

# Strengthening Financial Resilience in Agriculture Knowledge Exchange Series Part 2

## Disaster Risk Financing Solutions for Climate-resilient Livelihoods in the Agricultural Sector

Session 2:

**The State of Inclusive  
Financial Services & Global  
Evidence on Strengthening  
Climate Resilience**

**Disaster Risk Financing  
& Insurance Program**



**USAID**  
FROM THE AMERICAN PEOPLE

# Structure of Webinars



Total of 4 Factsheets & 90-minute Webinar for each Factsheet



Different guest speakers



Q&A: Please share your questions via chat



Participants will have an opportunity to obtain "Certificate of Informed Policymaker" from the World Bank on successful completion of following criteria:

## Completion Certificate:

Participants need to attend 4 webinars and complete a short survey/quiz.

# What will the four webinars cover?



1

A brief history of index-based livestock insurance, the state of global evidence on its impact and implications



2

Climate-responsive financial products and global evidence on strengthening climate resilience



3

Lessons learned from index insurance programs across the micro, meso and macro levels



4

The latest technology for agricultural insurance and finance

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# Landscape of climate-responsive financial products

**Peter Zetterli**

Senior Financial Sector Specialist,  
CGAP



# Climate adaptation and financial inclusion

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**Peter Zetterli**

Senior Financial Sector Specialist

**Sabaa Notta**

Financial Sector Consultant

# Our initial work has taken a broad view with multiple lenses



# What does financial inclusion have to do with climate adaptation?

## Planned adaptation



Deliberate policy /  
action by government or  
public agencies

## Autonomous adaptation



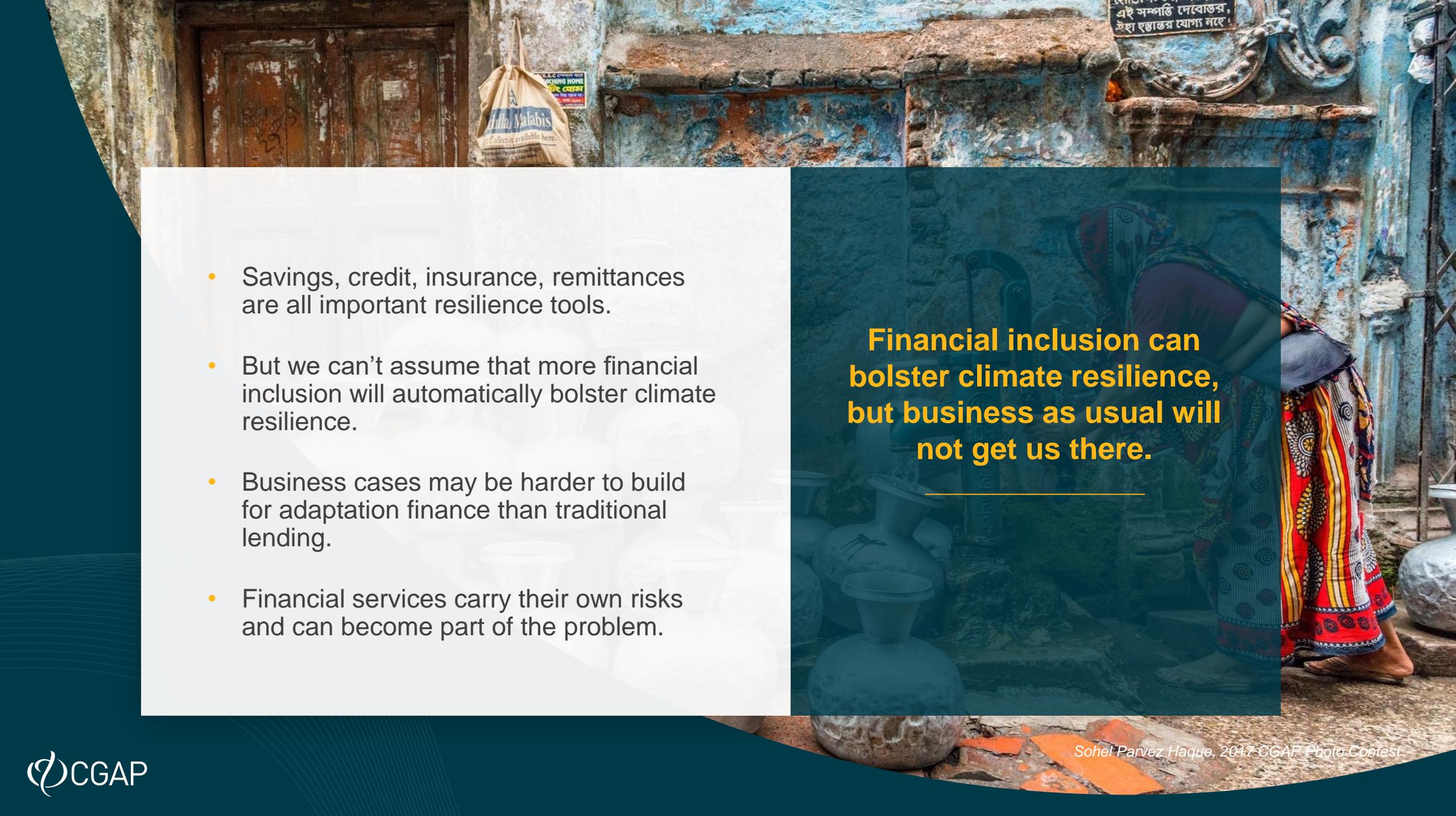
Spontaneous initiatives by  
individuals and other  
private actors

**Financial inclusion**

Planned adaptation can include climate insurance or recovery payments to vulnerable people.

Autonomous adaptation relies on a wide range of financial services, including savings, credit, insurance, and remittances.

**Financial inclusion supports both, but is a particularly critical enabler for autonomous adaptation.**

- 
- Savings, credit, insurance, remittances are all important resilience tools.
  - But we can't assume that more financial inclusion will automatically bolster climate resilience.
  - Business cases may be harder to build for adaptation finance than traditional lending.
  - Financial services carry their own risks and can become part of the problem.

**Financial inclusion can bolster climate resilience, but business as usual will not get us there.**

- Women face greater exposure, higher vulnerability, yet fewer tools and strategies.
- These issues intersect and compound each other, raising the stakes.
- The FI and climate communities must learn to work on gender, climate, and inclusion in more integrated ways.

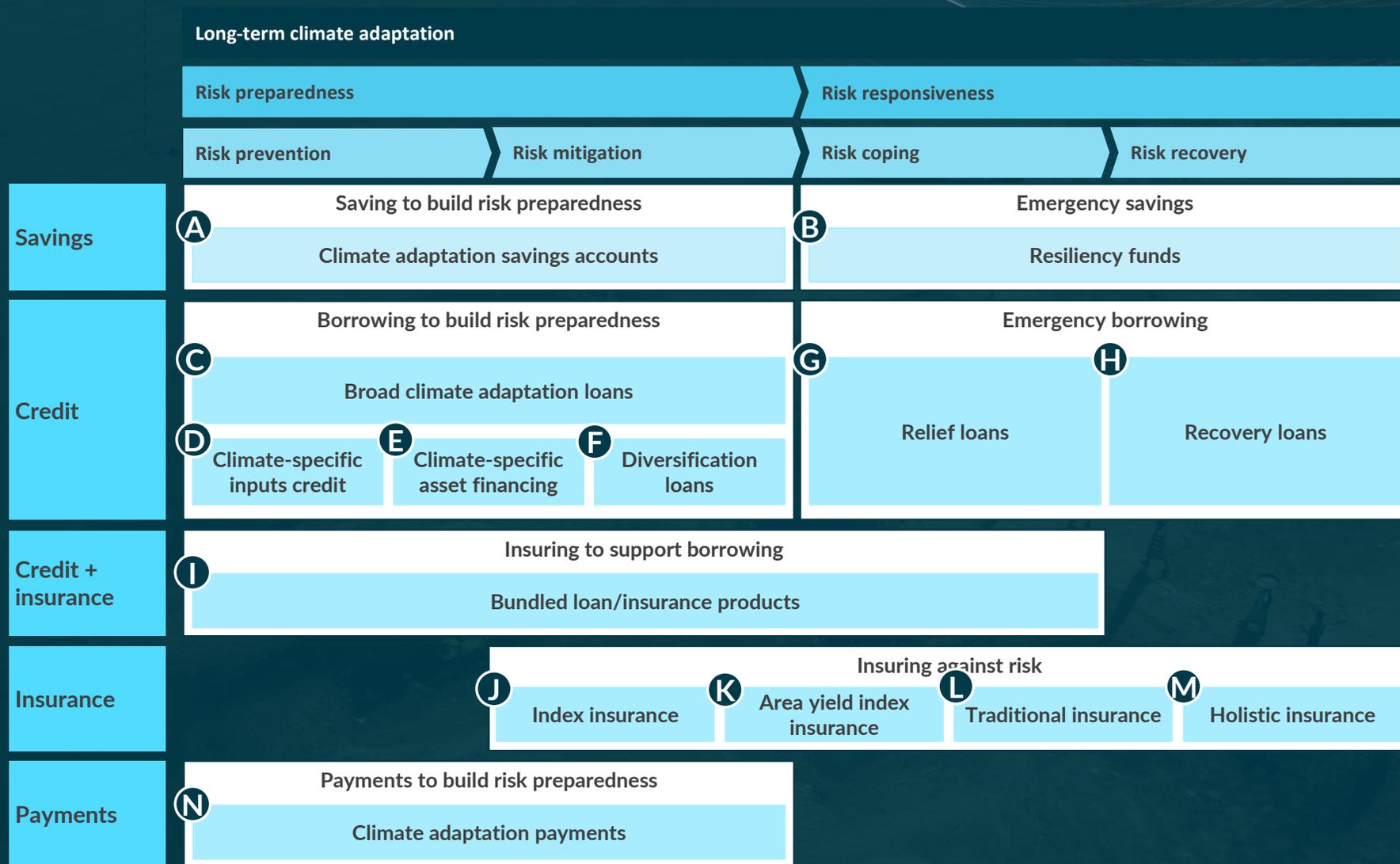


**Women face particular challenges that need real attention.**

- Some FSPs in a few countries are out ahead, but for many climate is not a top priority.
- Providers cite lacking data, expertise, and demand—despite an obvious need.
- The product landscape is very narrow and centered on agriculture, particularly weather index insurance.



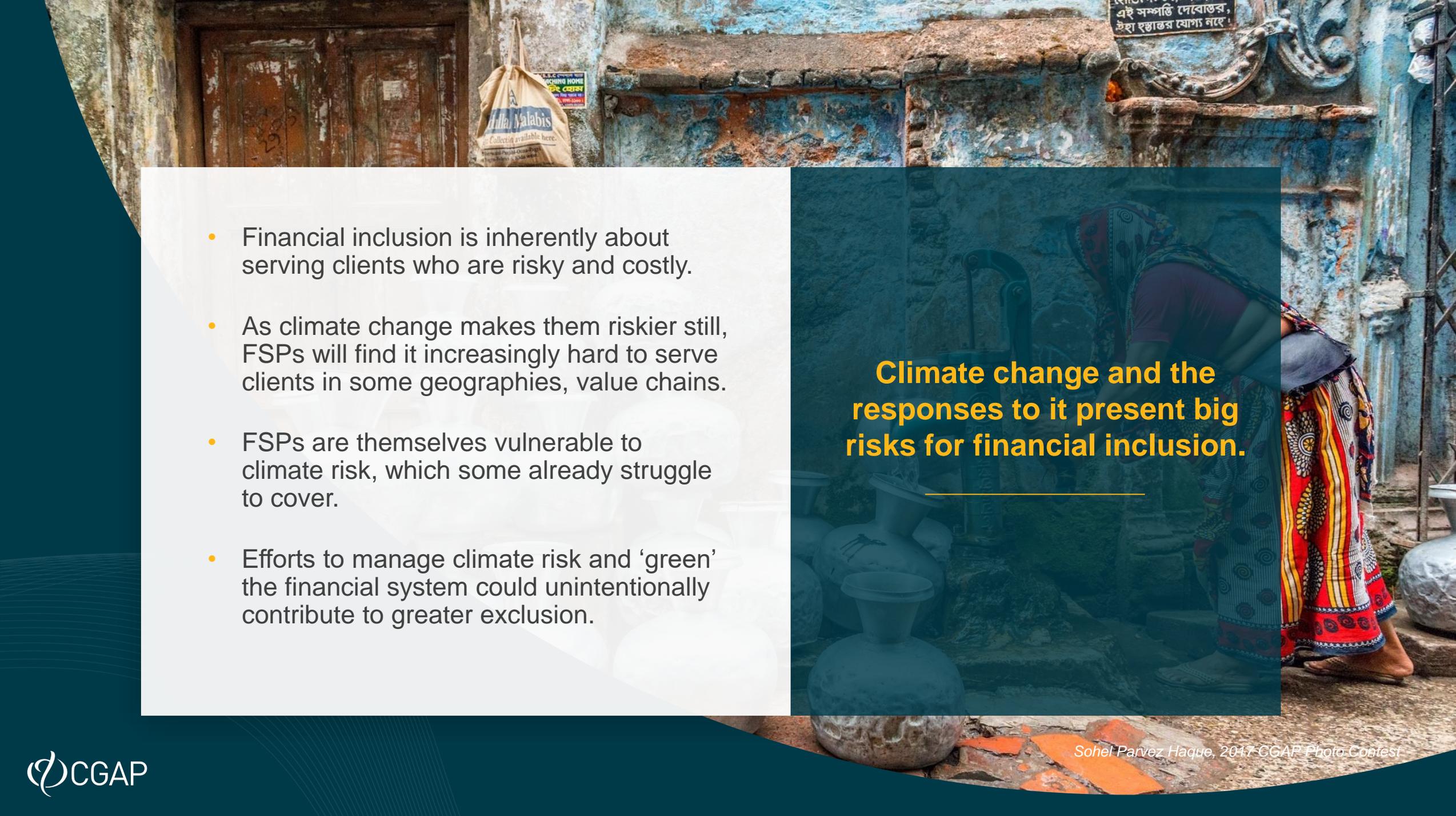
**Financial service providers  
have not come far on  
climate adaptation.**



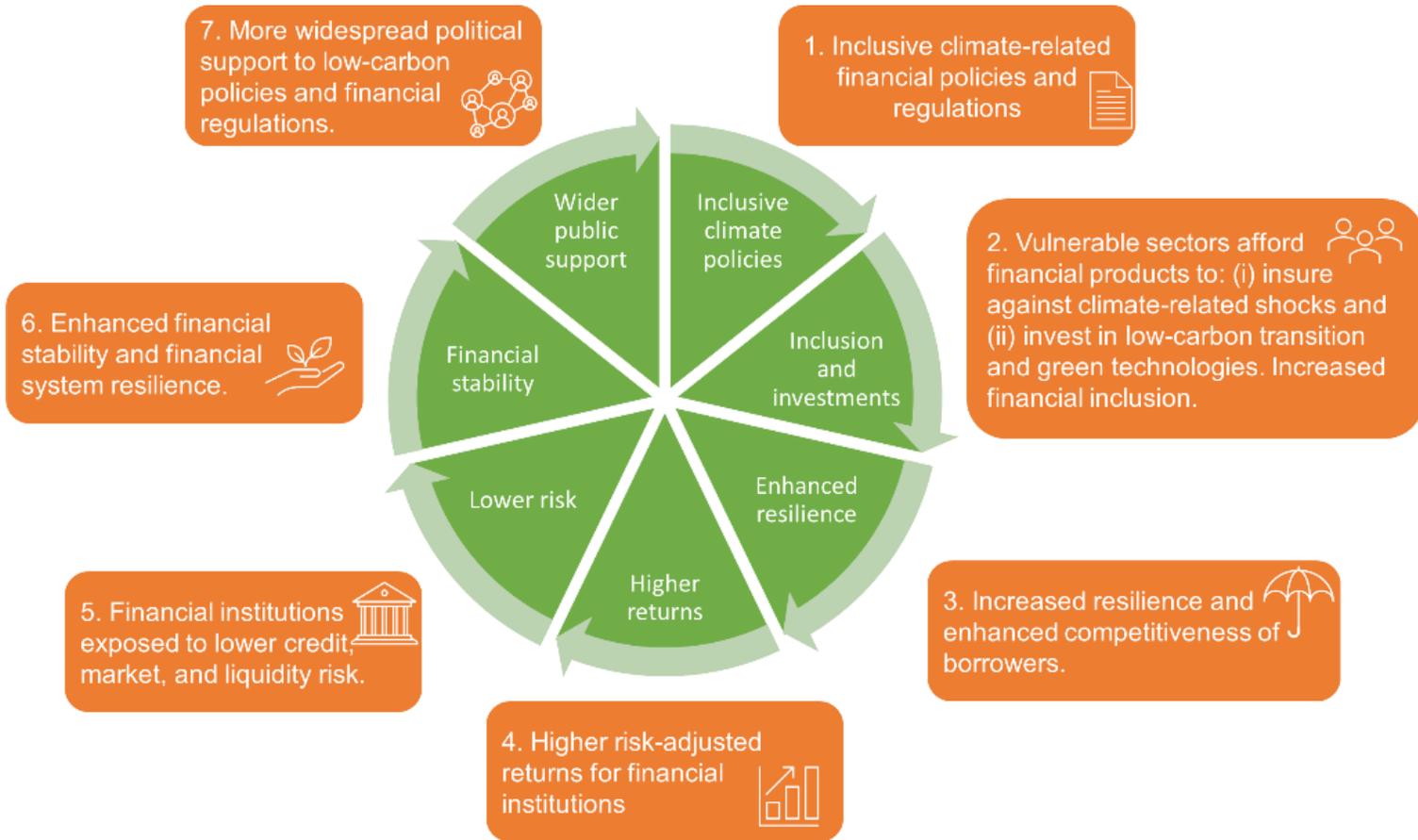
- Some FSPs in a few countries are out ahead, but for many climate is not a top priority.
- Providers cite lacking data, expertise, and demand—despite an obvious need.
- The product landscape is very narrow and centered on agriculture, particularly weather index insurance.
- Climate efforts that *are* being made don't center on clients' resilience and adaptation, but on 'green loans' and portfolio quality.



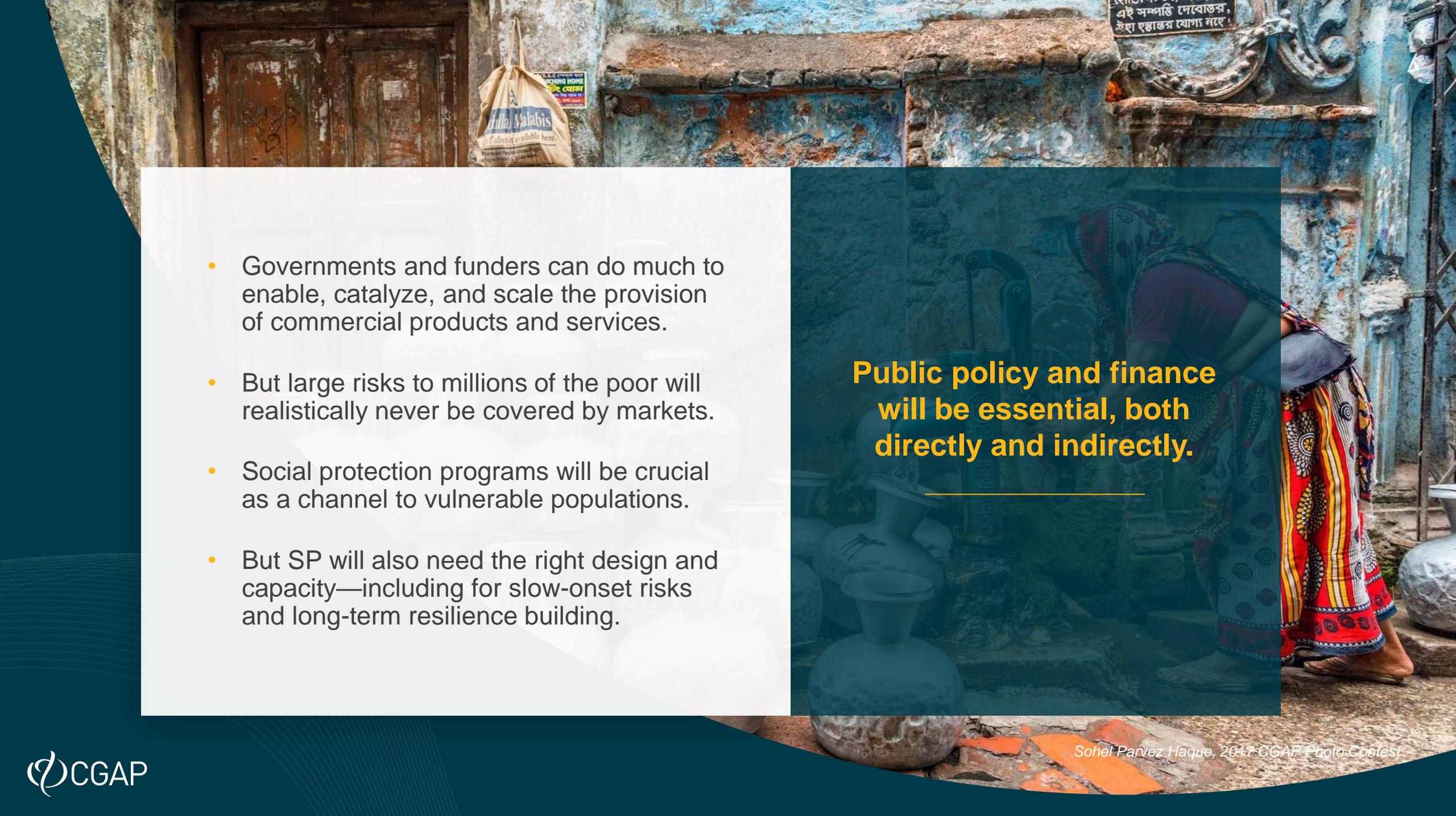
**Financial service providers  
have not come far on  
climate adaptation.**

- 
- Financial inclusion is inherently about serving clients who are risky and costly.
  - As climate change makes them riskier still, FSPs will find it increasingly hard to serve clients in some geographies, value chains.
  - FSPs are themselves vulnerable to climate risk, which some already struggle to cover.
  - Efforts to manage climate risk and ‘green’ the financial system could unintentionally contribute to greater exclusion.

**Climate change and the responses to it present big risks for financial inclusion.**



Thoughtful policy responses can help to create a **virtuous cycle** of growing inclusion, falling climate risk, and greater financial stability.

- 
- Governments and funders can do much to enable, catalyze, and scale the provision of commercial products and services.
  - But large risks to millions of the poor will realistically never be covered by markets.
  - Social protection programs will be crucial as a channel to vulnerable populations.
  - But SP will also need the right design and capacity—including for slow-onset risks and long-term resilience building.

**Public policy and finance  
will be essential, both  
directly and indirectly.**

# Takeaways

1

Financial inclusion is a key enabler of climate adaptation for the poor, but **there's much we don't know, and little work is happening.**

2

**Climate change is poised to push financial inclusion back**, unless we can help both clients and providers better manage their climate risk.

3

**The needs of women must take center stage**, given compounding inequities as well as their typically major role in household resilience.

4

**Public actors will be critical**, to crowd in capital and build markets as well as to directly support people in dealing with climate risk.

# CGAP has started publishing our initial thinking in this space

## Publications

- [Bolstering Women's Climate Resilience and Adaptation through Financial Services](#) (June 2023)
- [Strengthening Rural Women's Climate Resilience: Opportunities for Financial and Agricultural Service Providers](#) (May 2023)
- [Resilient Rural Women: Applying Personas and Insights for Climate-Smart Innovation](#) (May 2023)

## Publications pipeline

- Climate risk and financial inclusion: A regulatory perspective (July 2023)
- Climate resilience and financial inclusion: The state of the industry and a new agenda (Oct 2023)
- Climate resilience and financial inclusion: A demand side perspective (Dec 2023)

## CGAP blogs

- [Climate Resilience Through Financial Services: Farzana's Story](#) (June 2023)
- [Financial Inclusion: An Entry Point to Climate Adaptation for Funders](#) (May 2023)
- [State of the Climate-Responsive Financial Product Landscape](#) (Dec 2022)
- [In an Era of Urgent Climate Risk, Does Financial Inclusion Matter?](#) (June 2022)
- [Financial Inclusion for an Inclusive, Greener, More Resilient World](#) (Jan 2022)
- [Inclusive Finance Can Help the World Achieve COP26 Goals – Here's How](#) (Nov 2021)
- [How Financial Services Can Help the Poor in the Climate Transition](#) (Dec 2020)

# We are now launching learning agendas in several directions

- Climate-responsive and resilient **financial service providers**
- Building inclusive **financial systems** for climate resilience
- **Social protection** for long-term climate adaptation
- Resilient **rural women** in climate-smart digital economies
- Making **carbon markets** work for the poor
- Thoughtful **policy responses** to green finance



**Thank you**

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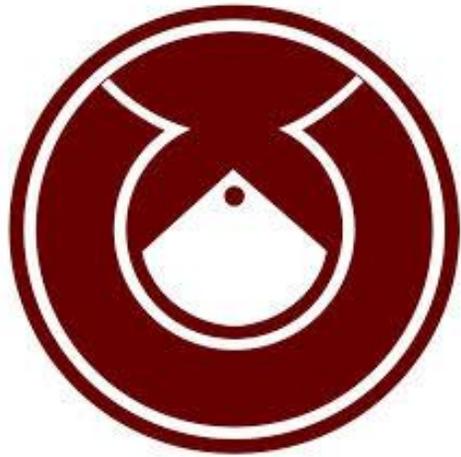




**Lessons learned  
from using index  
insurance for  
livelihood protection  
and carbon markets  
for climate  
adaptation**

**Rehana Riyawala**

Vice President, Self Employed Women's  
Association (SEWA)



**SELF EMPLOYED  
WOMEN'S  
ASSOCIATION (SEWA)**



**Inclusive Financial Services  
and Strengthening Climate  
Resilience**



# SEWA – AN INTRODUCTION

SEWA CURRENTLY HAS A MEMBERSHIP OF 2.5 MILLION WOMEN WORKERS FROM THE INFORMAL ECONOMY



Established in 1972, SEWA is the largest women's trade union in the country



SEWA has a membership in 18 states of India and in 7 South Asian countries



SEWA organizes its members, based on their skills into their own economic organizations – collectives / cooperatives / federations / and producer companies.



SEWA follows the principles of

- satya (truth),
- ahimsa (non-violence),
- sarvadhama (integrating all faiths and people)
- khadi (propagation of local employment and self reliance)



SEWA members are spread across 125 different trades and can be classified into four categories:

- **Home-based Workers:** Incense stick makers, garment makers, bidi rollers, artisans, etc.
- **Vendor and Hawkers:** Vegetables, fruits, cutlery, ready-made clothes, etc.
- **Manual Laborers and Service Providers:** Farmers, construction workers, masons, etc.
- **Producers:** Micro-entrepreneurs who produce and market their goods

SEWA IS A CONFLUENCE OF 3 MOVEMENTS

COOPERATIVE MOVEMENT



LABOUR MOVEMENT

WOMEN'S MOVEMENT



Two broad goals: Full Employment & Self Reliance



To achieve its goals SEWA follows an integrated approach:

- **Organizing** for collective strength,
- **Capacity Building** to stand firm in competitive market
- **Capital Formation** for risk mitigation & fight poverty and
- **Social Security** to enhance well-being & productivity

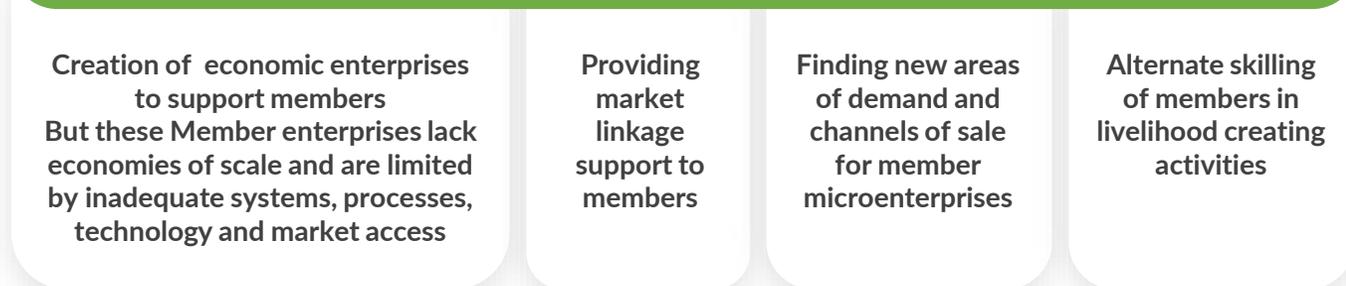
## Challenges Faced by Informal Economy Members of SEWA

### DIVERSE AND INTERSECTIONAL



SEWA Members do not have access to capital, Face high borrowing costs and onerous repayment terms inability to absorb climate and market shocks and various disasters affects ranging from livelihoods to loss of assets making them more vulnerable and push them into the vicious circle of poverty

### SEWA's efforts to help



## Climate change and its Impact on the Members of SEWA

Various impact across members in different trades



Decreased work-efficiency



Reduced working hours



Significant impact on health. Forced to take sick days off



Drains the limited family savings



The poor do not want charity; what they need is productive, meaningful and dignified work.

# SEWA's approach to financial inclusion and helping members increase resilience to climate shocks

FRAMEWORK: Awareness and access

EXAMPLES of Financial Instruments to increase resilience




Awareness/ Education (cleaner/purer skies, different equipments/schemes available its benefits, demand creation etc.)



Access to products (design and negotiate with supplier/vendor)



Access to finance (facilitate loans/alternative funding in an affordable manner)



### Livelihood Recovery and Resilience Fund

- The LRF serves as a contingency fund for informal sector women workers – a strong credit and risk mitigation system. The fund provides immediate support in the event of various climate shocks and assist with recovery and stabilization.
- The goal is to support microentrepreneurs during heat waves, floods, cyclones and droughts to help them expand their services, and ultimately enable them to access the formal financial market.



### Extreme Heat Wave Insurance

- The product was an innovative parametric insurance to help SEWA member wages lost during extreme heat events.
- The tool was designed to pay out multiple times in one heat season to replace income—estimated at \$3 per day.



### The Green Village Intervention – adaptation and mitigation infrastructure for agriculture and allied activities

- Promotes use and improves access to clean energy in rural communities by supporting comprehensive policy and scalable market solutions
- Includes solar lamps, cool roofs, biogas plants, solar pumps for irrigation, organic manure, solar trap lights, precision irrigation, solar powered fodder system, solar fencing, rain-water harvesting, rooftop gardens, energy farming, solar community cold storage facilities, and electric mobility.

# WHY LRRF ?

**BOLD AND INNOVATIVE APPROACH TO IMPROVE ECONOMIC RESILIENCE AND CREATE ECONOMIC OPPORTUNITIES**

*Financial access on reasonable terms from formal financial institutions is a key enabler for achieving SEWA's mission of improving the livelihood prospects of its members*

- SEWA has created the LRR Fund of 25 Crores (US\$1 million) in Phase 1 with plans to scale up to 100 Crores (US\$12 million) in Phase 2
- LRRF will ensure members get access to affordable finance and create a track record of timely repayment



## RATIONALE

- SEWA members are excluded from the formal financial system due to perception of high risk
- The LRRF will help create loans to members into an acceptable risk reward proposition with lenders
- The fund will open the doors of long term, sustainable financial access and enable stable and improved livelihoods for members



**Contingency Fund:** The LRRF will provide immediate support to SEWA members during calamities and assist with stabilization



**Overcoming lender hesitation:** The LRRF can support risk mitigation structured as first loss guarantees or partial credit guarantees; blended finance to lenders



## STRUCTURE

The LRRF will improve access to affordable finance using several blended finance instruments:

- First Loss Guarantee
- Interest Subvention
- Debt service maintenance in the event of livelihood disruptions



**Long-term Support:** The fund will support members with long-term resources needed to cope with economic crises



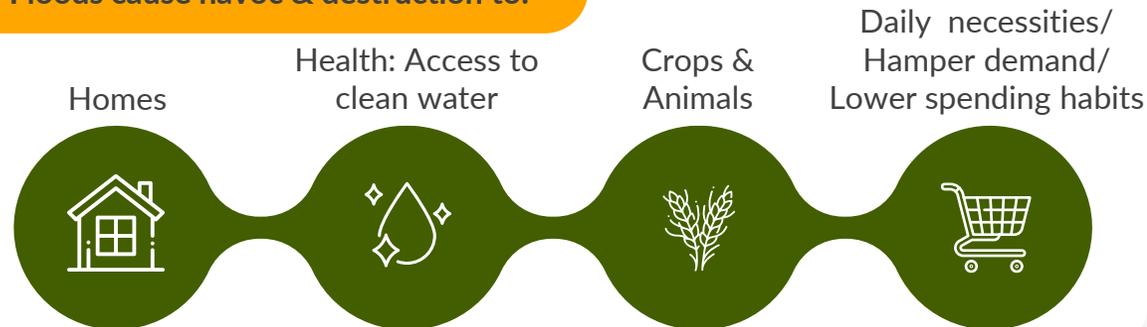
**Blended Finance is Transitional:** The funds will be available only till a track record is established and lenders get comfortable to lend to SEWA members

**LRRF WILL ENSURE SEWA MEMBERS GET ACCESS TO AFFORDABLE FINANCE AND CREATE A TRACK RECORD OF TIMELY REPAYMENT**

# LRRF enabled financial protection against impact of Floods in 2022 and is helping build resilience

The State of Gujarat received unprecedentedly high rains - over 50% excess rainfall - over 70 deaths - thousands evacuated - more than 6,000 women affected in 3 districts.

## Floods cause havoc & destruction to:



 Women have borrowed money for working capital

 Loss of income due to floods

 Women need more loans to  
1) recover the setback 2) Reinvest into working capital

 Interest rates go high

 Individuals fall into a debt trap

## Financial support through LRRF designed and finalised

- Timely Finances has supported to rebuilding the livelihoods of small and marginal farmers on timely basis – 216 members with 28.9 lacs
- No cost financial assistance has saved the members from the heavy debt rates of up to 12 % per month from the private money lenders thereby saving the members from the debt trap and vicious circle of poverty
- The vegetable growers have started earning in couple of months as the timely finances has allowed the re-cultivation on timely basis.
- Other Small and marginal farmers were able to recultivate their fields and earned upto INR 50000 – 60000 in the given season

## Complementary non-financial support

- Distribution of Ration Kits
- Disease Prevention and Access to Healthcare:** SEWA has identified and trained a cadre of SEWA Health Ambassadors (SHAs) to create awareness in the community on water- and vector-borne diseases
- Infrastructure for Rebuilding Homes and Livelihoods:** tarpaulin, construction sheets etc

## Policy Advocacy

- SEWA is reaching out to multiple government levels and aims to conduct action research, policy dialogues, and round tables at the local and the national level to create effective and comprehensive strategies for flood response.

More recently, the LRRF is providing financial protection against impact of Biporjoy Cyclone 2023 and is helping build resilience for more than 50,000 affected members

Previously LRRF supported 15000 salt farmers to convert from diesel pumps to solar pumps in partnership with commercial Bank (Bank of Baroda)

# Swayam Shakti Program: Lessons from use of LRRF to enable livelihood resilience for micro entrepreneurs.



Micro loans of Rs20,000-1,50,000 were provided to 1354 members during covid with support from MSDF.



Loans were provided at 12% p.a. (vs 5-10% per month by informal lenders) and overlaid with an interest subvention / cash back for timely repayment upto 10% or INR 10,000 whichever is lower.



As the loan now draws to a close, we interviewed 60+ members across districts (urban-Ahmedabad district, Rural - Anand, Surendranagar) to understand the impact of the loan of the members and income generation.



## Number talk

- Delinquency around 4% and further dropped to 2%.
- Defaults mainly due to death / accident/ illness .
- Timely repayments around 72%.



## Survival Strategy

- Most women do 2-3 businesses to make ends meet and provide a back up in case one source of income dries up ; the businesses are run in parallel or alternate seasonally.
- Loans at 12% per annum were affordable and enabled women microenterpreneurs; make a profit margin sufficient to sustain their livelihoods.



SEWA has the flexibility to identify and choose deserving members. Our internal knowledge and familiarity helps us identify the right borrowers for such loan programs.



Many banks were not willing to give loans to them due to lack of documentation.



Borrowers found the documentation processes too challenging even if it was going to give them low interest rates.



The women that did have the ability to take a bank loan complained however about the tedious process of taking a loan from a bank – there is a lot of documentation needed and collateral and security requirements are onerous.



They were very happy with the Swayamshakti loans due to the simple process of KYC and disbursement.



## Use of funds

- Almost all women used the funds for livelihood generation, used the principal as a rotational fund to reinvest back into their business, while using their profits for living expenses.
- In Rural areas, most borrowers used the loans for 1) Seeds & fertilizer (during season), 2) animal husbandry.
- In few cases we discovered that the women used the funds to support consumption expenses such as buying an automobile. This established the need for careful monitoring the use of proceeds.

# Building Resilience Against Heatwave

## Impact on livelihoods



Vendors incur loss due to unavoidable spoilage of produce/materials.

For women involved in ship breaking, the heat wave has contributed to extremely harmful temperatures at their worksite.



Agriculture has become difficult due to reduced levels of ground water and drip irrigation pipes becoming non functional.

For women involved in animal husbandry, the milk output from animals had reduced.



Many members, especially salt pan workers in the desert of Gujarat, have reported that they are unable to cook twice a day due to acute lack of water.

Lack of basic facilities makes it a challenging task for members to prevent spoilage of food.

## Extreme Heat Micro-Insurance



SEWA workers with the Adrienne Arsht-Rockefeller Foundation Resilience Center (Arsht-Rock) and Blue Marble.



The product is an innovative parametric insurance to protect SEWA members against wage loss during extreme heat events.



### Product Design

Pays out multiple times in one heat season to replace income—estimated at \$3 per day for maximum benefit of up to \$ 100.



Premium of \$ 14 (100% subsidy from development partner Adrienne Arsht-Rockefeller Foundation Resilience Center)



### Results

- Covered **21,000** SEWA members from 8 trades across 4 geographic locations.
- Product doesn't triggered as these year it was not the Heat but unseasonal rains and the cyclone which also resulted into the loss for the members but were not eligible for any claim.
- Based on learnings from the pilot, the goal is to work on all weather insurance and further scale to the entire **2.5 million** SEWA members

# Recommendations to address key challenges in strengthening resilience

 <b>Recommendation</b>	 <b>Key Challenge</b>	 <b>Motivation</b>
<b>Unified credit score for the underserved with pre-approved loan package i.e. underwriting done in advance based on credit score</b>	Currently CIBIL covers ~5 crore individuals in India	<ul style="list-style-type: none"> <li>• Unified system covering more individuals will add value to the ability of unbanked/underbanked individuals to get loans/ pre-approved loans due to the information exchange.</li> <li>• This will expand user base considerably, hence more business for FSPs</li> <li>• Upcoming RBI's Account Aggregator can accelerate financial inclusion process</li> <li>• Crucial that all financial institutions follow the same methodology and there is a real time information exchange</li> </ul>
<b>Simplified documentation</b>	Currently there are multiple levels and approaches, Documentation is mostly paper based Results in long processing times	<ul style="list-style-type: none"> <li>• One time documentation accepted by all financial institutions</li> <li>• Paperwork is pre defined, and moved to a digital KYC format</li> <li>• Central agency holds all approved documents</li> <li>• Consider waiving of certain documents for small farmers and micro-entrepreneurs</li> </ul>
<b>Widen Digital Banking and digital literacy through Awareness Programmes and feature phones</b>	Trust remains a crucial point in the world of virtual money & banking A large part of India remains on feature phones.	<ul style="list-style-type: none"> <li>• Design Financial literacy programs that cover not only the features of digital banking, but also the safety aspects</li> <li>• Expanding digital banking to feature phone will allow more people access to transact/ learn about their finances eg: UPI123.</li> <li>• Continue efforts for smart phone through e-learning platforms.</li> </ul>
<b>All Weather Insurance and Weather station at villages level</b>	Most available products cover just one risk yet households face integrated and often compounding risks.	<ul style="list-style-type: none"> <li>• Newer kind of insurance products should be developed to cover the climate risk, market risk as well as loss of livelihoods.</li> <li>• Weather station should be at the village level which would work towards the more accurate climatic risk faced by the members</li> </ul>
<b>Enterprise support Offer integrated support</b>	Programs are often in silos offering fragmented support	<ul style="list-style-type: none"> <li>• Adopt collective approach including affordable finance &amp; Market linkages as these have shown superior results</li> <li>• Government support through procurement, digital aids, tax benefits can provide a boost to these women owned industries.</li> </ul>



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**Thank you**

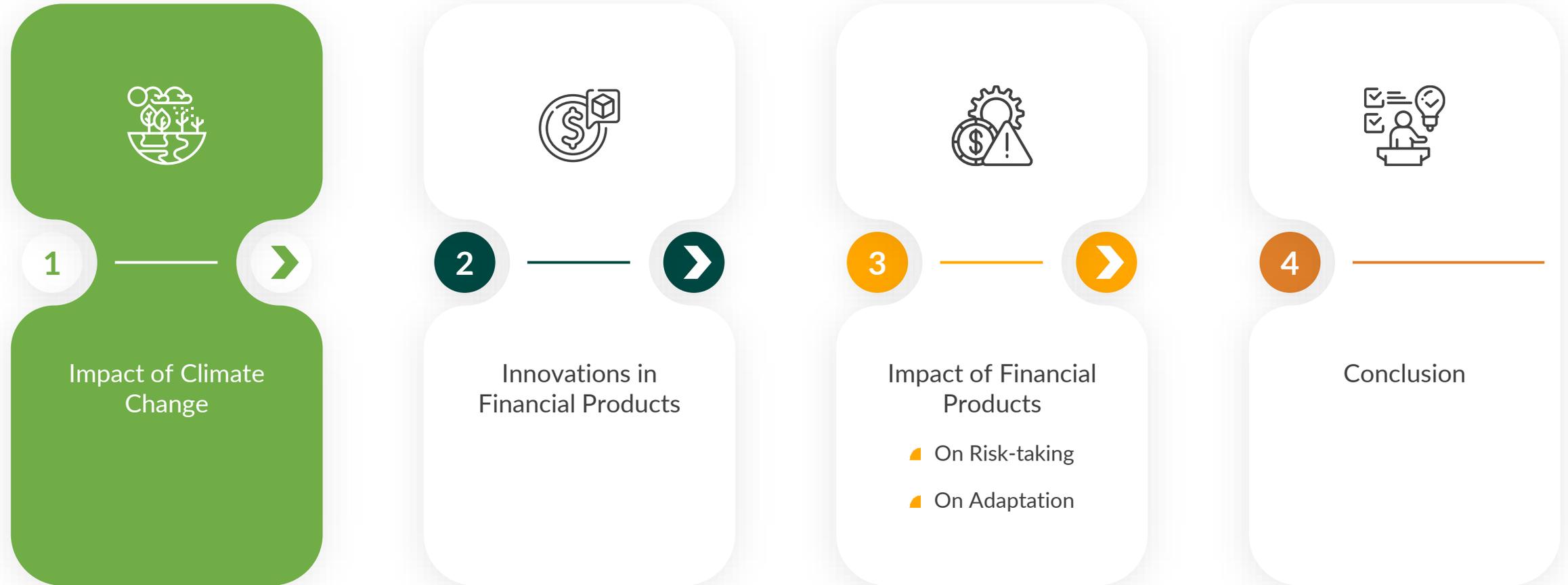


**The role of financial  
services in  
strengthening  
climate resilience**

**Xavier Giné**

Lead Economist, Development  
Economics Research Group  
World Bank

# Outline of today's talk



# Impact of Climate Change



Climate change (increases in temperature) has negative impacts on various outcomes (at the micro level):

Agricultural yields, labor supply, labor productivity, test scores, crime, suicide... even conflict and wars



Household adopt costly coping strategies such as investing in lower-risk activities that limit the long-run earning potential.



# Outline of today's talk



1



Impact of Climate Change



2



Innovations in Financial Products



3



Impact of Financial Products

- On Risk-taking
- On Adaptation



4



Conclusion

# Index insurance



An insurance policy where payouts are linked to a publicly observable index:

E.g.

- i. Rainfall in a nearby rain gauge;
- ii. commodity price;
- iii. aggregate crop yields,
- iv. satellite data on vegetation (NDVI).



## Key advantages :

- Cheap to calculate payouts, minimizing transaction costs, which can be distributed quickly.
- Mitigates moral hazard / adverse selection



## Key drawbacks:

- It covers one type of risk, but beneficiary may be exposed to many
- Basis risk...
- Are insurance markets against extreme events (floods, droughts, etc) available everywhere?

# II (WI) pilots around the world...



# II (WI) pilots around the world... that have scaled up



**Red:** Insurance sold as standalone product to typically large farmers

**Green:** Insurance sold bundled with credit or inputs

**Blue:** Beneficiary is not individual farmer but cooperative or municipality

Note: Mexico's program was discontinued in 2020

# Index Insurance



Are insurance markets against extreme events (floods, droughts, etc) available everywhere?



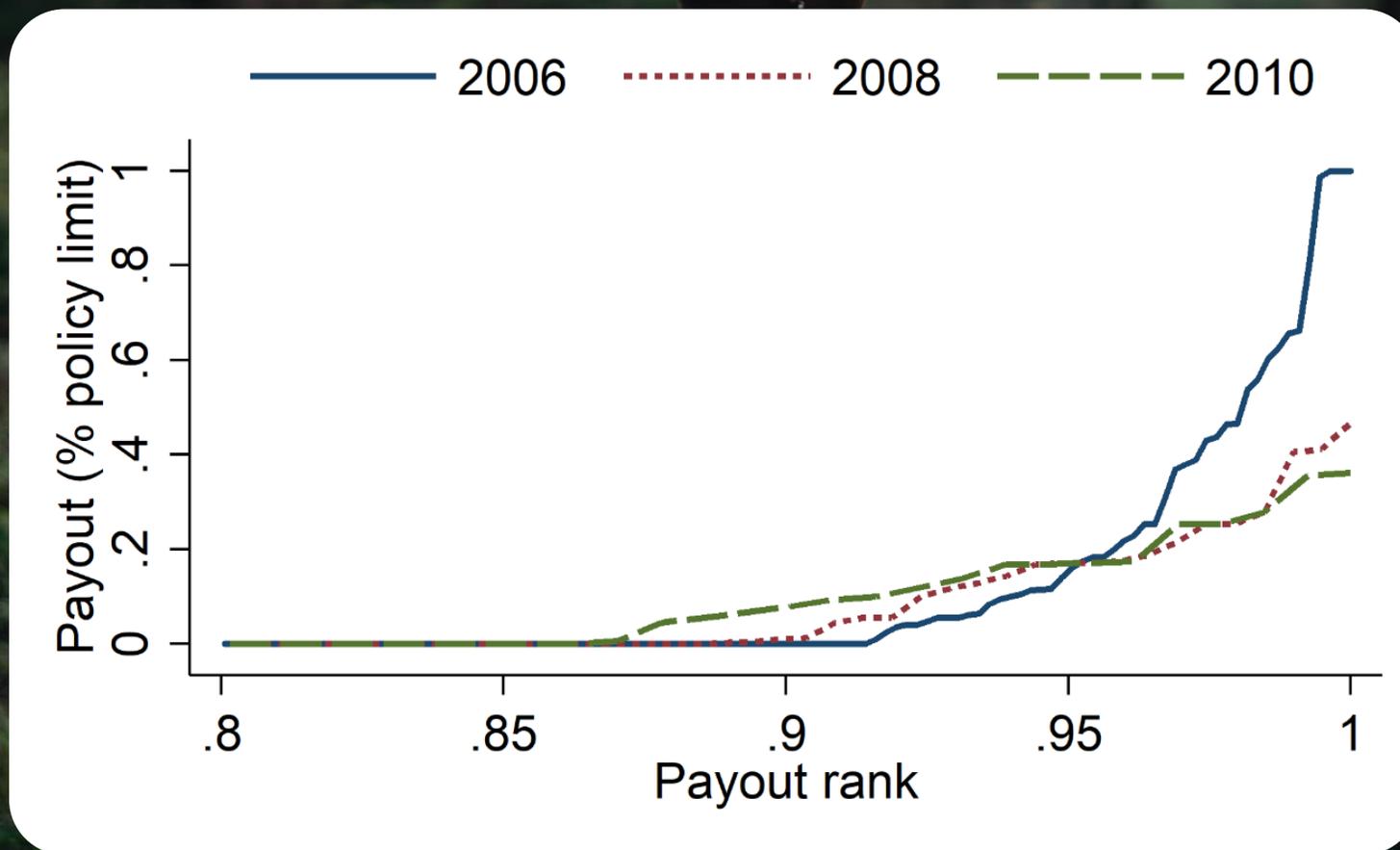
If so, at what price? Have loading factors declined over time as data becomes more available?



Do they provide coverage for extreme risks?

# Distribution of policies' payouts

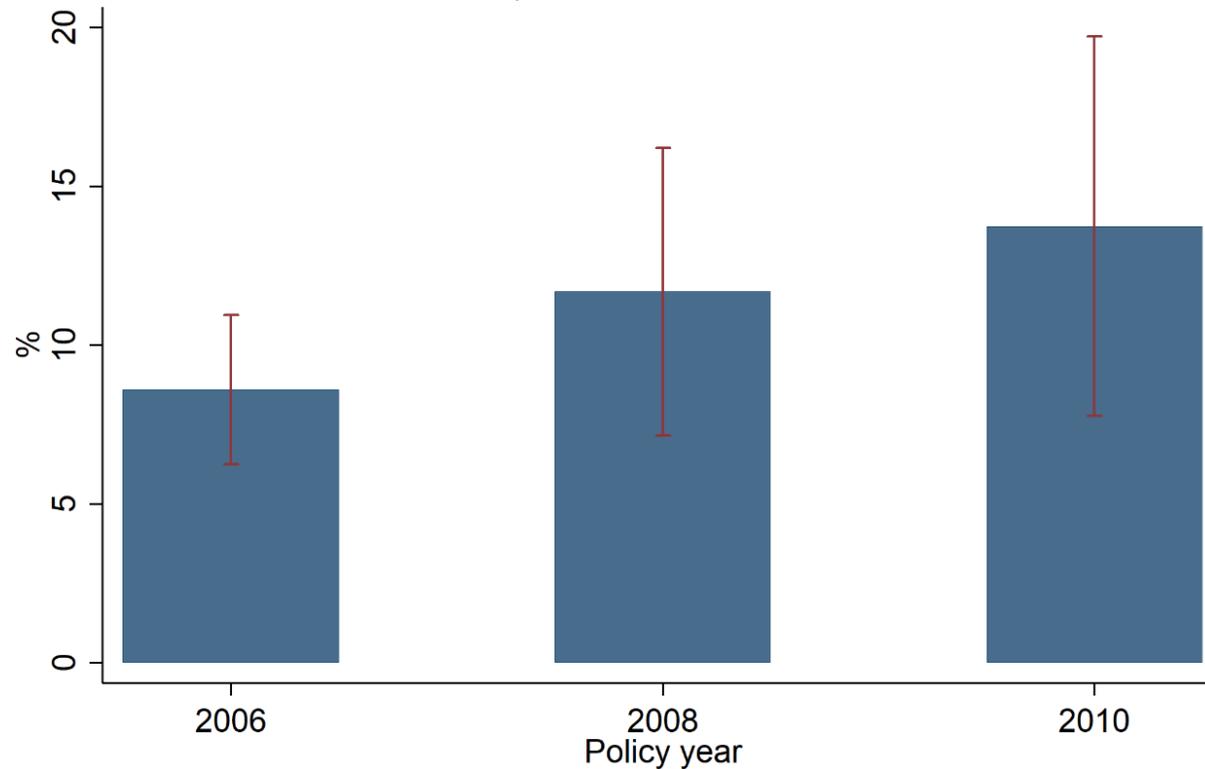
All stations and phases. Rainfall historical data: 1963-2009



Note: ICICI products sold in India on a commercial basis

# Share of policies with positive payouts

All stations and phases. Rainfall historical data: 1963-2009



Note: ICICI products sold in India on a commercial basis

# Flexible Credit



1

Lenders try to match cash flows when shocks are predicted and observable. With unanticipated shocks, this is harder to do.

2

Microcredit, traditionally:



3

Recent attempts introduced flexibility in repayment by allowing clients to choose between the standard (rigid) contract and one that delays repayment (Barboni and Agarwal, 2022; Battaglia et al., 2021).



Flexibility can improve business outcomes without deteriorating repayment rates

- Fixed, frequent repayments starting right after disbursement
- Borrowers adjust by :
  - 1) Holding back cash
  - 2) Not making highest risk-adjusted return investment
- Perhaps as a result, limited impact (Banerjee et al., 2015; Crépon et al., 2015).

# Outline of today's talk



1



Impact of Climate Change



2



Innovations in Financial Products



3



Impact of Financial Products

- ▲ On Risk-taking
- ▲ On Adaptation



4



Conclusion

# Impact of Financial Products (Risk-Taking)



Treated group offered 10 rainfall insurance policies covering all ag-related expenses

Figure: Fraction of farmers who had planted cash crops by different points during monsoon season: Difference between treatment and control group.

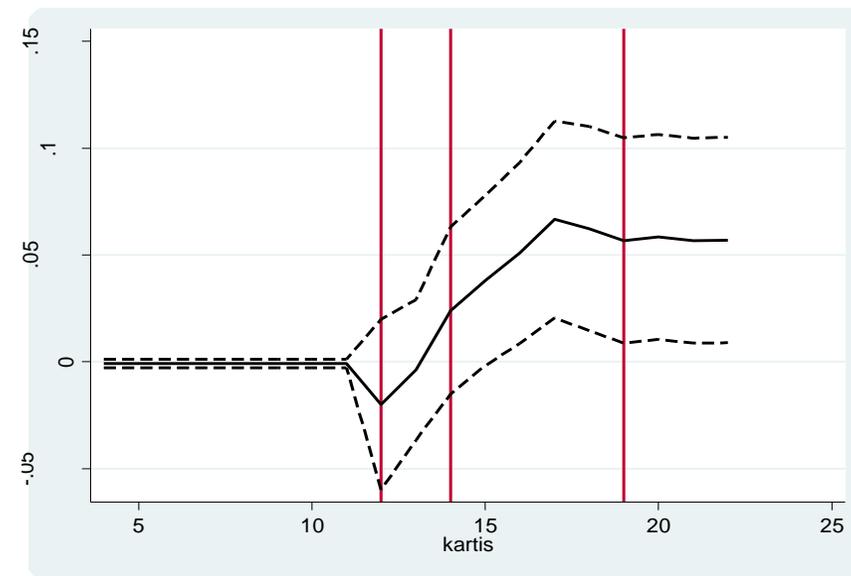


Figure note: Left and middle vertical lines show period during which field experiment was implemented. Right vertical line shows Kartis in which period of insurance coverage ended.

# Impact of Financial Products (Risk-Taking)



Wealth doesn't seem to matter but effects are largest among more educated farmers



Effects are driven by “ex-ante” behavior (e.g., the higher adoption of cash crop)



Consistent with...

**Karlan et al. (2013):** Insurance increases total investment

**Mobarak and Rosenzweig (2013):** Insured Indian farmers switch to riskier varieties of rice



# Impact of Financial Products (Adaptation)

## Evidence of moral hazard in US crop insurance program (Annan and Schlenker, 2016)

Federal crop insurance program disincentivizes farmers from engaging in adaptation strategies to cope with extreme heat, exacerbating potential losses.



## Access to line of credit after floods in Bangladesh increases investment and consumption smoothing (Lane, 2023)

Repayment is high and loan is profitable for the lender.



# Conclusion



**Take-up of insurance is low, even when subsidized**  
Best offered as a bundle with credit or inputs



**Financial markets improve ex-post consumption smoothing, but not necessarily ex-ante adaptation i.e., growing crops that are better suited to weather patterns.**



**Financial markets do not improve mitigation**  
Higher investment in inputs may lead to more emissions



# Time for Questions

For more information and  
regular updates...  
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Community!

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The latest technology for agricultural insurance and finance

Thank You

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