

Extreme heat income protection and excess rainfall insurance for women working in the informal sector in India

SCBF PUW 2024 – 01

Report Date: March 2026

Project Summary

Financial sector partner	Self-Employed Women's Association (SEWA)	Target Segment	Women in informal sector
Grantee / TA provider	Blue Marble	Targeted outreach	21,000
Country of implementation	India	Instrument type	Technical Assistance
Product / Solution	Income protection insurance (index-based)	Project duration	April 2024 - October 2025

1. Executive Summary

Climate shocks are intensifying across India, disproportionately affecting low-income women working in the informal economy. These workers face dual shock during extreme weather events: declining income and rising household and health expenditures. Without formal risk transfer mechanisms, they rely on high-interest borrowing, asset sales, or harmful coping strategies.

This project delivered a gender-responsive climate risk protection model for 21,000 SEWA members across seven Indian states. The intervention combined:

- A regulated micro-level parametric extreme heat insurance product
- A SEWA-managed excessive rainfall pooled risk fund
- Financial literacy and bank account activation support

The 2025 Heat Protection Product demonstrated strong alignment between satellite-based trigger design and observed climate stress conditions. A total of 12,713 members received payouts, totaling INR 94.18 lakhs. Direct transfers provided timely liquidity that reduced debt dependence, supported medical treatment, and enabled livelihood reinvestment.

The rainfall pooled mechanism covered 20,999 members with a total exposure of INR 2.82 crores. Rainfall-triggered funds totaling INR 141,744 were strategically deployed in the most affected districts to support localized recovery interventions.

The program also activated or opened 5,500 bank accounts and trained 25,000 women in financial literacy, significantly advancing gender financial inclusion.

The pilot confirms that calibrated parametric insurance, when anchored in trusted community institutions, can deliver rapid financial relief while strengthening long-term resilience. The model is now positioned for phased expansion toward 80,000 women by 2028 through blended financing and institutional integration.

2. Context

Problem Statement: Climate Vulnerability in India's Informal Economy

The initiative targets low-income, self-employed women working in India's informal sector, including street vendors, home-based manufacturers, agricultural laborers, and small-scale service providers. These women represent one of the largest yet most financially unprotected segments of India's labor force. Despite contributing significantly to household income and local economies, they lack access to formal social protection, income stabilization mechanisms, and affordable risk transfer solutions. In climate-vulnerable states such as Gujarat, extreme heatwaves and erratic rainfall patterns are increasing in both frequency and

Figure 1: A woman waste worker carries out her daily duties under extreme heat conditions in Ahmedabad, Gujarat, India. Photo by SEWA.



intensity. For women engaged in outdoor or climate-exposed livelihoods, these shocks translate directly into income loss. During severe heatwaves, women are often forced to choose between continuing to work in unsafe temperatures, risking dehydration, heatstroke, and long-term health complications, or staying home to protect their health, resulting in immediate income forfeiture.

This dual shock, which combines income reduction and increased health expenditures, has measurable financial consequences. Earnings decline by an estimated 35 to 50 percent during

heatwave periods, while out-of-pocket expenditures rise due to medical treatment, cooling needs, and damage to goods or productive assets.

With limited savings buffers and restricted access to formal credit, affected households frequently resort to high-interest informal borrowing or distress asset sales. These coping strategies deepen vulnerability and reinforce cycles of indebtedness and poverty.

The absence of affordable, rapid-response risk transfer mechanisms leaves this population structurally exposed to escalating climate volatility.

Financial Sector Context and Government Alignment

India's microinsurance market represents a critical pillar of inclusive financial sector development and is projected to grow at a compound annual growth rate of approximately 15.7% through 2033. However, penetration within the informal sector remains extremely limited. High distribution costs, underwriting complexity, and claims administration burdens constrain insurers' ability to serve low-premium, low-ticket clients sustainably.

Traditional indemnity-based insurance models are particularly ill-suited for informal workers with small but frequent income exposures. Claims verification processes are costly and slow, and documentation requirements can exclude low-literacy populations.

This project addresses these structural constraints through the use of parametric insurance, where payouts are triggered automatically by predefined weather indices such as temperature thresholds or rainfall deviations rather than individual loss assessments. This model reduces administrative friction and transaction costs, enables rapid and transparent payouts, increases affordability for low-income clients, and enhances scalability through digital distribution.

The intervention aligns directly with the Government of India's financial inclusion architecture, including:

- [Pradhan Mantri Jan Dhan Yojana](#), which expands universal access to bank accounts
- Direct Benefit Transfer systems, which enable secure and direct transfers into beneficiary accounts

By disbursing payouts directly into women's bank accounts, the model enhances transparency, reduces leakage risk, and strengthens women's financial autonomy within households.

Regulatory Framework: Technical and Supervisory Considerations

The heat product operates under the regulatory oversight of the Insurance Regulatory and Development Authority of India and was approved following a successful pilot in 2023.

A central technical and regulatory consideration in parametric insurance is basis risk, defined as the potential mismatch between the index trigger such as satellite-derived heat thresholds and the actual losses experienced on the ground. For low-income clients, unmanaged basis risk can undermine trust and long-term adoption.

The project addressed this risk through a rigorous research and development process, including:

- Analysis of 30 years of historical weather data
- Index calibration and back-testing across multiple climate scenarios
- Iterative refinement of trigger thresholds
- Stress testing for loss cost ratio stability

This technical validation process ensured that the product delivered meaningful value to policyholders while maintaining actuarial viability. Building credibility in index-based insurance is particularly important among low-literacy populations who may initially be skeptical of non-traditional financial products.

Market Gap and Existing Coping Mechanisms

Despite India's overall progress in financial inclusion, formal microinsurance penetration among informal women workers remains below 1% of the addressable market.

In the absence of structured risk transfer mechanisms, households rely on fragile and often harmful coping strategies, including:

- Borrowing from informal moneylenders at disproportionately high interest rates
- Selling productive assets or depleting limited savings
- Continuing to work in extreme heat conditions, thereby increasing health risks
- Reducing food intake from three meals per day to one during crisis periods

These responses provide short-term survival but erode long-term resilience and productivity.

Scale of the Problem and Market Opportunity

SEWA's national membership exceeds 3.2 million women. The 21,000 women currently covered under the initiative represent less than 1% of SEWA's total membership base, indicating substantial untapped demand.

Direct coverage of 21,000 women generates indirect resilience benefits for approximately 105,000 household members. The model demonstrates a clear pathway for geographic replication across other climate-vulnerable states such as Rajasthan, Uttar Pradesh, and Bihar.

The project has established a phased scaling strategy targeting 80,000 clients by 2028, supported by product refinement, distribution strengthening, and institutional partnerships.

The Catalytic Role of SCBF Funding

The SCBF grant of CHF 84,800 played a catalytic role in enabling the transition from pilot innovation to scalable implementation. Specifically, SCBF funding:

- Financed development of a dual-peril index covering heat and rainfall, which significantly increased actuarial complexity compared to single-trigger products.
- Ensured continuity of coverage for 2023 pilot participants, preventing erosion of trust and safeguarding early adopter confidence.
- Supported trigger recalibration and portfolio stabilization, strengthening the alignment between satellite-based indices and observed climate stress while reinforcing the product's actuarial sustainability.
- Positioned the initiative to attract larger institutional capital by demonstrating technical rigor and operational viability.

In a market characterized by high perceived risk and low initial margins, catalytic grant capital was essential to de-risk early-stage product development, validate actuarial assumptions, and build a foundation for long-term commercial sustainability.

3. Partnership model

Institutional Framework

The project operates through a structured multi-stakeholder partnership model that integrates technical expertise, grassroots distribution capacity, regulated insurance underwriting, and global risk transfer support.

The design of the partnership reflects the complexity of delivering parametric climate insurance to low-income informal workers at scale. Each institution performs a distinct and complementary function across product development, underwriting, distribution, and risk financing.

Partner Roles and Responsibilities

Blue Marble

Role: Grantee and Technical Lead

Blue Marble is responsible for end-to-end technical design and delivery of the parametric insurance solution. Core functions include:

- Product research and development
- Climate hazard modelling and index calibration
- Actuarial design and pricing refinement
- Real-time portfolio monitoring through a digital platform
- Trigger validation and payout verification

Blue Marble ensures that the index structure remains actuarially sound while delivering measurable value to policyholders. Continuous performance monitoring enables data-driven adjustments to thresholds and coverage parameters.

SEWA

Role: Implementation Partner and Aggregator

The Self-Employed Women’s Association serves as the master policyholder and primary distribution partner. SEWA aggregates member demand and facilitates enrolment through its established grassroots governance structure.

Distribution is conducted through SEWA’s network of *Agewaans*, who are locally elected community leaders. Their responsibilities include:

- Member outreach and product education
- Enrolment facilitation
- Premium collection coordination
- Support during payout communication

SEWA’s institutional credibility and long-standing presence within informal worker communities are central to building trust in parametric insurance. The aggregator model reduces transaction costs and enhances administrative efficiency.

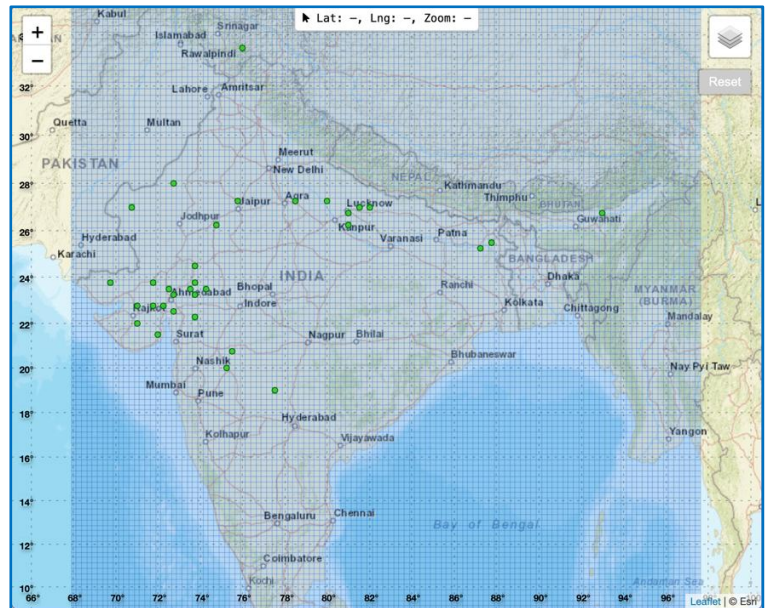


Figure 2: Satellite imagery illustrating the grid locations used to monitor heat and rainfall conditions across implementation areas.

ICICI Lombard

Role: Primary Insurer

ICICI Lombard underwrites the parametric risk and issues formal insurance policies to SEWA as the master policyholder.

Responsibilities include:

- Regulatory compliance under IRDAI
- Policy issuance and documentation
- Claims authorization upon trigger validation
- Financial settlement of payouts

The insurer ensures that the product remains fully compliant with India's insurance regulatory framework while maintaining solvency and risk management standards.

Zurich Insurance

Role: Reinsurer and Strategic Funder

Zurich Insurance provides global reinsurance capacity to absorb aggregate portfolio risk. This layer of risk transfer enhances product stability and protects against extreme climate loss years.

In addition to reinsurance support, Zurich has contributed to the development of complementary resilience tools designed to strengthen client preparedness and reduce long-term vulnerability.

This combination of risk capacity and technical collaboration supports sustainable scaling of the portfolio.

Arsht Rockefeller Foundation Resilience Center

Role: Co-Funder and Resilience Partner

The Arsht Rockefeller Foundation Resilience Center co-financed the initial pilot phase and supports the integration of climate adaptation interventions alongside insurance coverage.

Funding contributions have supported:

- Initial product testing and rollout
- Procurement of climate resilience tools
- Targeted premium subsidies for low-income members

The inclusion of premium support mechanisms has been critical in driving early adoption among highly vulnerable populations while maintaining actuarial discipline.

Geographic Implementation and Expansion

The project initially launched as an 11-district pilot in Gujarat. Following successful product validation and operational stabilization, the model transitioned into a multi-state expansion phase.

The program currently reaches 33 districts across seven Indian states, reflecting both climatic diversity and distribution scalability.

Highlights of the Pilot Locations

- Gujarat 13 districts, including Ahmedabad and peri-urban clusters
- Rajasthan, arid zones including Jaisalmer and Jodhpur
- Jammu and Kashmir, high-altitude regions including Sogam, Kupwara, and Lolab Valley
- Uttar Pradesh, selected climate-vulnerable districts
- Maharashtra, heat-exposed urban and peri-urban clusters
- Bihar, flood-prone districts
- Assam, Rainfall-intensive regions

The geographic diversification strategy serves three purposes:

- It validates the adaptability of the index across varied climate zones.

- It strengthens portfolio risk pooling across different hazard profiles.
- It demonstrates replicability within diverse socio-economic and regulatory environments.

The transition from a single-state pilot to a multi-state operational model signals institutional readiness for further national scaling.

4. Intervention approach

The project delivers parametric climate risk protection to low-income informal women workers exposed to extreme heat and excessive rainfall shocks. While originally structured as a meso-level dual-peril insurance model, implementation evolved into a micro-level parametric extreme heat insurance product complemented by a SEWA-managed excessive rainfall pooled fund mechanism. This structure shift was necessitated by Indian regulatory constraints: as a trade union, SEWA does not meet the insurable interest requirements under IRDAI regulations to be contracted as a meso-level policyholder, which precluded the originally envisaged meso-level design.

Product Design and Pricing

1. Parametric Extreme Heat Insurance for Income Loss

The extreme heat product provides income stabilization through predefined temperature triggers based historic weather data. The 2025 structure covers 21,000 SEWA members and operates through seven phased monitoring periods during the heat season. If maximum temperature thresholds exceed predefined averages for consecutive days, payouts are automatically deposited into members' bank accounts without claims filing.

The annual premium is INR 477 (ca USD 5.70) per member, with a maximum seasonal payout of INR 3,932 (ca USD 47.00). The maximum insurer exposure is INR 82.6 million (ca USD 1 mil).

In 2025, total payouts reached INR 9.418 million (ca USD 110,000), reflecting meaningful risk transfer during periods of climate stress. For context, this translates to at least one day's worth of income lost per week during peak stress periods; with most members earning approximately INR 300 (ca USD 3) per day, even a single missed workday carries significant household-level financial impact. The payout experience demonstrates strong alignment between the index design and the heat and rainfall conditions experienced by members.

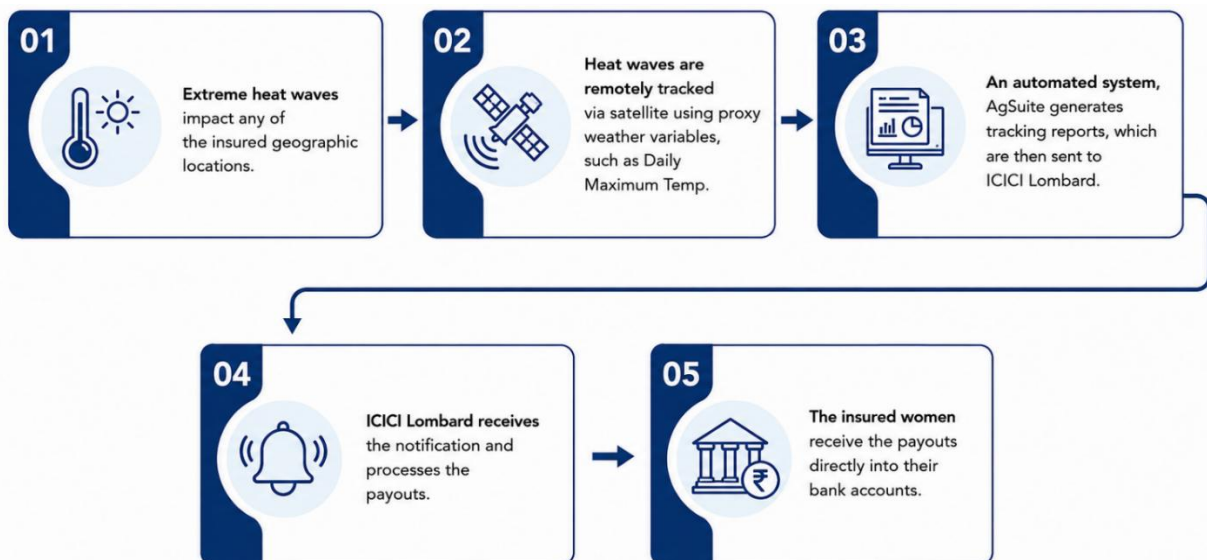


Figure 3: Flowcharts detailing Parametric Extreme Heat Insurance for Income Loss

2. Parametric Excess Rainfall Pooled Fund Mechanism

The excessive rainfall component was initially designed as a parametric flood index. During implementation, this evolved into a community-based pooled fund managed by SEWA. Importantly, SEWA did not take a flood policy cover from a formal insurer. Instead, SEWA collected member contributions similar in structure to premiums and channeled them into an internal collective risk pool, structured as a self-help, community-led

financial protection mechanism. Parametric trigger reports based on rainfall thresholds were used to determine when and where funds from this pool would be released, allowing SEWA to allocate resources to support affected members and their wider communities.

The fund covered 21,000 members across six states, with a total risk exposure of INR 28.2 million (ca USD 340,000). Using Indian Meteorological Department precipitation data and 15-day cumulative rainfall phases calculated through AgSuite (Blue Marble’s proprietary technology platform), targeted payouts totaling INR 141,744 (ca USD 1,700) were triggered across selected districts. The total amount disbursed to affected members was equivalent to the funds set aside for the excessive rainfall component of the joint premium – INR 3,352,000 in aggregate. It is important to note that no separate premium was collected for the rainfall product, the combined premium INR 300 per member covered both the heat index insurance and the excessive rainfall pooled fund. The rainfall product was not bundled with any other financial product or service.

Rather than distributing uniform individual compensation, SEWA strategically deployed the pooled resources in the most rainfall-affected regions. Funds were used to deliver targeted interventions such as livelihood restoration inputs, localized emergency assistance, and community-level support measures. Prioritization of affected member was determined through a structured community-based assessment process: SEWA’s grassroots leaders conducted extensive household-level surveys to evaluate damages to members’ livelihoods, housing, and health caused by the excessive rainfall and resulting floods. Each district compiled a list of impacted members and the losses incurred, which was then validated by district leadership before submission to SEWA centrally. Based on this process, 3,352 members with the most severe losses were selected to receive emergency and livelihood restoration assistance of INR 1,000 (ca USD 10.5) per member. This approach strengthened collective resilience, enhanced local ownership, and reinforced mutual risk-sharing practices within SEWA’s network.

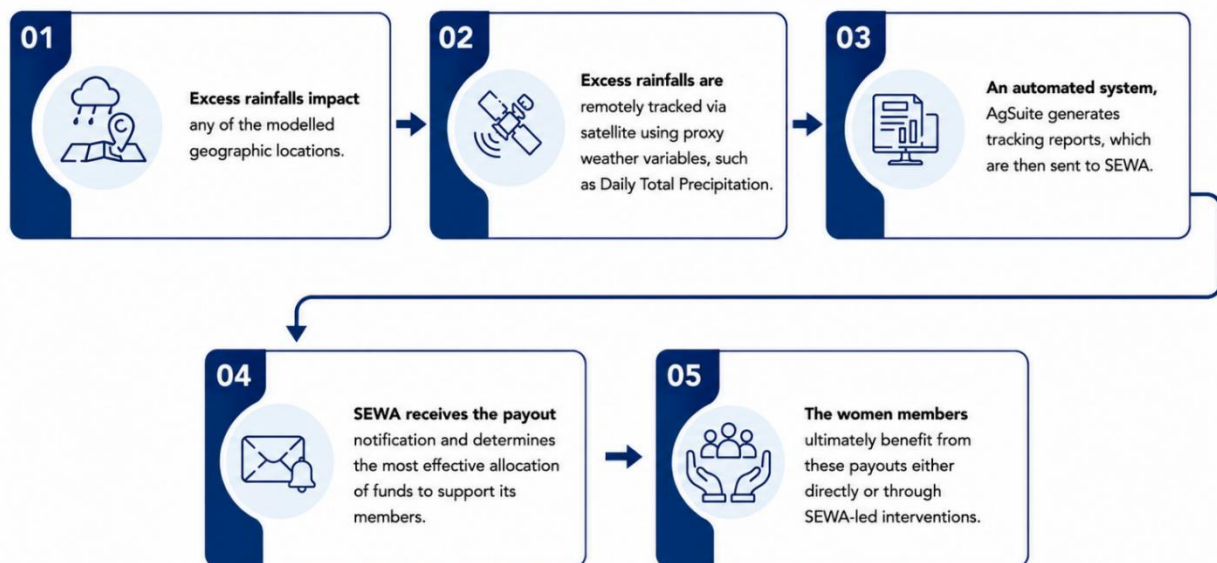


Figure 4: Flowcharts detailing Parametric Excess Rainfall Pooled Fund Mechanism

Distribution Mechanism

SEWA served as the master policyholder during the pilot phase for the heat index insurance product only (this arrangement did not extend to the flood component, which operated as an internal community risk pool) and led enrollment through its grassroots *Agewaan* network. Distribution relied on doorstep outreach, in-person education, KYC facilitation, and bank account activation support, enabling access for women facing literacy, mobility, and trust barriers.

Insurance education and enrollment were integrated into routine member meetings to reduce transaction costs and improve uptake.

Key Areas Funded by SCBF

Catalytic funding supported:

- Dual-peril index design and actuarial modelling
- Trigger calibration and basis risk management refinement
- Digital monitoring and automated payout systems
- Community training and financial literacy programs
- Institutional capacity strengthening for SEWA and frontline staff

Key Innovations and Gender Financial Inclusion

The project introduced climate-responsive index modelling, phased trigger design reflecting intra-seasonal variation, and automated payout execution linked to verified weather datasets. Digital portfolio monitoring was conducted through AgSuite.

Gender inclusion was operationalized through concrete mechanisms including bank account activation and reactivation support for over 5,500 members, direct payout transfers to women's personal accounts, *Agewaan*-led peer education, and structured onboarding support for low-literacy participants. These measures strengthened women's access to formal finance and enhanced financial decision-making autonomy.

Financial Education and Capacity Building

More than 25,000 community members and 1,400 staff received training on climate risk awareness, parametric insurance principles, premium structures, payout mechanics, and digital financial literacy. Training was delivered in-person using simplified materials adapted for low-literacy audiences and strengthened both community-level understanding and institutional delivery capacity.

5. Results, outcomes and impact

Products & Key KPIs	
Heat Stress Insurance	Results (Oct 2025)
Total number of people insured	21,000
- Number of women	21,000 (100%)
- Number of rural people	18,538 (88%)
Total sum insured (coverage amount)	CHF 776,440
Total premium collected	CHF 79,774
Average premium price (including % level of subsidy vs out of pocket)	CHF 3.8
Total number of people who have received a payout	12,713
- Number of women	12,713
- Number of people from rural area	97.5%
Total value paid out in claims	CHF 88,538
Claims Ratio (claims paid out vs premiums collected)	110%
Total number of people trained in financial literacy	25,000
Number of women trained in financial literacy	25,000 (100%)
Number of new bank account holders	1,974 (100% women)
Excessive Rainfall Fund	Results (Oct 2025)
Total number of people enrolled in the fund (<i>same breakdown as heat insurance product</i>)	21,000
Average contribution per person	CHF 1.5

Total risk cover (max. fund exposure)	CHF 272,000
Total number of people received benefit from the fund	3,352
- Number of women	3,352 (100%)
- Number of people from rural area	3,352 (100%)
Assistance provided per member	CHF 9.4
Total value of benefit disbursed	CHF 30,508.8
Benefits Ratio (benefits paid vs contributions collected)	100%

Note: Building on SCBF's initial catalytic support, an additional 19,074 clients were covered under the Heat Stress Insurance scheme between November 2025 and June 2026, beyond the project period. They also benefit from coverage under the Excessive Rainfall Fund.

Beneficiaries and Capacity Building

The program reached 21,000 low-income informal women workers, achieving full coverage of its target population. All beneficiaries were women, reinforcing the project's gender-focused mandate.

88% percent of participants reside in rural areas, where climate vulnerability and financial exclusion are typically more pronounced. The remaining 12% operate in urban or peri-urban settings.

Financial literacy and climate risk training reached 25,000 women, in addition to 1,420 SEWA staff. Training modules covered climate risk awareness, differences between parametric and indemnity insurance, digital financial literacy, bank account usage, premium structures, and payout mechanics. These sessions strengthened both community-level understanding and institutional implementation capacity.

Extreme Heat Product Performance and Impact

The 2025 extreme heat product responded as designed to heat stress conditions captured through satellite monitoring, demonstrating strong alignment between the trigger model and on-the-ground climate experience.

A total of 12,713 members received heat-related payouts during the 2025 coverage period. Direct transfers provided timely liquidity support during peak climate stress periods, helping members:

- Stabilize household consumption
- Avoid high-interest informal borrowing
- Finance medical treatment linked to heat exposure
- Reinvest in livelihood inputs

In agricultural clusters, members pooled payouts to purchase higher-quality seeds and inputs. In several cases, this led to a doubling of seasonal returns, demonstrating that rapid liquidity support can generate multiplier effects beyond immediate income stabilization.

Excess Rainfall Pooled Fund: Results and Impact

The Excess Rainfall mechanism covered 20,999 members across Bihar, Gujarat, Jammu and Kashmir, Maharashtra, Rajasthan, and Uttar Pradesh. The total sum at risk under the rainfall index framework was INR 28.2 million (ca USD 340,000).

Rainfall monitoring was conducted using Indian Meteorological Department data, measuring cumulative precipitation over continuous 15-day phases through Blue Marble's AgSuite platform. During the reporting period from July to October 2025, rainfall triggers were met in selected districts across Gujarat, Rajasthan, Maharashtra, Jammu and Kashmir, and Uttar Pradesh.

Total rainfall-related payouts under the pooled fund mechanism amounted to INR 141,744 (ca USD 1,700). Unlike the heat insurance product, these funds were deployed through SEWA's collective governance structure rather than as standardized individual transfers.

SEWA strategically allocated pooled resources to the most rainfall-affected districts to deliver targeted resilience interventions, including:

- Livelihood restoration inputs in flood-affected farming clusters
- Support for damaged working materials and inventory
- Emergency assistance for members facing income interruption
- Community-level recovery support

This approach strengthened mutual risk sharing, reinforced community ownership, and enabled flexible deployment of resources based on localized impact severity. While payout amounts per member were modest, the pooled structure allowed targeted concentration of resources in the most affected areas, enhancing equity and responsiveness.

The rainfall mechanism therefore functioned as an internal climate risk management tool that complemented the regulated heat insurance product and demonstrated an alternative, community-led risk pooling model.

The primary challenge of the community-led pooling model is the equitable identification and prioritization of members to be supported. Given the scale of climate-related losses relative to the limited funds available, it is inherently difficult to reach all affected members, and there is a real risk that those most in need are left without support. To address this and ensure the pool remains solvent and scalable, a hybrid financing structure is recommended: a portion of the pool remains solvent and scalable, while the remainder would be used to purchase catastrophe insurance that activates in the event of severe, widespread losses – thereby protecting the pool itself against depletion in high-impact years.

Impact Delivered

The project reached 21,000 active insured clients, triggering payouts for more than 60% of enrolled members under the heat product and activated rainfall support in multiple districts.

The improvement in payout alignment confirms strengthened trigger calibration, reduced basis risk, and enhanced technical accuracy.

Client-Level Outcomes

Qualitative evidence from field documentation demonstrates that the intervention generated tangible livelihood stabilization, improved health outcomes, strengthened financial autonomy, and increased trust in formal financial systems.

CLIENT TESTIMONIALS:

Rafeeqa Begum - Kupwara, Jammu and Kashmir

A walnut farmer, Rafeeqa received a payout of INR 2,623 (~\$32) following extreme heat damage to her crop. She described the payment as both financial compensation and recognition of her labor. The funds enabled her to reinvest in saplings and agricultural inputs. In her cluster, women pooled payouts to purchase higher-quality seeds, resulting in a doubling of seasonal returns from INR 1,000 (~\$12) per kilogram to INR 2,000 (~\$24) per kilogram. Rafeeqa emphasized that the payout allowed her to make independent financial decisions without borrowing or seeking permission from household members.

Savitaben - Jaisalmer, Rajasthan

A cotton field worker, Savitaben initially hesitated to enroll due to lack of a bank account. With support from SEWA's grassroots leadership, she opened her first formal account and subsequently received an INR 1,311 (~\$15.75) heat payout after crop failure. She used the funds to purchase seeds and manure, enabling her to restart cultivation without resorting to debt. She reported that both the bank account and insurance provided a safety net that restored her ability to continue working during financial distress.

Indiraben - Jaisalmer, Rajasthan

An onion and vegetable farmer, Indiraben experienced crop losses and a heat-related urinary tract infection during the 2025 season. She received an INR 1,311 (~\$15.75) payout, which she used for medical consultation, diagnostic tests, and treatment. She stated that without the insurance support, she would likely have delayed treatment due to cost concerns. The payout enabled timely healthcare access and quicker recovery, reducing both health risk and income disruption.

Sanjeedaben - Lolab Valley, Jammu and Kashmir

As an *Agewaan* responsible for local enrollment, Sanjeedaben faced initial distrust from both men and women in her community due to prior failed schemes. Through repeated household visits and practical explanations of the parametric model, she gradually built confidence in the product. Women carefully preserved enrollment receipts as symbols of formal financial participation. Following payouts, community perceptions shifted significantly, and discussions around climate risk and financial planning became more open and informed.

Sangeeta Raval, Ahmedabad



“Last summer, the intense heat damaged our produce and left us with very little income, while my husband’s earnings from driving an auto-rickshaw also dropped sharply as fewer people travelled during the hottest months. We were struggling to meet even our basic household needs when the payout from the climate insurance triggered. With that support, I repaired my embroidery machine and purchased needles, thread, and cloth pieces, allowing me to restart my embroidery work from home. What seemed like a small payout gave me the confidence and means to begin earning again, helping my family recover during one of our most difficult periods.”

Shaheenben, home-based worker, Firozabad

“I never imagined that the wars and extreme weather would affect my kitchen at home. As temperatures soared, my income fell, and at the same time the rising cost of cooking gas made it difficult to afford even a basic necessity like preparing meals for my family. The climate insurance program became my safety net— the payout got credited into my account and purchased an induction stove, and ensured that my family would not starve hungry, proving that even small savings can provide security when life becomes uncertain.”



Market Demonstration and Financial Inclusion Effects

Although additional external capital has not yet been mobilized directly from this grant, the project demonstrated that parametric insurance can operate effectively in communities where traditional indemnity schemes previously failed to build trust.

The intervention facilitated activation or opening of approximately 5,500 bank accounts, strengthening formal financial inclusion pathways. Direct payout transfers enhanced women’s engagement with banking systems and increased financial autonomy.

Significant Outcomes

The most significant achievements of the project include:

- Reaching 100% percent of the 21,000 targeted women, ensuring full program coverage among the intended beneficiary cohort.
- Delivering timely payouts to 12,713 members during periods of extreme heat, demonstrating the effectiveness of the satellite-based trigger design.
- Activating the rainfall pooled fund across multiple states, strengthening portfolio diversification and risk-sharing mechanisms.
- Enhancing financial inclusion through direct bank transfers, reinforcing formal financial access and strengthening women’s control over climate risk compensation.
- Strengthening actuarial calibration and product design, incorporating lessons from earlier pilots to improve responsiveness to climate stress.

Collectively, these outcomes demonstrate that a calibrated parametric model, complemented by community-based pooling mechanisms, can deliver rapid financial relief while reinforcing long-term resilience and gender-inclusive financial systems.

6. Way ahead: Future scaling and sustainability plans

Having established proof of concept through the 2023 pilot and validated and scaled the model through 2024–2025, the programme now enters a phase of structured growth. The focus shifts from demonstrating that the model works to ensuring it works better - through refined trigger design, stronger operational systems, and deeper institutional integration - and that it reaches more of the women who need it most.

Informed by members' evolving needs, SEWA plans to broaden the climate insurance programme in 2026 to cover three perils: extreme heat, excessive rainfall, and tropical cyclones. In parallel, SEWA will introduce a parametric cattle insurance product for rural members, addressing a specific and documented income vulnerability: heat-induced reductions in milk yield and fat content during peak summer months.

Progressive Member Ownership

On the financing side, member premium contributions are set to grow progressively, reducing the programme's reliance on grant subsidies and strengthening its path toward financial self-sufficiency. This trajectory is already underway: in 2026, SEWA members collectively contributed 70% of the total premium, with the remaining 30% subsidised through grant funding. Member contributions are expected to reach 100% by 2029, reflecting both growing trust in the product and progressive reduction in grant dependency.

Long-Term Vision: Towards an Integrated Climate Resilience Architecture

SEWA's own trajectory points to where this model is heading. In parallel with the SCBF-supported programme, SEWA launched its Climate Welfare Facility (CWF) in 2025 - an integrated risk management mechanism that combines member savings, parametric grants, and climate shock advances into a single structure. Unlike standalone insurance, the CWF provides support even when parametric triggers are not met, functions as a contingency fund for livelihood and healthcare emergencies, and is designed to finance community resilience programmes - including early warning systems and climate education - from its second year onward. SEWA has also purchased stop-loss insurance on the CWF corpus itself, protecting the pool against depletion in catastrophic years.

This evolution - from single-peril insurance product to integrated climate resilience facility - reflects a recognition that parametric insurance alone cannot meet the full complexity of climate vulnerability for informal women workers. As documented in a 2026 working paper published by the ILO's Impact Insurance Facility (Dalal, A., [SEWA's journey towards climate resilience](#), ILO, 2026), resilience for low-income women workers requires long-term relationships, flexible risk-sharing structures, and member-centered design. The SCBF-supported heat and rainfall programme is an important component of that process, and its lessons directly inform the next phase of SEWA's climate finance architecture.

7. Lessons learnt and recommendations

Key Insights from Implementation

The 2025 phase confirmed the operational feasibility of delivering community-anchored parametric protection at scale. The product responded as designed to extreme heat conditions, demonstrating strong technical alignment between satellite-based triggers and the climate stress experienced by members.

The 2025 results reflect substantial progress in index calibration, improved trigger sensitivity, and reduction in basis risk.

Several strategic insights emerged:

First, trust is the foundational determinant of uptake. Parametric insurance is structurally counterintuitive for first-time user: a payout triggered by satellite data rather than a physical loss assessment requires members to trust a mechanism they cannot directly observe or verify. Additionally, there is currently very limited climate literacy in vulnerable communities. Members do not always associate the increasing frequency and severity of climate shocks with climate change. In this project, SEWA's *Agewaan* network was a distribution channel - it was the product's credibility infrastructure. Without it, enrolment, premium collection, and post-payout retention would not have been achievable.

Second, a key aspect of the programme is that the entire product design was done with the continuous inputs of the SEWA grassroots leaders and members. Their needs were prioritized in the product design and deployment process. This had led to ownership and acceptance at the community level.

Third, the enrolment process also drove meaningful financial inclusion: more than 5,500 bank accounts were activated or opened – for many members, their first formal financial footprint – enabling direct transfers and reducing dependence on informal intermediaries.

Fourth, in years when triggers are not met, members who paid premiums and received nothing risk losing faith in the model – a structural confidence challenge that product design alone cannot solve. Sustaining enrolment requires proactive communication, honest explanation of how parametric triggers work, and ideally a complementary cash layer or savings mechanism that provides some support below the trigger threshold.

Fifth, trigger design is the most consequential product decision and the hardest to get right. Maximum daily temperature alone does not fully capture heat stress as experienced by informal workers - humidity, nighttime temperatures, and cumulative moderate-heat days all affect productivity and health in ways the current index may not reflect. Simplified indices improve operational feasibility but risk under-representing actual experience.

Finally, The rainfall pooled fund worked - mobilising INR 33.52 lakh and reaching 3,352 members through community governance - but exposed the core constraint of mutual pools at this scale: limited funds relative to losses, and the risk of not reaching the most affected. SEWA's Climate Welfare Facility, which layers catastrophe insurance over the community pool and incorporates returnable grants below the trigger threshold, points directly to the logical next evolution for this product.

Key Challenges

1. **Financial Exclusion:** Many members lacked active bank accounts, requiring doorstep KYC facilitation and repeated trust-building - increasing short-term costs but strengthening long-term inclusion.
2. **Irregular Income:** Upfront premiums posed affordability constraints for members with seasonal earnings, highlighting the need for flexible contribution structures.
3. **Manual Processes:** Manual enrolment and data handling created inefficiencies and error risk, underscoring the importance of digital validation and real-time dashboards.
4. **Payout Timing:** Liquidity delivered during peak stress prevents distress borrowing and health deterioration - its protective value diminishes significantly if disbursement is delayed.

Strategic Recommendations

1. **Refine trigger design:** Incorporate humidity, nighttime temperatures, and heat duration into the index, and explore forecast-based triggers to enable anticipatory payments before peak impact. Continuous recalibration should be institutionalised.
2. **Align contributions with informal livelihoods:** Introduce seasonal or instalment-based premium structures, savings-linked mechanisms, and gradual increases in member contributions as product value is demonstrated.
3. **Invest in digital infrastructure:** Prioritise automated data validation at enrolment, integrated payout tracking, real-time trigger visibility for field teams, and reduced manual processing.
4. **Formalize community intermediation:** Structured roles for trained community facilitators – supporting enrolment, collecting climate vulnerability feedback, and serving as trusted intermediaries – were decisive for uptake and should be embedded in future scaling.
5. **Clarify hybrid risk structures:** Define governance and accountability for the pooled rainfall fund, assess whether it should transition to a formal parametric product, and explore models that combine regulated risk transfer with community reserves.
6. **Pursue institutional integration for scale:** Embed parametric protection within existing public and financial systems through alignment with government financial inclusion programmes, livelihood finance schemes, and bundling with credit products.

Concluding Reflection

The project demonstrates that gender-responsive parametric climate protection can be technically sound, operationally feasible, and socially transformative when anchored in trusted community institutions. The combination of calibrated satellite-based triggers, direct bank transfers, structured financial literacy, and community-led rainfall pooling has created a practical blueprint for climate resilience among informal women workers. Sustained scale will depend on continued trigger refinement, flexible contribution models, digital strengthening, and integration within broader public and financial ecosystems. With these elements in place, the model has strong potential for replication across climate-vulnerable regions in South Asia and beyond.
