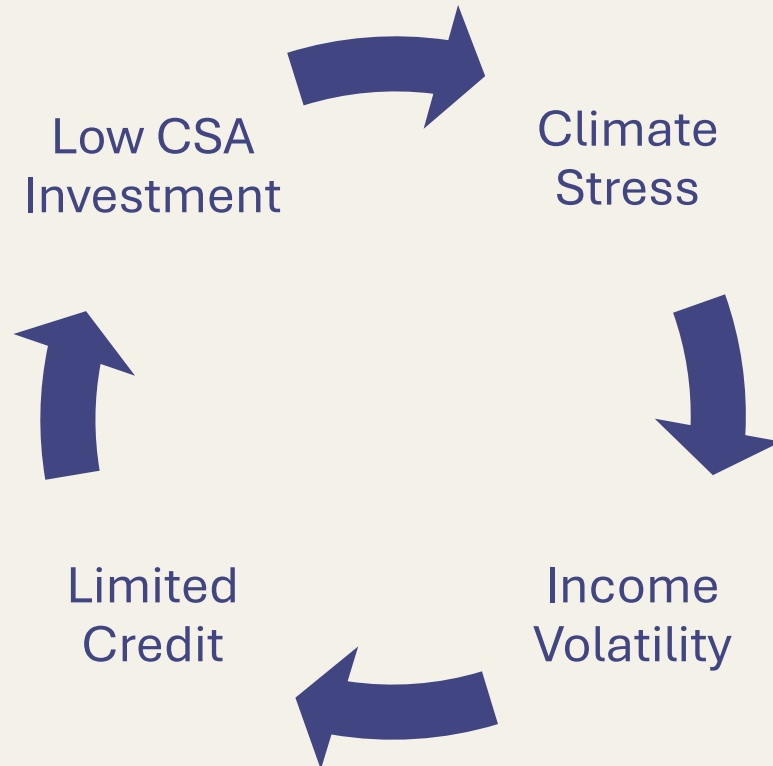
³ NABARD 2026

⁴ RBI 2025

⁵ Handage et al. 2023

The result is a self-reinforcing trap

Smallholder farmers are locked out of credit due to high perceived risk, and can't reduce that risk because they lack credit, **trapping them in a cycle of climate vulnerability and financial exclusion.**



Photos: Deposit Photos

CSA can strengthen both farmer resilience and creditworthiness

CSA is a framework for transforming agricultural systems so that they can respond to climate change while continuing to support livelihoods and food security. CSA is built around three objectives:



Increase
productivity and
farmer incomes



Build resilience
and adaptive
capacity



Reduce or avoid
emissions where
feasible

CSA spans the full farm system, from water and soil management, climate-resilient crops and diversification, agroforestry and climate-smart livestock, to efficient input and energy use, crop insurance, early-warning systems, weather advisories, and digital decision-support tools.



Proven CSA technologies with demonstrated impact already exist

CSA practices can reduce farmers' exposure to climate-driven yield losses while improving resource efficiency and lowering emissions, creating an opportunity to link adoption with access to finance.



Alternative Wetting and Drying (AWD) and Direct Seeded Rice (DSR) can improve water efficiency in rice, reducing water use by **15-35% and 30-50%, respectively**, equivalent to savings of over **3 million liters per hectare per season**.¹



Drip irrigation can materially improve cotton water efficiency: For irrigated cotton, shifting to drip irrigation can reduce water consumption by **~40%**.³



CSA adoption can reduce climate-driven yield volatility by up to 17%, helping farmers stabilize production and incomes despite increasing weather variability.⁵



AWD and DSR can substantially reduce emissions from rice cultivation, with methane emissions falling by **up to 47%¹ and 85%** respectively against conventional flooded systems.²



In India **76.53% of cropped area** was treated with **multiple chemical fertilizers** in 2016-17. Transition to bio-inputs can reduce soil degradation and biodiversity losses.⁴



Carbon credits present a potential incremental income source: Gold Standard rice projects in India have demonstrated credit offtake at around **USD 17/tCO₂e**, signaling market acceptance.⁶

¹Gao et al.2025

²Liu et al. 2022

³Kaur et al. 2024

⁴Ministry of Chemicals & Fertilizers, GoI 2017

⁵Choudhary et al. 2024

⁶Quantum Commodity Intelligence 2025

But what is limiting CSA adoption and what does an effective solution require?

High upfront costs — Irrigation, machinery, resilient inputs, and soil/water investments require capital that smallholders often cannot mobilize.

Transition & production risk — Lower yields during transition and adverse weather events results in negative association discouraging experimentation with new practices.

Capacity & knowledge gaps — Awareness alone is insufficient; farmers need demonstrations, and continued support throughout the cropping cycle.

Weak financial incentives — Benefits such as resilience, water savings, and lower emissions often do not translate into immediate financial returns for farmers.

Capital

+

Risk Mitigation

+

Capacity Building

+

Incentives for adoption

1. Executive Summary
2. Team
3. Problem and Opportunity

4. Vehicle Mechanics

5. Innovation
6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results
9. Impact
10. Implementation and Fundraising
11. References

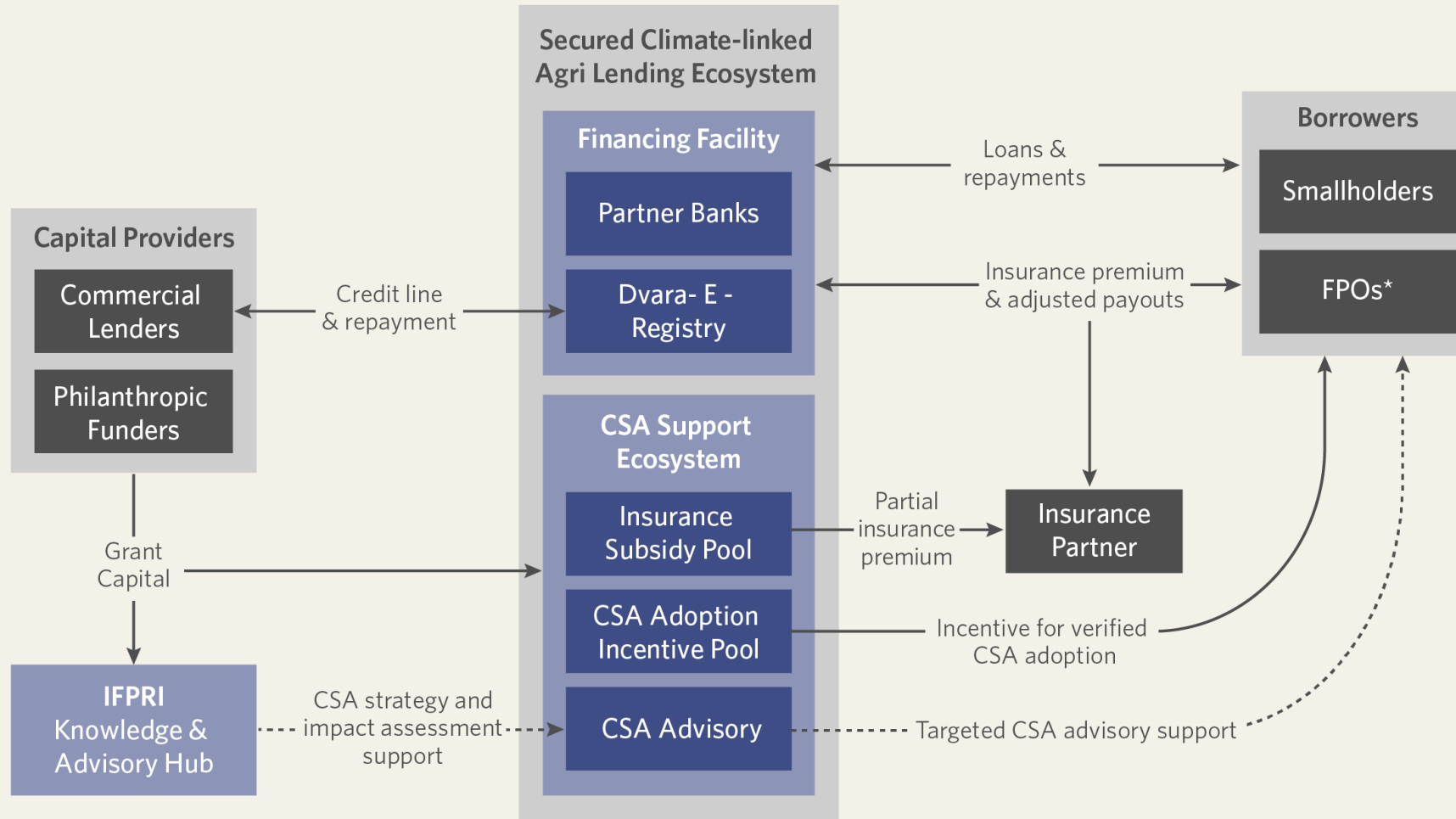
Translating farmer needs into product elements

NEEDS

SOLUTIONS

Capital	SCALE is intended to provide loans to farmers. DER will continue to facilitate financing (commercial capital) through partner banks and other FIs while pursuing approval for an NBFC license, enabling it to progressively mobilize capital through both partner banks and its own balance sheet.
Risk Mitigation	The facility will include indemnity-based insurance (underwritten by separate insurance provider) covering actual losses, verified through KHETSCORE technology and field images. Payouts will first go to lenders, with the balance transferred to the farmer.
Capacity Building	The facility will build on IFPRI's work in India and Kenya of delivering trainings and advisory support to farmers on climate smart transition and resilience building paired with effective monitoring, and continued implementation support through DER's field network.
Incentives linked to CSA adoption	The incentive structure will have two grant-funded components: an insurance premium subsidy to improve affordability and uptake, and incentives in the form of loan amount adjustment for adopting CSA. The CSA adoption will be verified through an agreed MRV process.

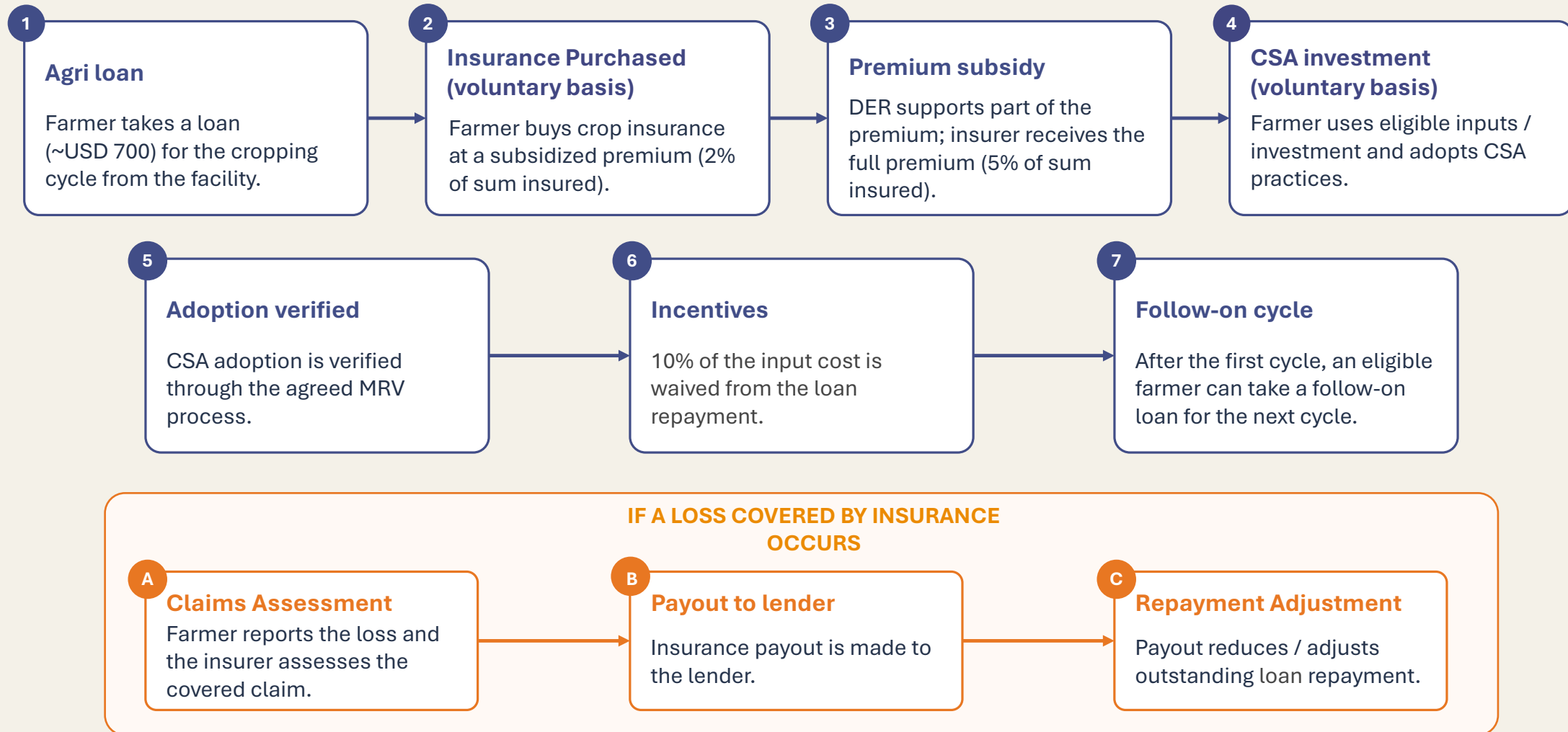
SCALE is a combination of credit, insurance, TA, and incentives



- Capital is mobilized from commercial and philanthropic sources
- Loans are provided to smallholders and FPOs
- Access to subsidized climate insurance is provided
- CSA adoption is rewarded through incentives
- Advisory support enables farmers to adopt and sustain CSA practices

* Farmer Producer Organizations are collectives that improve access to markets, finance, and services.

A farmer's journey from loan to CSA adoption and repayment



Loan delivery will follow two channels, with different structure for DER and partner banks

1

Loan Directly through DER

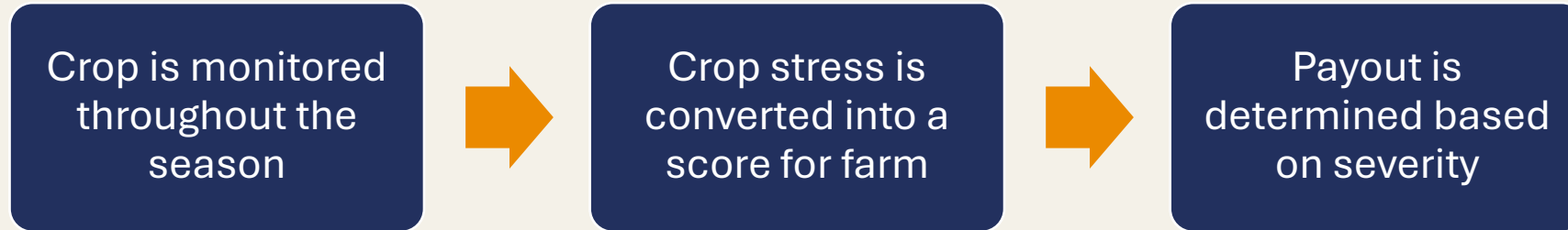
- Dvara has applied for an NBFC license and, once approved, will lend from its balance sheet, targeting ~30% of the portfolio by Year 5 and the rest through partner lenders.
- The proposed loan will require the use of proceeds to exclusively finance eligible CSA investments.
- Adoption of eligible CSA practices will be verified, using DoorDrishti (Dvara's in-house technology) complemented by field-level verification visits.

2

Loan Through Partner Banks facilitated by DER

- Until Dvara receives its NBFC license, lending will be through partner banks; this channel will continue post-license to support scale, but with a reduced share of the total portfolio.
- Partner banks are currently not inclined to ring-fence lending specifically for CSA; therefore, loans will initially be provided as general-purpose agricultural loans.
- Repayment Reduction Incentives will be provided for CSA adoption.
- The aim is to demonstrate improved resilience and repayment outcomes, building the case for banks to integrate CSA-linked features into mainstream agri-lending.

Indemnity based crop insurance will protect farmers against climate change driven losses



Two payout mechanisms: the farmer receives the higher of the Acute or Chronic payout, not both.

1. Acute/mid-season protection

Covers severe events during eligible crop stages; includes triggers such as extreme rainfall and high winds

These payouts can be triggered during the season

Requires supporting evidence where applicable

2. Chronic / end-of-season protection

Based on overall seasonal crop stress

The payout amount is linearly proportional to stress

Settled at the end of the crop cycle

Includes an independent seasonal drought trigger

Insurance structure prioritizes affordability while mitigating lender risk

Key Design Choice	Rationale
Insurance payouts will flow first to the lender	Payouts will first be applied against the farmer's outstanding repayment obligation, with a corresponding adjustment to the farmer's dues. This reduces lender credit risk while ensuring the insurance benefit also accrues to the farmer.
Why subsidize the insurance premium?	At ~5% of the sum insured, the commercial premium may be too high to drive voluntary uptake among smallholders. The subsidy reduces the farmer-paid premium to ~2–3%. This is particularly important given that farmers are accustomed to heavily subsidized crop insurance under PMFBY ¹ , where they typically pay only 1.5–2% for food/oilseed crops and 5% for other commercial crops.
Insurance adoption will be voluntary, not mandatory	Largely driven by recent regulatory constraints ² that limit the bundling of insurance with lending products.

¹ PMFBY is India's flagship government-supported crop insurance scheme. It provides farmers with financial protection against crop losses caused by adverse weather events, natural hazards, pests, and diseases, with premiums subsidized by the government.

² Draft Reserve Bank of India (Commercial Banks - Responsible Business Conduct) Amendment Directions 2026

1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics

5. Innovation

6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results
9. Impact
10. Implementation and Fundraising
11. References

Turning agricultural credit into a tool for incentivizing and de-risking CSA adoption

SCALE introduces four innovative elements that work together to remove key barriers to CSA adoption:



Credit without
restricting farmer
choice



Insurance
embedded
alongside finance



Incentives linked
to verified CSA
adoption



Scalable through
existing financial
infrastructure

Rather than financing CSA technologies directly, the facility uses existing agricultural lending as the delivery channel and rewards farmers for verified adoption of climate-smart practices. By combining credit with insurance support and repayment reduction incentives for CSA adoption, it addresses both the risk and economic barriers that prevent farmers from adopting CSA.

Holistic solution for credit access, risk transfer, and CSA advisory

Instrument/Organization (Region)	Overview	Alternate data driven credit assessment	De-risking via farm level picture based insurance	CSA advisory and technical assistance	Incentivized CSA adoption
Secured Climate-linked Agri Lending Ecosystem – SCALE (India)	Lending facility for women and smallholder farmers against satellite driven yield estimates backed by farm level indemnity-based insurance.	✓	✓	✓	✓
SatSure India (India)	Satellite analytics platform for agricultural credit risk assessment.	✓	–	–	–
Weather Risk Management Services (India)	Weather risk management and parametric insurance enabler for third party agri-insurers.	●	●	–	–
Samunnati (India)	Agri-finance platform providing credit and market linkages to FPOs and smallholders.	–	–	✓	–
Jai Kisan (India)	NBFC providing credit to farmers and agri-entrepreneurs via digital underwriting.	–	–	●	–
Apollo Agriculture (Kenya, Zambia)	Satellite-driven credit and inputs advisory for smallholder farmers in Kenya and Zambia with bundled parametric insurance.	✓	●	✓	●

1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation

6. Investment Strategy

7. Capital Structuring
8. Projected Financial Results
9. Impact
10. Implementation and Fundraising
11. References

The facility pairs commercial capital with targeted catalytic support to enable scalable lending

The strategy targets short-duration agricultural credit, deploying ~USD 700 rolling loans at ~25% p.a. through established lending partners. The 12-month tenor enables repayment and capital recycling across successive cropping cycles, with the spread over the ~15% cost of commercial capital underpinning the product's return potential.

Agricultural Credit

Loan size: ~USD 700

Commercial cost of capital: 15% p.a.

Interest rate: 25% p.a.*

Tenor: 12 months

Climate Insurance

Sum insured: ~USD 700

Premium: ~5% of sum insured

Farmer pays: ~2–3% after subsidy

Increases repayment capacity following climate-related shocks.

CSA Adoption Incentive

Incentive: ~10% of eligible CSA input/investment cost (20-30% of the loan amount)

Paid/credited upon verified CSA adoption

Reduces the effective cost of adopting CSA

Creates a direct financial reward for adoption

*SCALE targets farmers with limited access to formal finance and little or no credit history. Their primary alternative is often informal credit, where borrowing costs exceed 30% per annum.

Incentives will target CSA technologies that are impactful, commercially viable, proven, and scalable

Decision Pillar	What Dvara E-Registry assesses before financing
High & Verifiable Climate Impact	Does the technology deliver material and measurable mitigation and/or resilience benefits that justify its inclusion as a CSA intervention?
Strong Technology-Level Economics	Does adoption make commercial sense for the farmer with an acceptable payback period?
Proven & Deployable Technology	Is the solution technically proven, commercially available and suitable for smallholder conditions, rather than requiring technology-development risk?
Affordable & Financeable Investment	Is the required investment appropriate relative to farmer cash flows, and can repayments be structured around cropping cycles without creating excessive debt burden?
Scalable Adoption Potential	Can the technology be deployed across a sufficiently large pool of farmers/crops/geographies, with reliable suppliers and a practical mechanism to verify adoption?

SCALE will grow from 20,000 to 120,000+ farmers across four states

PILOT

20,000 farmers

MAHARASHTRA + ODISHA

TARGET BENEFICIARIES

Smallholder farmers (< 1 ha) with either the primary or secondary borrower being a woman.

CROP FOCUS

Rice, cotton, soybean, Bengal gram.

SCALE-UP

120,000+ farmers

**EXPAND TO
RAJASTHAN + MADHYA PRADESH**

ELIGIBILITY

Extend to tenant cultivators using KhetScore as per lender / insurer acceptance.

EXPANSION RULE

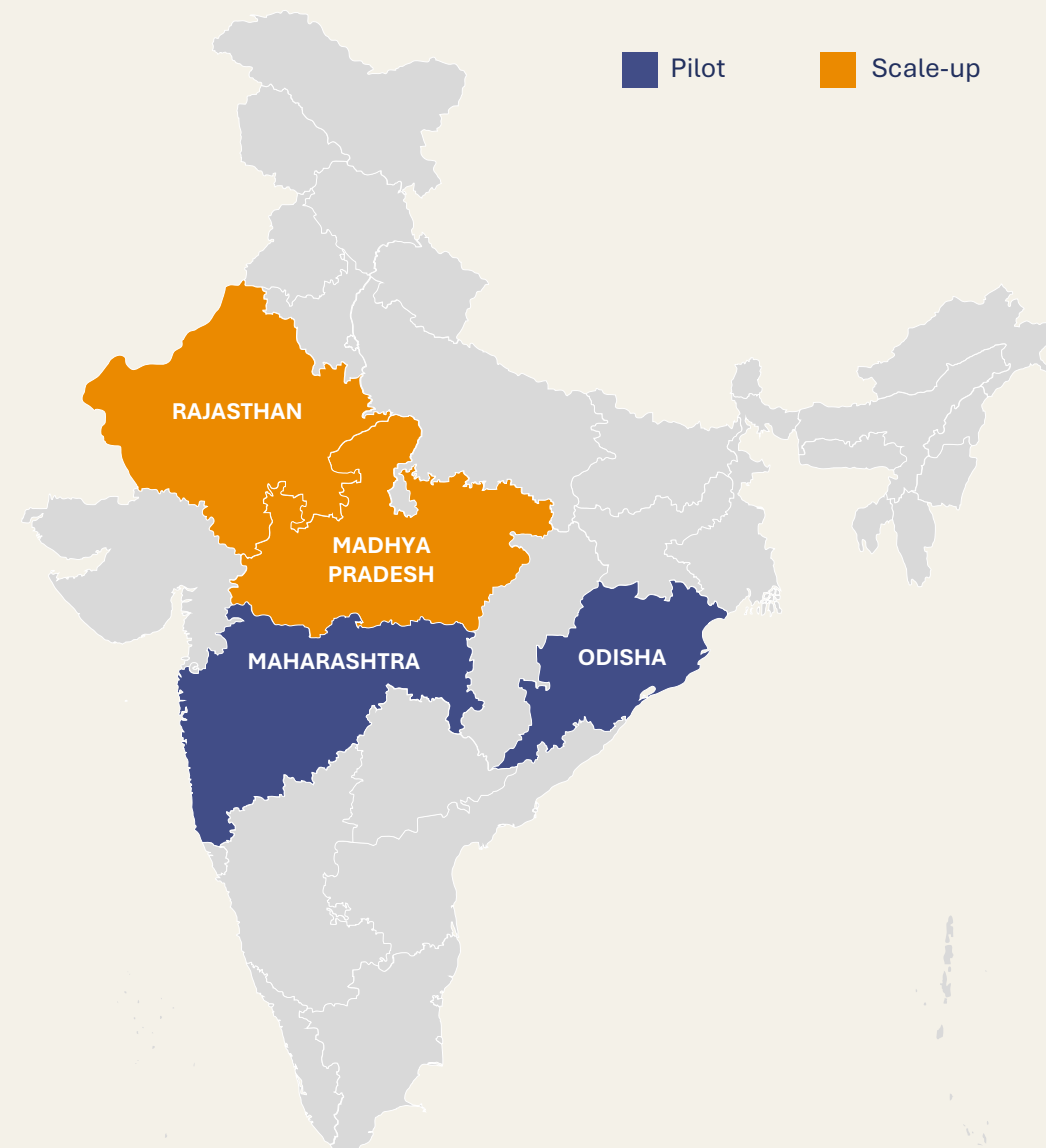
Keep the proven CSA inputs and processes and expand where uptake, performance and regional fit are tested.

CORE LOAN OFFERING

INR 65k (~USD 700) / farmer

RATIONALE FOR TARGET MARKET SELECTION

- Existing DER footprint and distribution network
- Conventional crop varieties with ready CSA alternatives



SCALE incentives are provided to borrowers for adoption of proven CSA technologies

CSA Opportunity	What the Facility will help finance	Why Investable / Accessible
Alternate Wetting & Drying (AWD) Rice	Adoption and implementation costs for AWD among rice farmers	Existing rice farmers can transition from conventional flooding/transplanted rice to a proven water-efficient practice
Direct-Seeded Rice (DSR) Rice	Seeds, sowing services and associated inputs	
Drip Irrigation Bengal Gram, Cotton, Soyabean	Purchase and installation of farmer-level drip systems	Commercially available technology applicable across multiple crops, with identifiable suppliers
Bio-inputs Rice, Bengal Gram, Cotton, Soyabean	Bio-fertilizers, biopesticides and other eligible biological inputs	Can be incorporated into recurring seasonal input purchases across DER's existing farmer base
Climate-Resilient Varieties Rice, Bengal Gram, Cotton, Soyabean	Regionally appropriate climate-resilient seeds	

DER's existing origination and underwriting infrastructure provides a ready pipeline

DER's established farmer sourcing, assessment, and lending processes create a strong foundation for deploying and scaling CSA.

Farmer sourcing

- Primary target segment is small and marginal farmers
- Loans facilitated through KhetScore are unsecured eliminating need for collateral

Initial borrower screening

- New-to-credit borrowers can also qualify, with loans up to USD 700
- At least one applicant/co-applicant must be a woman

Farm-level assessment

- Minimum 3 years of farming experience
- Cropping history, crop-health criteria assessed to develop KhetScore

Loan Disbursement

- Loan sizes: USD 600–1300, with higher limits in specified cases
- Pricing currently varies by lending partner but is around ~25% p.a.

Follow on Funding

- Performing borrowers can access renewal and top-up loans
- Top-ups can increase borrower exposure subject to FOIR and credit limits

1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation
6. Investment Strategy

7. Capital Structuring

8. Projected Financial Results
9. Impact
10. Implementation and Fundraising
11. References

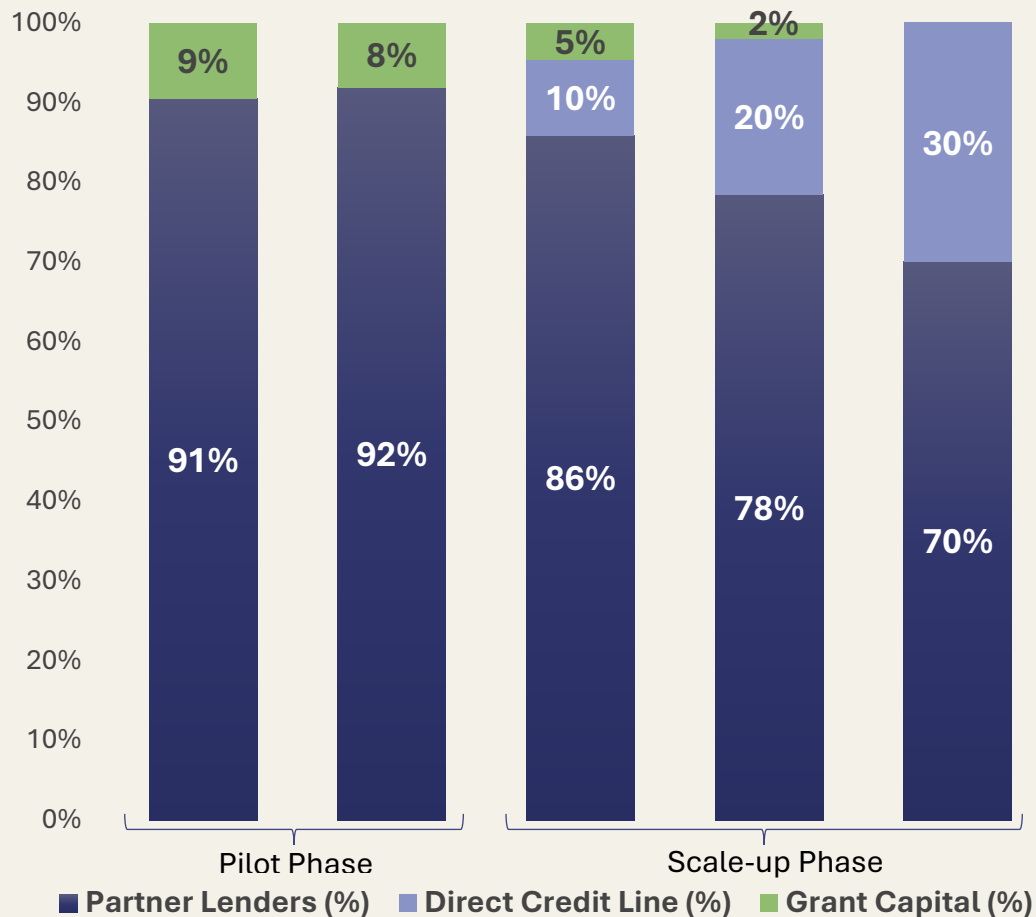
Targeted grant and domestic capital focus reduce key capital risks

Operational feasibility and impact risks are addressed through smartly phased, risk-responsive capital allocation, targeted utilization of grant support, and phased implementation measures.

Risk	Impact	Likelihood	Mitigant
Low voluntary insurance uptake	- Limited perceived utility - Low affordability	High	Philanthropic grant capitalizes the Insurance Subsidy Pool and funds local awareness / verification staff.
Low CSA adoption despite credit	- Lack of awareness for alternatives - Behavioral inertia	High	Philanthropic grant supports incentives and deployment of local field staff.
Temporary yield fluctuation	Lack of expertise in navigating the CSA transition period	High	Insurance plus technical field support cushions income risk through the transition period.
Delayed capital mobilization / license	Delayed launch timeline and complete dependency on NBFC license for pilot	High	Partner credit line enables deployment within existing lending channels while NBFC operationalization continues.
Regulatory constraints on foreign capital	Regulatory, compliance, or fund-flow restrictions may increase transaction complexity.	Medium	Facility is capitalized purely through domestic commercial capital for on-lending.

Commercial capital drives key lending operations with temporary grant support requirement

Figure 1: Year-on-Year Capital Structure of Proposed Facility



1. Pilot Phase

Four cropping seasons over two years to validate the model and build evidence for scale.

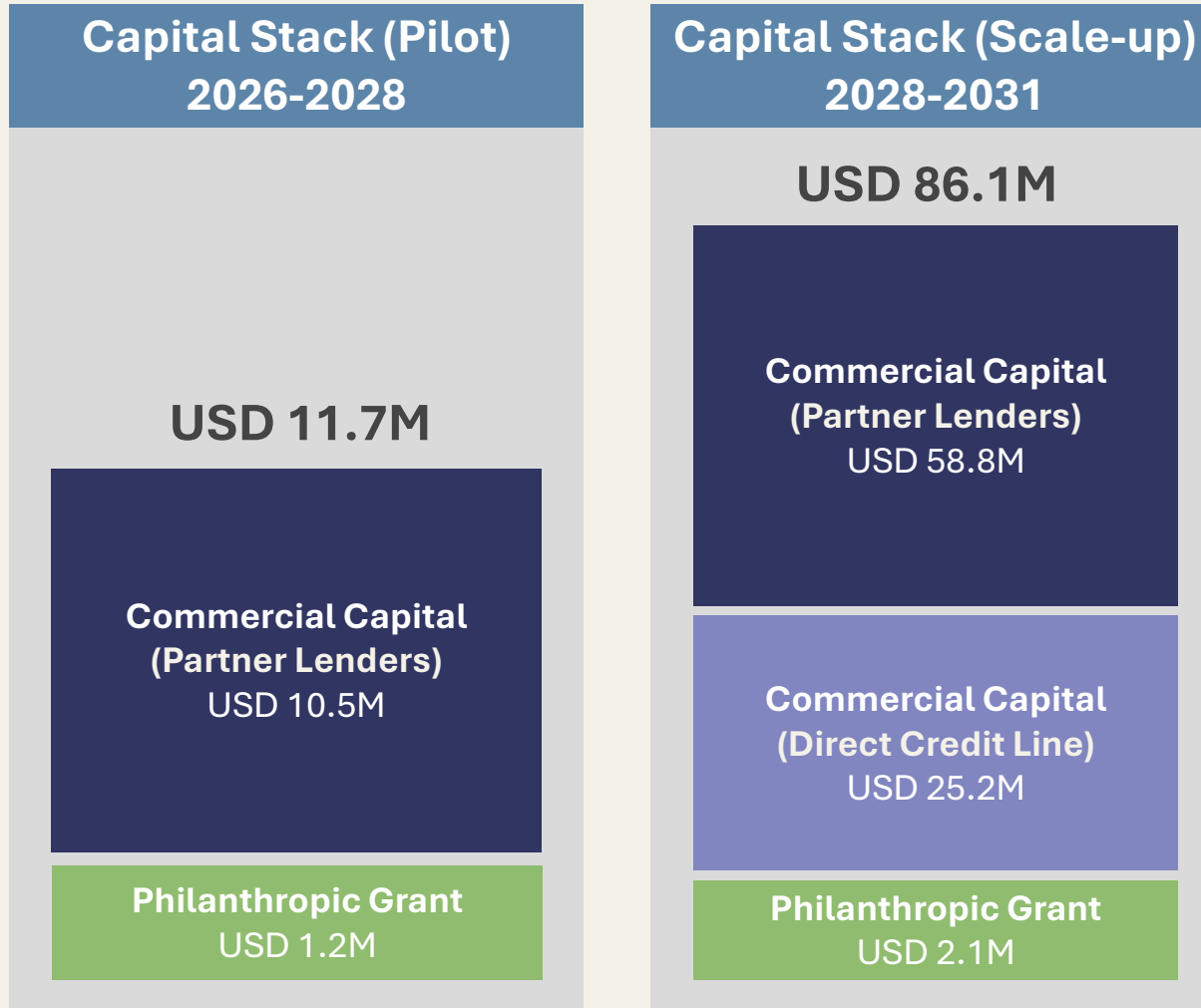
- **92% commercial capital** mobilized through partner lenders
- **8% philanthropic grant** to support:
 1. Insurance premium subsidies
 2. Repayment reduction incentives for CSA adoption
 3. Targeted advisory and on-ground transition support

2. Scale-Up

After securing the NBFC license, DER progressively increases on-book lending to 30%, reducing reliance on grant support:

1. Operating and distribution efficiencies improve with scale
2. CSA incentives, advisory, and IFPRI support continue as planned and costs are increasingly absorbed within lending margins

Nature of capital requirement changes as facility matures



Commercial credit lines from partner lenders provide lending capital of **USD 3.5M** in the first year, before being ramped up to a total of **USD 10.5M** in Year 2 of the pilot.

During this phase, the facility requires **USD 1.2M** in grant support to provide incentives and premium subsidies.

For the post pilot scale up, the capital structure changes as DER aims to start lending partially through its own books.

1. Scaled up partner credit line of **USD 58.8M**
2. **USD 25.2M** in commercial capital for direct lending operations
3. An additional **USD 2.1M** in philanthropic grant for initial scale-up before being phased out completely by Year 5

1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation
6. Investment Strategy
7. Capital Structuring

8. Projected Financial Results

9. Impact
10. Implementation and Fundraising
11. References

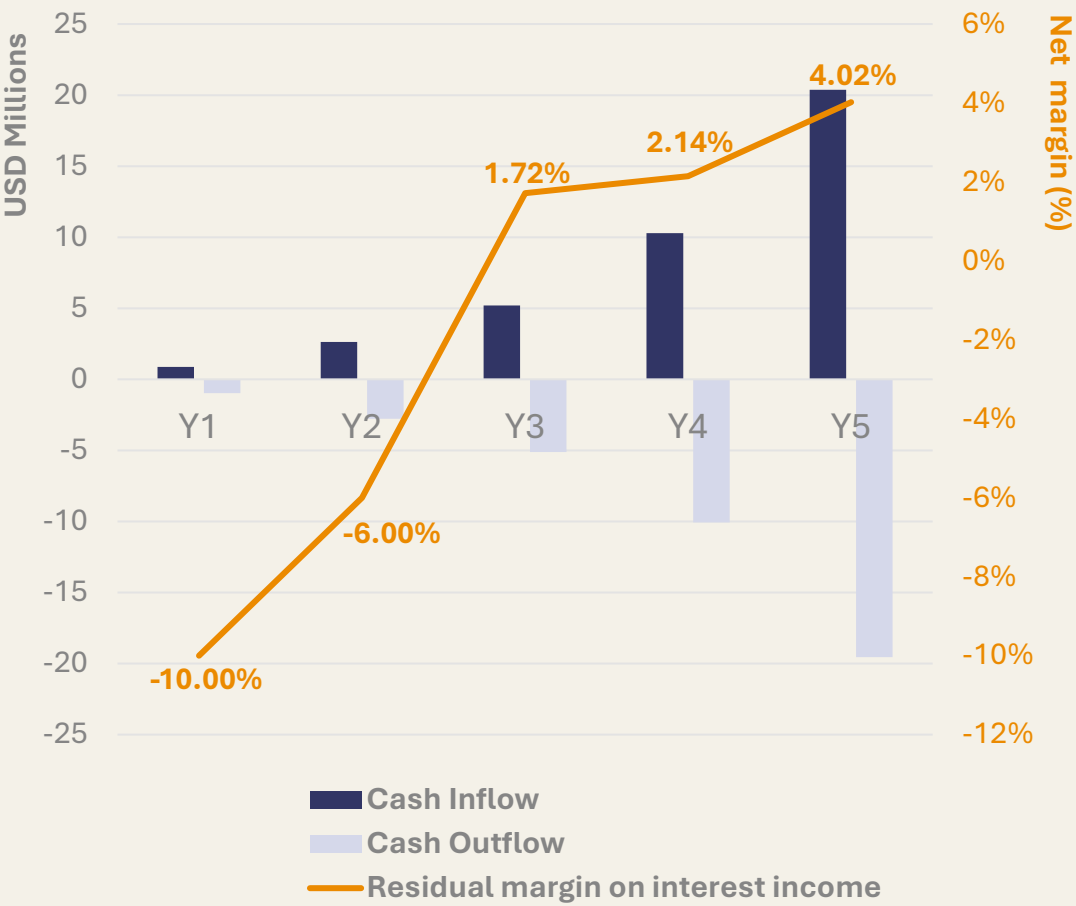
Designed to deliver commercial returns and transition toward a commercially sustainable funding model

The facility will provide a 15% return to partner lenders and capital providers on-lending to farmers at a market rate of ~25%.

Grants fund initial incentives and subsidies, which will be absorbed into facility cash flows as adoption scales.

Lower operating and capital costs, supported by scale and DER's shift to own-book lending, result in positive cashflows and financially sustainable facility operations.

Figure 2: Net Margin Projection With Facility Scale-up



Every \$1 of concessional capital is expected to mobilize \$6 towards enabling CSA adoption

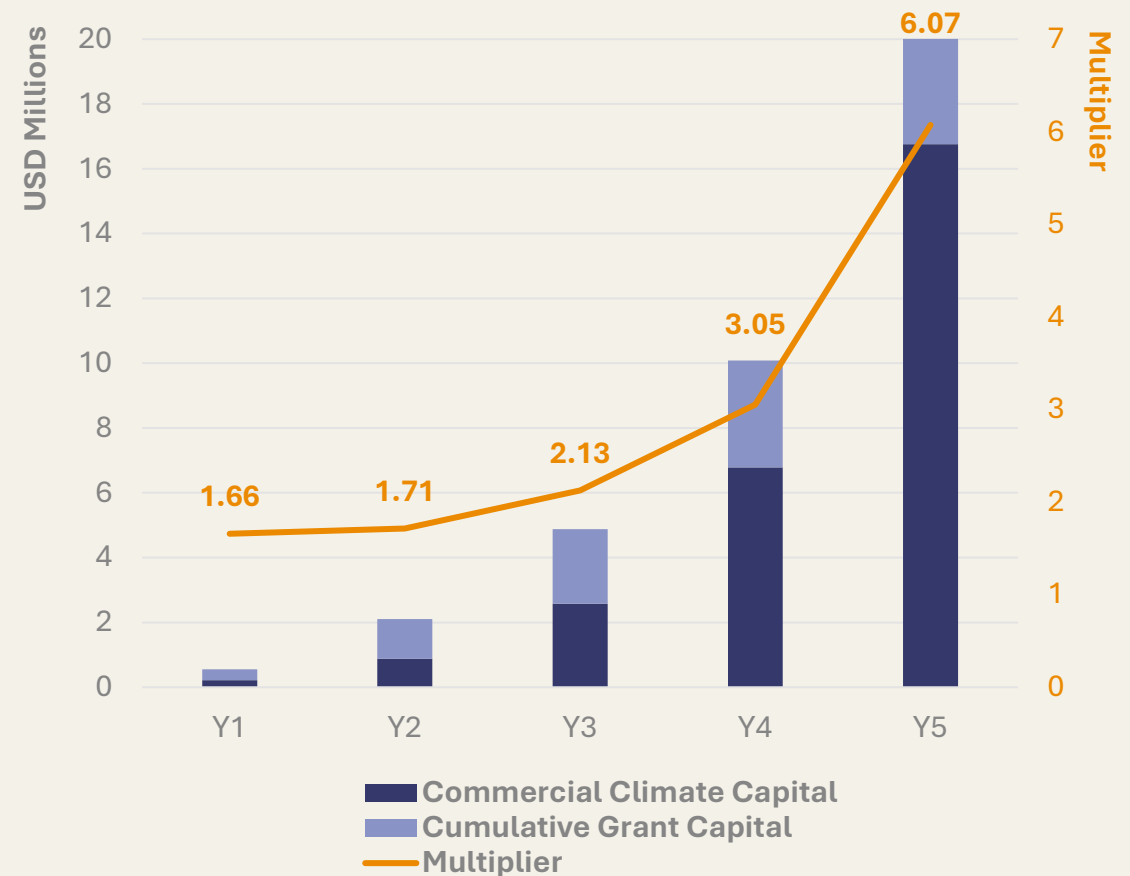
An estimated 20% to 30% of each agri-loan is used by farmers to finance agricultural inputs and cropping practices.

Assuming conservatively that **1 in 4 farmers who receive capital from partner banks** voluntarily adopts CSA through repayment reduction incentives during the pilot the facility is expected to mobilize over **USD 16.7M** for climate-smart agriculture over a five-year period.

This transition will be catalyzed by **USD 3.3M** in philanthropic grant support, which will be progressively phased out by Year 5.

This results in a Capital mobilization multiplier of **6x**

Figure 3: Climate Capital Mobilization



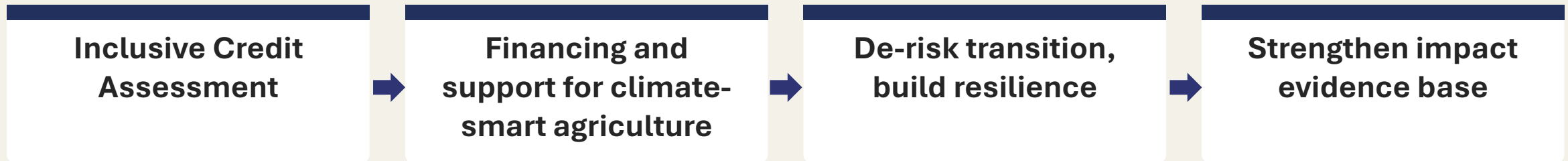
1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation
6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results

9. Impact

10. Implementation and Fundraising
11. References

Financial and advisory support helps position farmers as resilient climate actors

The impact is delivered through the following mechanism: better data unlocks credit; repayment reduction incentives, advisory support, and insurance de-risk transition leading to measurable climate and inclusion outcomes. Estimates from pilots suggest an increase in residual income by over USD 118 (per acre) for insured farmers.¹



Expected climate and social impact at scale

57,000+

farmers transitioning towards CSA adoption

~120,000

women gaining access to formal credit

75,000+ ML

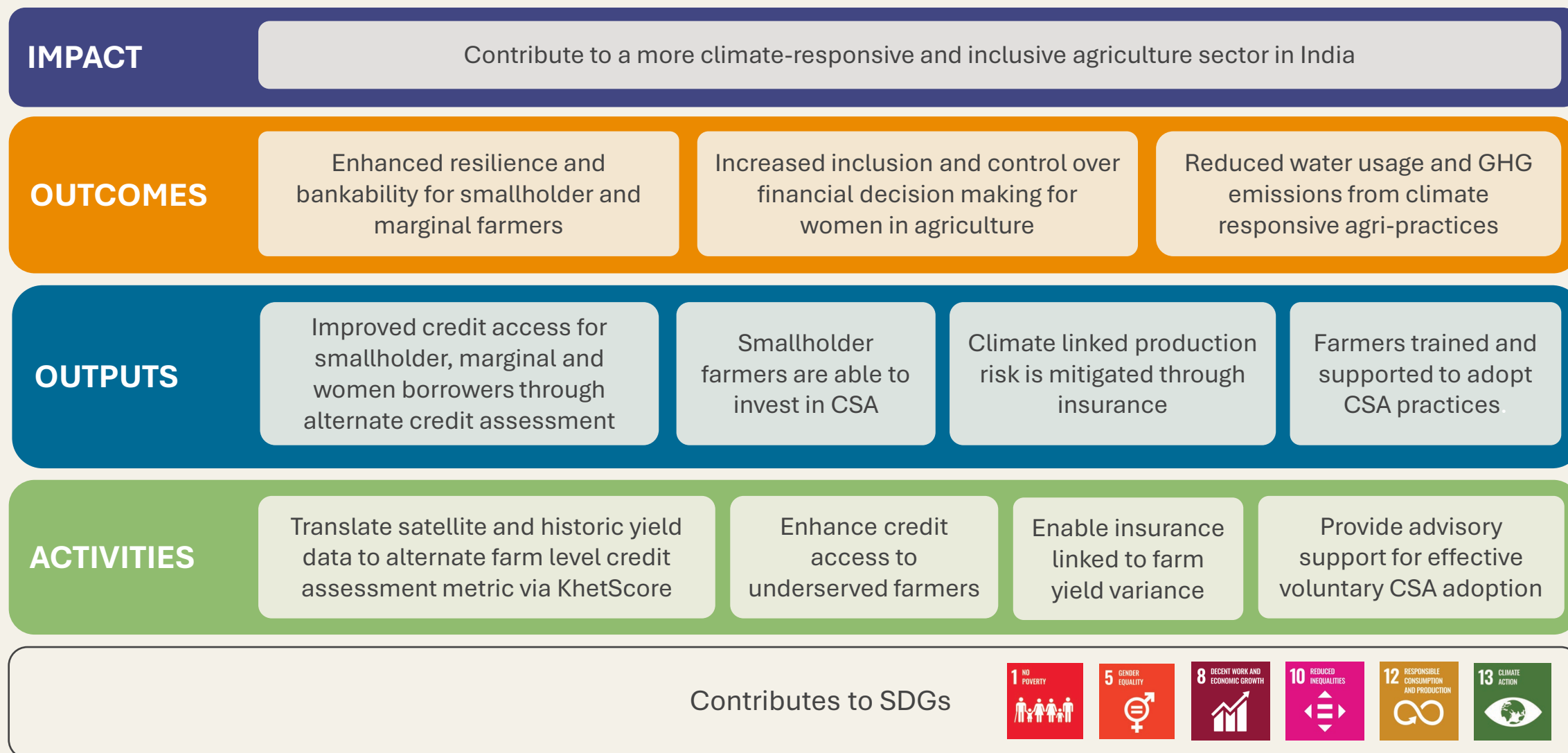
in water savings per year via water responsive rice farming

32,500 tCO₂e

emissions avoided annually via methane reduction at scale

¹ IFPRI 2026

From CSA financing to climate-resilient agriculture



KPIs: Tracking access to finance and adoption of practices

The suggested KPI framework tracks how effectively the facility expands access to finance, de-risks borrowers from financial and climate stress, and nudges farmers towards adoption of climate-smart practices.

INCREASED BANKABILITY & ACCESS TO FINANCE

Total loans disbursed

Number and value of loans disbursed

New-to-formal-credit farmers

% new borrowers; total number of borrowing farmers

Priority segment share

% women as primary borrower, tenant/marginal borrowers

FINANCIAL RESILIENCE & EFFECTIVE DE-RISKING

Insurance bundling rate

% of loans actively insured

Claim payout turnaround

Average days for processing payout; % within SLA

Loss protection adequacy

Payout as % of verified loss

Loan repayment rate

On-time repayment rate

CLIMATE ADAPTATION & MITIGATION

CSA adoption rate

% borrowers adopting CSA disaggregated by practices for each crop variety

Yield stability

Estimated yield alpha against baseline estimates

Water-use efficiency

% reduction; cubic meters per hectare

Potential scale of positive environmental and social outcomes

The proposed facility aims to bring about environmental and social impact by enabling and incentivizing a behavioral shift across India's smallholder farmer ecosystem. Some potential outcomes by 2030-31 are encapsulated below.



75+ gigalitres in annual water savings through adoption of water responsive rice practices.



Over **95,000** farmers transitioning to climate smart agri-inputs and enabling capital for over **120,000** women.



Over **32.5 kilo tonnes of CO2 equivalent** avoided annually through reduced methane from responsible rice production.



Enabling access to formal credit for up to **30,000** new-to-credit farmers during scale-up.

Mitigating and managing impact of potential environmental risks during investment lifecycle

Risk	Potential Impact	Mitigation Measures
Increased Resource Utilization and Energy Usage (High)	Voluntary incentives scheme and lending not linked to mandatory CSA adoption during pilot phase may result in loans being used for water- or energy-intensive equipment resulting in increased groundwater stress, higher energy demand and weakened climate impact.	Continuous: 1. CSA advisory support: Region and crop specific <u>eligible CSA inputs</u> and importance heavily promoted by on-field staff and Doordrishti mobile application. 2. Monitor CSA adoption and key water and energy indicators. During Scale-up Phase: 1. Eligibility to loans from DER balance sheet is exclusively conditioned on adoption of CSA practices.
Maladaptation and Climate Risk (High)	Poorly matched CSA practices or input misuse may cause soil degradation, contamination or yield loss. Climate shocks may further reduce yields, increase defaults and claims reducing farmer confidence.	1. CSA Advisory Support: Periodically update crop- and location-specific CSA recommendations. Provide agronomic transition support, including resilient varieties and contingency practices. 2. Monitor adoption and yield outcome adjusting recommendations where required. 3. Promote insurance uptake and support timely loss assessment and payouts.

Minimizing instances of adverse social impact among stakeholders

Risk	Potential Impact	Mitigation Measures
Gender-Based Discrimination, Harassment & Exploitation (High)	Women may face discrimination, limited decision-making power, or reduced control over loan proceeds and insurance payouts.	1. Ensure female representation in disbursed loan as borrower/co-borrower 2. Apply gender-sensitive field protocols and maintain diverse field teams. 3. Disburse funds directly to the named borrower. 4. Prohibit coercive loan recovery practices. 5. Maintain confidential and accessible grievance channels.
Compliance, Fraud and Moral Hazard (Medium)	Fictitious or duplicate borrowers, loan diversion, inaccurate claims, kickbacks or conflicts involving FPOs and suppliers may create financial and reputational losses.	1. Apply verified borrower KYC and direct fund transfers. 2. Segregate verification and payment functions. 3. Conduct periodic audits and exception-based checks across lending and claims processes.
Child, Forced and Bonded Labor and Poor Working Conditions (Medium)	Agricultural labor may involve child, forced or bonded labor, while seasonal workers may face underpayment, excessive hours or discrimination.	1. Require borrower/FPO compliance with prohibitions on child and forced labor. 2. Conduct periodic labor spot checks. 3. Record, escalate and remediate identified cases through defined procedures.

1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation
6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results
9. Impact

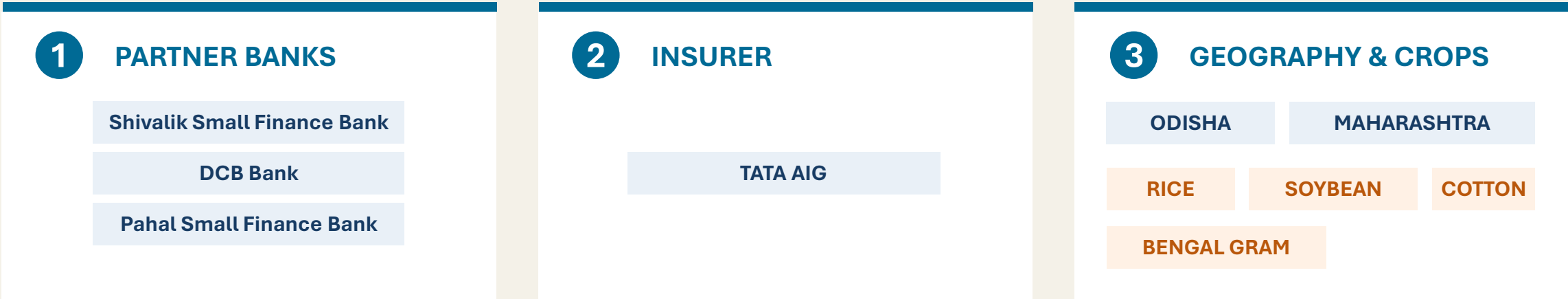
10. Implementation and Fundraising

11. References

The planned pilot will test the end-to-end facility model under real-world conditions

A pilot is planned for the **Rabi 2026 season (October 2026)**, targeting **5,000 farmers**, to test and refine key facility design choices ahead of scale-up.

Commercial capital and insurance partnerships have been secured, while fundraising for the grant capital component is ongoing.



Pilot is structured to validate key assumptions

CONTROL GROUP	TREATMENT 1	TREATMENT 2
Loan + Insurance	Loan + Insurance + Push CSA adoption	Loan + Insurance + Reward for Adopting CSA
• Seasonal working capital loan • Picture-Based Insurance (PBI) enrolled at disbursement • No CSA input support or subsidy • Standard agronomic practice — farmer's own choices	• Same seasonal loan + PBI as Control • CSA inputs heavily promoted by on-field staff and Doordrishti mobile application	• Same seasonal loan + PBI as Control • CSA inputs heavily promoted by on-field staff and Doordrishti mobile application • Farmer pays full cost — but rewarded for verified CSA adoption in the form of principal rebate • A/B testing: level of discount to test price-sensitivity

The facility will continue to refine mechanics based on learnings from future lending cycles

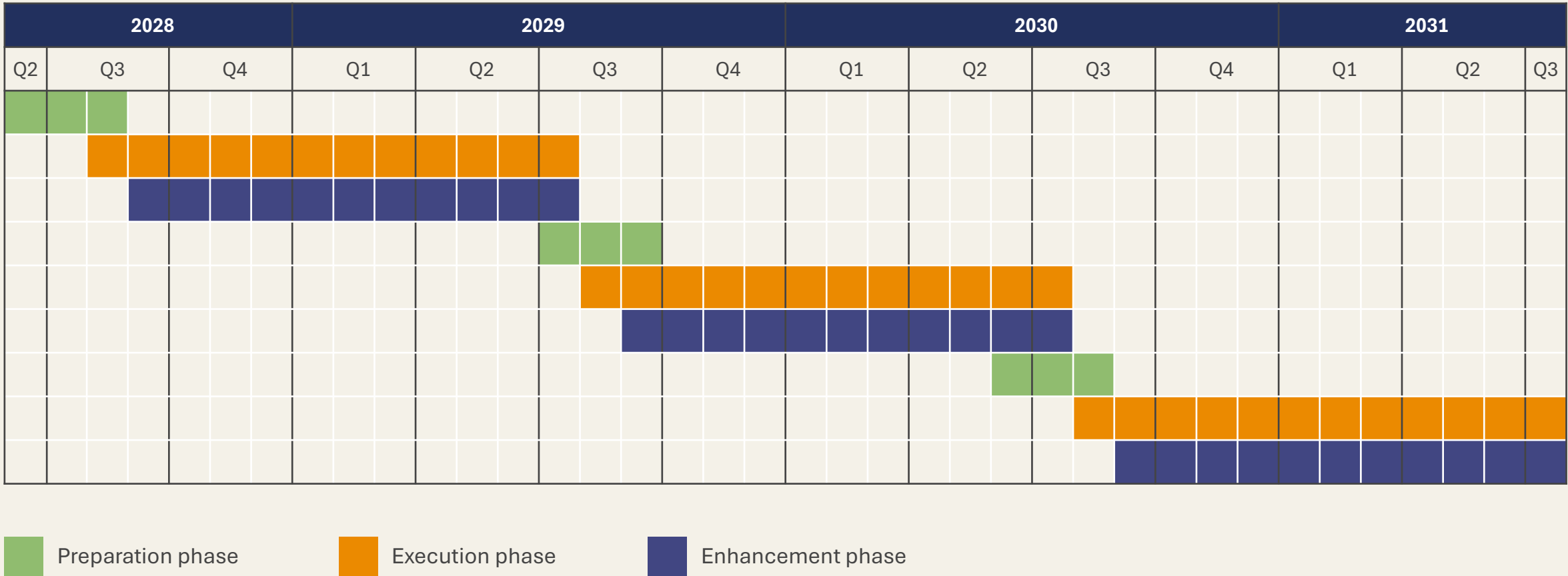
Open question	What needs to be validated/refined
Affordability of insurance at scale	The upcoming pilot assumes a ~5% premium. While these rates are expected to remain viable for the first 2-3 lending cycles, limited claims and performance data make it challenging for the insurer to price risk confidently at scale.
Effectiveness of incentives in driving CSA adoption	Through earlier work/pilots, the facility assumes that adoption-linked incentives will be sufficient to change farmer behavior. The pilot needs to establish whether these incentives materially increase adoption, and what level and structure of incentive delivers the strongest uptake.

Implementation Timeline: Pilot

	2026		2027				2028		
Activity	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Preparation									
Partner Outreach (Lender/Insurer/Donor)	■	■							
Finalizing terms with insurers and lending partners		■							
Contract Formalization		■							
Facility Operationalization		■							
Fund Mobilization		■							
Execution									
Onboarding and disbursement (Loan and Insurance - cycle 1)		■	■	■					
Onboarding and disbursement (Loan and Insurance - cycle 2)				■	■	■			
Onboarding and disbursement (Loan and Insurance - cycle 3)						■	■	■	
Onboarding and disbursement (Loan and Insurance - cycle 4)							■	■	■
Advisory support for CSA Adoption		■	■	■	■	■	■	■	■
Loan monitoring and insurance verification			■	■	■	■	■	■	■
Enhancement									
Product Feedback and Improvement (cycle 1)			■	■	■				
Product Feedback and Improvement (cycle 2)					■	■	■		
Product Feedback and Improvement (cycle 3)							■	■	■
Product Feedback and Improvement (cycle 4)								■	■

Implementation Timeline: Scale-up

The facility is expected to expand to four states from the 2028-29 cycle once the NBFC license is secured, while continuing to refine its product offering to keep pace with India’s rapidly evolving agri-credit sector.



Extended pilot enables key risks to be tested and addressed before commercial scale-up

Risk	Primary Mitigation	Implementation Phase
Securing grant capital (Medium)	Since grant is partially secured reduce the scale of the pilot to target a lower number of farmers in the first cycle.	Pilot → early scale-up
Low insurance opt-in (Medium)	Increase farmer awareness and use premium subsidies to improve insurance affordability to encourage early adoption.	Pilot → early scale-up
NBFC license delay / capitalization (Medium)	Continue partner-led lending and incentive piece while preparing a pipeline for fund-capitalization and ready transition roadmap.	Commercial scale-up
Limited insurer underwriting capacity due to feasibility/regulatory constraints (High)	Engage with regulators & policy makers in the early phases. Onboard additional insurers if required and refine the payout structure/terms as per the insights from the pilot.	Commercial scale-up
Insurance and lending partner continuity (Low)	Continue building the partner pipeline and ensuring fit with the facility structure and target geography.	Commercial scale-up
Skilled field staff availability (Low)	Train FPOs to support monitoring, verification, and field execution for improved local support	Commercial scale-up

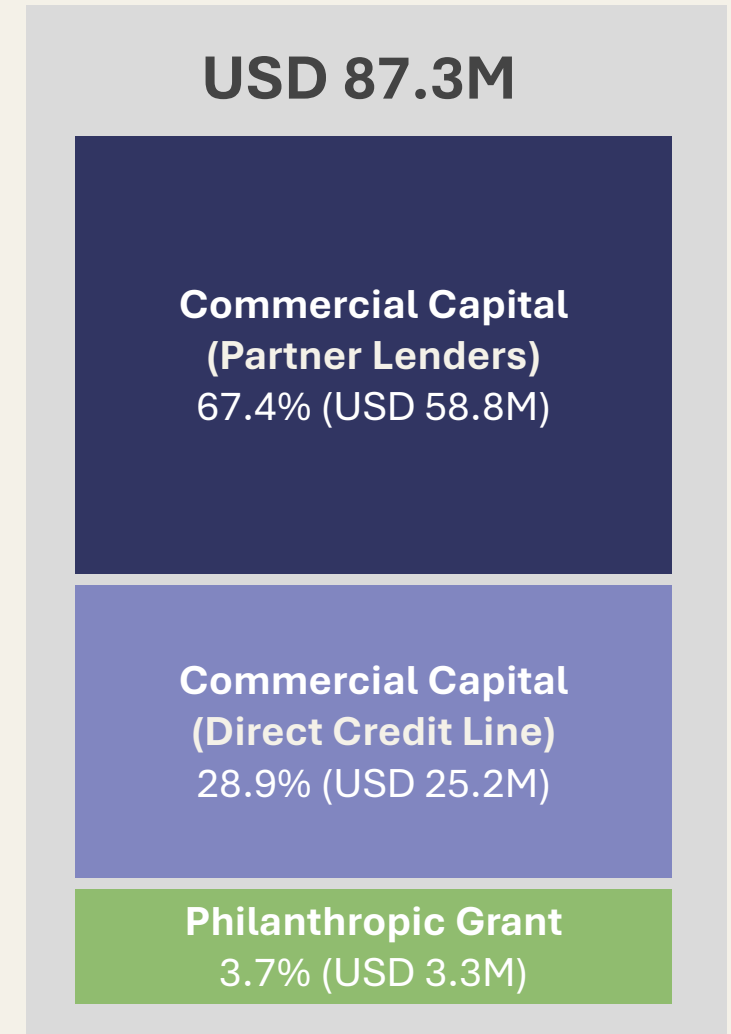
Funding required to scale climate-linked lending

SCALE will primarily use **commercial credit lines**, leveraging existing lender partnerships and is looking to expand this partner base as the facility scales.

Once DER secures its **NBFC license**, it plans to raise **~USD 25M in domestic credit lines** for direct lending (30% of total loan portfolio).

SCALE seeks **USD 3.3M in philanthropic grants**, **USD 1.2M for the pilot** and **USD 2.1M for early scale-up**.

Catalytic grant support will drive CSA adoption, de-risk early implementation, and build the evidence needed to refine the model and transition to commercially viable operations at scale.



1. Executive Summary
2. Team
3. Problem and Opportunity
4. Vehicle Mechanics
5. Innovation
6. Investment Strategy
7. Capital Structuring
8. Projected Financial Results
9. Impact
10. Implementation and Fundraising

11. References

References

- Choudhary M, Prajapat K, Fagodiya RK, Dahiya A, Sanwal SK, Jat HS, editors. 2024. Climate smart agriculture (CSA) for sustainable resource management. Satish Serial Publishing House.
- Down To Earth. 2025 Feb 13. In 2024, India experienced extreme weather events on 322 days, surpassing records of previous years. <https://www.downtoearth.org.in/climate-change/in-2024-india-experienced-extreme-weather-events-on-322-days-surpassing-records-of-previous-years>.
- Gao R, Zhuo L, Duan Y, Yan C, Yue Z, Zhao Z, Wu P. 2024. Effects of alternate wetting and drying irrigation on yield, water-saving, and emission reduction in rice fields: a global meta-analysis. *Agric For Meteorol.* 353:110075. <https://doi.org/10.1016/j.agrformet.2024.110075>.
- Handage S, Chander M, Panda P. 2023. P2P crowdfunding: an alternative source of credit for enhancing the financial inclusion of smallholder farmers. *Asian J Agric Ext Econ Sociol.* 41(8):89-96. <https://doi.org/10.9734/AJAEES/2023/v41i81984>.
- Kaur S, Mishra SK, Singh K, Pal RK, Gill KK, Kingra PK. 2024. Enhancing crop and water productivity of Bt cotton (*Gossypium hirsutum*) through drip irrigation and fertigation in semi-arid environments of south-western Punjab. *Indian J Agric Sci.* 94(11):1195-1200. <https://doi.org/10.56093/ijas.v94i11.142943>.
- Kramer B, Sankararaju SK, Katoch T. 2026 Aug 25. From satellite images to real-world impact: how IFPRI's collaboration with Dvara opened new doors for Odisha's marginalized farmers [blog]. International Food Policy Research Institute. <https://www.ifpri.org/blog/from-satellite-images-to-real-world-impact-how-ifpris-collaboration-with-dvara-opened-new-doors-for-odishas-marginalized-farmers/>.
- Liu Y, Liu W, Geng X, Liu B, Fu X, Guo L, Bai J, Zhang Q, Geng Y, Shao X. 2022. Direct-seeded rice reduces methane emissions by improving root physiological characteristics through affecting the water status of paddy fields. *Rhizosphere.* 24:100628. <https://doi.org/10.1016/j.rhisph.2022.100628>.
- Ministry of Chemicals & Fertilizers, Government of India. 2022 Mar 29. Use of non-chemical fertilizers in agriculture. Rajya Sabha Unstarred Question No. 2894.
- [NABARD] National Bank for Agriculture and Rural Development. 2025 Oct 7. Guidelines on fixation of scale of finance (SoF). Circular No. 226/DoR-46/2025-26. https://agriwelfare.gov.in/sites/default/files/Guidelines_on_SoF_07102025.PDF.
- [PIB] Press Information Bureau, Government of India. 2026 Jul 16. Strengthening rural credit for inclusive growth in India. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2285236&lang=2®=48&>.
- QCIntel. 2026. Rice methane credits from project in India sell for \$17-18/tCO₂e. <https://www.qcintel.com/carbon/article/rice-methane-credits-from-project-in-india-sell-for-17-18-tco2e-40545.html>.
- [RBI] Reserve Bank of India. 2025 Jun 30. Financial Stability Report: June 2025. Reserve Bank of India. <https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/0FSRJUNE20253006258AE798B4484642AD861CC35BC2CB3D8E.PDF>

