

Making Climate Risk Microinsurance Work

CASE STUDY
**MiCRO & Aseguradora Rural (AR),
Guatemala**

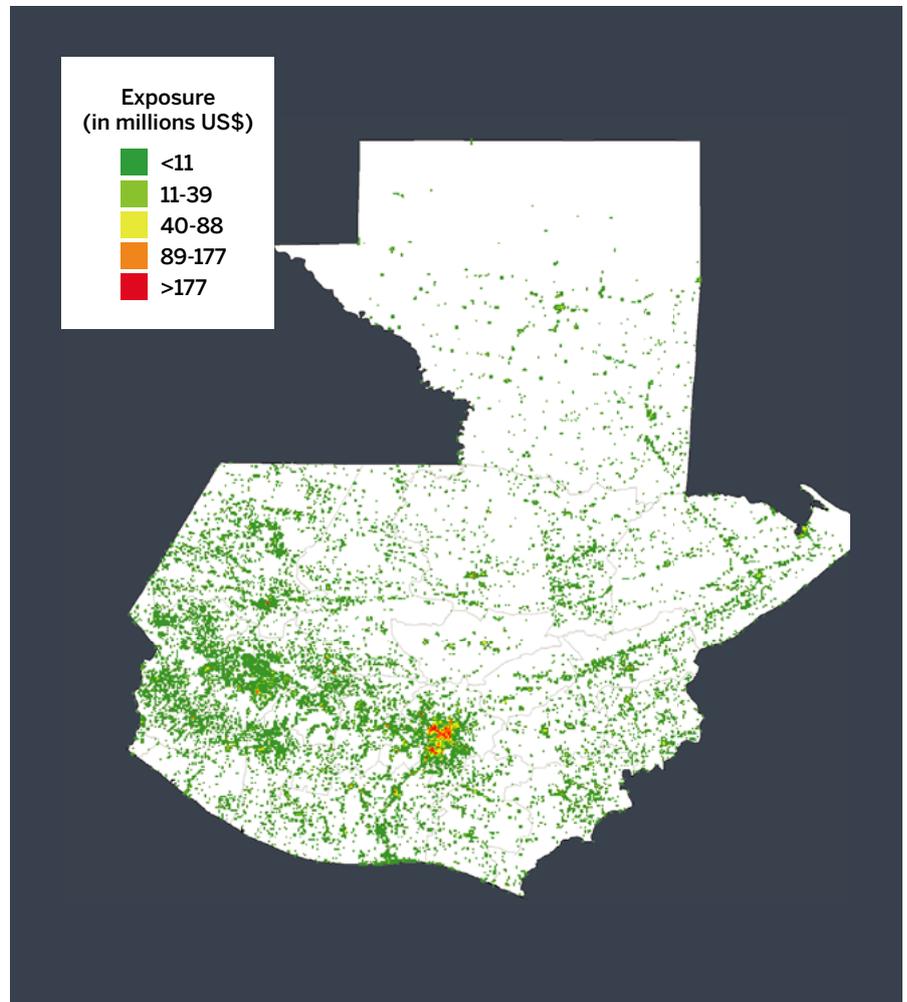
BY KATIE BIESE, MICHAEL J. MCCORD, AND
INDIRA GOPALAKRISHNA

Strategic Need

In Central America, Guatemala has made significant economic progress over the last decade, but still struggles with high exposure to natural hazards. The World Risk Index 2020 ranks Guatemala at number 10 among the most at-risk countries.¹ Earthquakes and hurricanes cause significant damage and are a regular occurrence in the country. *Figure 1*, from the country disaster risk profile built by the World Bank in 2016, shows the value and distribution of residential and non-residential buildings in Guatemala that are at risk from earthquakes and hurricanes.

Climate change is expected to further increase the risk of disasters, with higher temperatures and more variable rainfall, increasing the risk of food and water insecurity among the most vulnerable populations.³ High rates of poverty and inequality exacerbate this issue further. Guatemala is the fifth-poorest economy, measured by gross domestic product (GDP) per capita, and has the highest rate of chronic malnutrition in Latin America and the Caribbean (LAC).⁴ This combination of the country's vulnerability to natural hazards and associated poverty levels explains the need for insurance protection for low-income populations against natural calamities.

*Figure 1: Value and distribution of buildings in Guatemala at risk from earthquakes and hurricanes*²



¹ The World Risk Index calculates the risk of disasters arising from earthquakes, cyclones, floods, droughts or sea level rise, based on a model that considers 27 indicators measuring a country's exposure and vulnerability (level of susceptibility, coping, adaptation). See <https://reliefweb.int/sites/reliefweb.int/files/resources/WorldRiskReport-2020.pdf>

² Country Disaster. Guatemala Earthquakes and Hurricanes Risk Profile. Retrieved 11 October 2021 from <https://documents1.worldbank.org/curated/en/682221493889914442/pdf/114753-WP-PUBLIC-drp-guatemala.pdf>

³ Resilience Links. Climate Risk Profile: Guatemala. USAID. Retrieved 11 October 2021 from <https://www.resiliencelinks.org/resource/climate-risk-profile-guatemala>

⁴ World Bank. Guatemala: Overview. Retrieved 11 October 2021 from <https://www.worldbank.org/en/country/guatemala/overview>

⁵ Alfaro, L.N. (2021). Aseguradora Rural S.A.: Microseguro Catastrófico para Microempresarios del Sector Agrícola (No. 31346). INCAE Cases. INCAE. <https://pubs.incae.edu/pub/3489>

⁶ MiCRO. Our Solution. Retrieved 11 October 2021 from <http://www.microrisk.org/our-approach-our-solution/>

Origin, Objectives and Overview of Aseguradora Rural's Climate Risk Initiatives

Aseguradora Rural (AR), an insurance company established in 2007, has operations in both the life and general insurance space. It is a fully owned subsidiary of Banrural, a large Guatemalan bank offering financial services in throughout rural as well as urban areas of the country. AR's mission is comprehensive rural development of the country, by providing financial services focusing on farmers, merchants, artisans and entrepreneurs who own micro, small and medium-sized enterprises. In 2014, AR partnered with the Microinsurance Catastrophe Risk Organisation (MiCRO) to provide climate risk insurance to its clients.⁵

MiCRO was founded in 2011 by Mercy Corps and Fonkoze in the aftermath of the 2010 Haiti earthquake. MiCRO develops and implements index-based inclusive insurance solutions to help microentrepreneurs and smallholder families cope with the effects of natural disasters. To do this, they engage with key local partners, including insurance companies (such as Aseguradora Rural) and distribution channels with reach to the target population, such as microfinance institutions.⁶

Together, AR and MiCRO launched **Esfuerzo Seguro**, a holistic risk management solution offered to microentrepreneurs and smallholder farmers borrowing from Banrural. This move was aligned with AR's overall mission and strategy, and it treated its climate risk initiative as a mix of corporate social responsibility (CSR) and business.

Esfuerzo Seguro, meaning "Safe Effort," aims to protect vulnerable and low-income segments of the population against business interruption caused by earthquakes, droughts and/or severe rainfall.⁷ It has two main components:

1. An index-based microinsurance product (the first in Central America).
2. A value-added service that includes tools to raise awareness about disaster risk preparedness, including a financial education programme to empower consumers and complimentary giveaways such as a 72-hour emergency backpack for use after a disaster.

The insurance product is customised based on location (triggers are adjusted for each geographic area to ensure that the possibility of triggering the payout is similar across the country) and target market. The product offers coverage against earthquakes, droughts and severe rainfall in both urban and rural areas. Even though droughts, for example, do not typically cause direct damage to urban clients, urban clients are still indirectly impacted by the slowing down of economic activity within their local market. Payouts vary based on the level of deviation of the corresponding index from historical averages.

The table in **Figure 2** provides an overview of Esfuerzo Seguro.

Voluntary Programme

In a bid to be customer-centric, all three partners (Aseguradora Rural, Banrural and MiCRO) decided that insurance should be sold on a voluntary basis to customers with productive loans (agriculture or microbusiness). To incentivise customers, Banrural initially offered customers a lower interest rate (by 1% to 2%) on their loans if they availed themselves of insurance cover. The assumption was that the incentive of a lower interest rate would be sufficient for the bank officers to successfully pitch insurance to their clients. However, bank officers felt that they had to put in a lot of effort to educate customers about Esfuerzo Seguro, and the lower interest rate simply wasn't a big enough incentive for clients to purchase. Because the bank officers didn't stand to gain anything by selling insurance, and the required effort was greater than anticipated, AR needed to find incentives to drive the voluntary model forward.

Figure 2: Overview of Esfuerzo Seguro

Policy Terms	Description
Years offered	2017 – present (2021)
Policy term	Matching with the term of the loan (up to 24 months)
Premium rate (% of sum insured)	5% of the value of the initial credit/loan amount
Risks covered	Excessive rainfall and earthquakes, plus severe drought in rural areas
Sum assured	Full value of the disbursed loan
Target market	Smallholder farmers or microentrepreneurs with productive loans
Seasons covered	All year around
Voluntary/mandatory	Voluntary
Bundling	Bundled with loans



The first index-based microinsurance product in Central America



INSIGHT: DESIGNING ALIGNED AND AFFORDABLE INCENTIVES

Aseguradora Rural and MiCRO realised that financial incentives wouldn't excite Banrural's officers given the small ticket sizes. Hence, they adopted a different approach and used recognition as an incentive, giving top performing officers visibility within and outside the organisation. Aseguradora Rural and MiCRO pitched insurance to Banrural's board of directors and used a top-down approach to make insurance one of the bank's core products. Additionally, they provided capacity-building workshops and educational "risk fairs" to loan officers. Finally, Banrural was awarded a regional innovation prize in 2020⁸, which helped with positive external visibility, and also further strengthened the positioning of the product within the bank. As a result of these efforts, particularly the support from the top, product sales picked up and Esfuerzo Seguro has, in the last two years, become one of the bank's most innovative products.

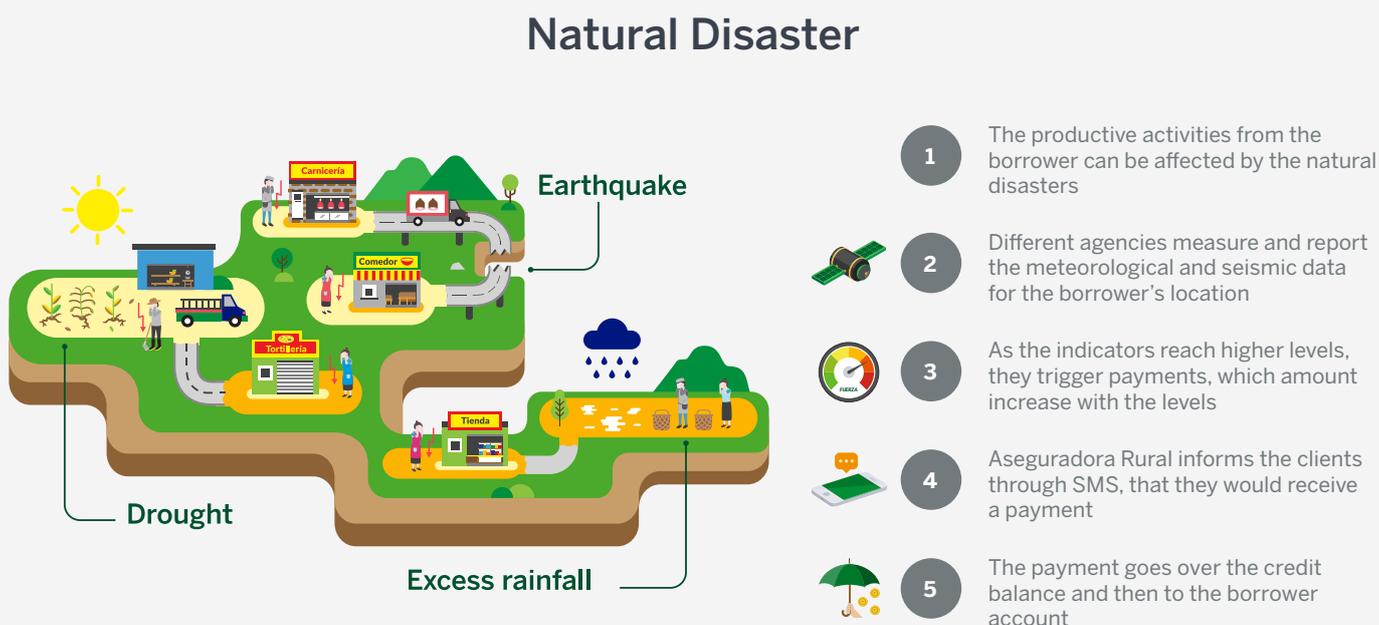
⁷ MiCRO. Case Brief: Esfuerzo Seguro. Retrieved 11 October 2021 from <http://www.microrisk.org/wp-content/uploads/2018/07/MiCRO-Case-Study-1-Esfuerzo-Seguro.compressed.pdf>

⁸ ALIDE (2020). Ganadores (Winners). Retrieved 11 October 2021 from <https://www.alide.org.pe/premios-alide-2020/>

Delivery Model

Esfuerzo Seguro is available for purchase by anyone who avails themselves of productive loans from Banrural, as a bundle with one of two credit lines: one for microentrepreneurs and another for smallholder farmers.⁹ Claims are paid out quickly, based on the predetermined index values, without the need for claims adjustment or processing of forms, as shown in **Figure 3**.

Figure 3: Overview of claims process¹⁰



The table in **Figure 4** provides details about the partners involved in delivering Esfuerzo Seguro.

Figure 4: Partners

Partners	2017-2020
Insurer	Aseguradora Rural (AR)
Donor organisations	1. Swiss Development Agency (SDC) 2. Inter-American Development Bank (IADB)
Distribution channels	1. Banrural 2. Friendship Bridge (NGO)
TA provider	MiCRO
Reinsurer and TA provider	Swiss Re
Value-added service provider	CONRED (National Coordinator for Disaster Reduction, Guatemala)

Donors

Esfuerzo Seguro was designed and implemented in the context of the Central American Disaster Microinsurance Expansion (CADME) programme,¹¹ which was executed by MiCRO with the support of the Swiss Development Agency (SDC) and the Multilateral Investment Fund (MIF) managed by the Inter-American Development Bank (IADB). SDC provided the funding to cover the market entry costs, which include viability analysis, product design and operational setup. The IADB funding was used for the client education materials and technical assistance (TA) on the negotiations with the regulator. No donor, or any other, funds were used for direct premium subsidies, as they were not part of the programme.

⁹ MiCRO. Case Brief: Esfuerzo Seguro. Retrieved 11 October 2021 from <http://www.microrisk.org/wp-content/uploads/2018/07/MiCRO-Case-Study-1-Esfuerzo-Seguro-compressed.pdf>

¹⁰ AR. Micro Insurance: Esfuerzo Seguro. Retrieved 11 October 2021 from <https://www.aseguradorarural.com.gt/aseguradoradnn/NuestrosSeguros/Microseguros/EsfuerzoSeguro.aspx>

¹¹ MiCRO (7 March 2018). MiCRO. Innovation at Work to Expand Traditional Insurability Boundaries. Retrieved 11 October 2021 from <https://www.microrisk.org/micro-innovation-work-expand-traditional-insurability-boundaries/>

Distribution Channels

Banrural has worked with the rural low-income population in Guatemala for more than 15 years,¹² earning them a trusted position with target clients. Aseguradora Rural and Banrural are part of the same group, which makes the companies closely aligned in terms of mission, “mística” (or shared vision for a better world) and financial inclusion objectives, and the two organisations worked well together in terms of establishing goals and positioning the product line. They are also well integrated (including IT platforms and back-office processes), and these shared services facilitate the chances of a successful implementation in part through reduced costs and access to clients.

Because Aseguradora Rural and Banrural are part of the same group, Banrural decided not to collect any commissions or distribution fees from Aseguradora Rural. With the shared financial inclusion goal, they did not want to increase costs to the customer by too much, and Banrural believed that the strengthened resilience of its customer base would in turn strengthen its own portfolio. In addition to this indirect benefit, they also believed the product would give them a competitive advantage in the market and raise their profile. Indeed, in 2020, Banrural received from the Latin American Association of Development Financing Institutions (ALIDE) an award for best practices in development financial institutions for the Esfuerzo Seguro product. This award is a well-respected recognition in Latin America which has raised their profile.¹³

While the partnership with Banrural is integrated and working well, Aseguradora Rural is starting to expand and offer the product via additional channels, such as the nongovernmental organisation (NGO) provider Friendship Bridge, which provides microfinance loans, among other services, to indigenous women. MiCRO identified it as a potential partner to AR and continues to evaluate new distribution partners for the insurer.

TA Provider

MiCRO spearheaded and brought international expertise during all phases of the project, including conception, demand and supply analysis, product design, registration, launch and monitoring. It typically begins such an initiative by conducting in-depth research and finding local partners with aligned vision. In this case, AR was already a pioneer in Guatemala bringing financial services to rural areas using innovative methods. MiCRO partnered with AR in 2014 to identify needs of small and medium entrepreneurs and farmers as a basis for designing relevant insurance products. Later, it also helped form partnerships with Friendship Bridge and CONRED.



INSIGHT: MiCRO'S VALUE PROPOSITION

MiCRO believes that having a trustworthy local partner and distribution channel aligned with its project objectives is the key formula for a sustainable and successful partnership and product. It facilitates the setup of products across the business model and its value chain. Through collaborating with underwriters, MiCRO is involved in setting up partnerships, designing products, managing operations and monitoring claims. It forms long-term partnerships with insurers, providing continued technical expertise and monitoring of product parameters to ensure client value, index reliability and sustainability.

MiCRO's main value proposition is its calculation platform (MiCAPP), which makes it simple for insurers to design index-based insurance products. MiCAPP continuously monitors and extracts data from predetermined scientific sources (such as the National Aeronautics and Space Administration, US Geological Survey etc.), unpacks the scientific data files, calculates triggers “using complex algorithms to match the readings against predetermined levels, and issues a loss report when a triggering event is detected.”¹⁴ This loss report is accepted by all stakeholders as the undisputable basis for payouts.

As compensation for these services, MiCRO earns a fee on a case-by-case basis, which is paid by the insurer and/or the reinsurer.

Reinsurer and Technical Assistance Provider

Swiss Re reinsures the product and provided technical assistance in the product design. Swiss Re has reinsured 100% of the risk, with Aseguradora Rural fronting the product since inception (i.e., a 100% quota share reinsurance agreement where AR does not retain any risk). This is because local insurers and reinsurers don't yet have the appetite to retain catastrophe risk. Also, because these products are new to the region, regulators have yet to come up with regulations for them, such as around capital requirements. MiCRO and Swiss Re expect that small amounts of risk will be retained locally over time. Meanwhile, AR gains the experience of delivering climate risk products and building up a customer base that is familiar with these products. Aseguradora Rural receives between 20% and 30% of the premium as a commission or service fee for administering the product.

¹² MiCRO. Case Brief: Esfuerzo Seguro, op cit.

¹³ ALIDE (2020). Ganadores (Winners). Retrieved 11 October 2021 from <https://www.alide.org.pe/premios-alide-2020/>

¹⁴ MiCRO. Case Brief: Esfuerzo Seguro, op cit.

Value-Added Service Provider

The National Coordinator for Disaster Reduction, or CONRED, was established by the government in 1996 to prevent and mitigate damages caused by natural disasters and participate in rehabilitation and reconstruction. As a part of its strategy, CONRED conducts awareness campaigns in rural areas and among other vulnerable populations.

MiCRO identified it as a partner to provide shared disaster risk management modules such as the 72-hour backpack¹⁵ to customers who buy Esfuerzo Seguro. This partnership has helped

CONRED bring its risk preparedness tools to more people. At the same time, it has helped AR and MiCRO increase awareness amongst their customers and provide (free) holistic risk management solutions to them.

Initially, MiCRO managed the operational aspects of this partnership, but over time it has moved into an advisory role, with AR managing the on-ground activities related to the value-added services.

Performance

Key components of successful performance include scale as well as frequency and cost of the events. Considering these factors with the cost of product sales and management (and other costs) helps provide an idea of the overall sustainability of a particular effort by an insurer, through its combined ratio. These issues are discussed below.

Our study was only able to look at four years of product performance data (it was launched in 2017), which may be too few to fully assess sustainability.

Coverage

Esfuerzo Seguro, as shown in **Figure 5**, is a small programme, but growing steadily year on year. It covered almost four times as many policyholders at the end of 2020 compared to the end of 2017. Growth is expected to continue at a similar rate, as new distribution channels are added and voluntary sales increase with the trust that is built each year. Women make up a significant and increasing proportion of the portfolio (almost 70% in 2020) largely due to Banrural's promotion of the product within its "Microfinance for Development Programme," which uses group-based lending that largely targets women. Also, the nature of the product allows better inclusion of women, as the insurable interest does not require assets or formal occupation, two elements that traditional products typically require, but that tend to exclude women.



INSIGHT: AWARENESS VS. AFFORDABILITY

The average premium under the product—at approximately USD 50—is quite substantial for the low-income segment. However, this also translates into a meaningful coverage, with an average sum insured of around USD 1,000 per client. Based on its experience, MiCRO has found that improving awareness about the product and allowing customers to experience insurance in the form of claims helps mitigate concerns around affordability (that is, customers will buy a product they find useful and valuable). Indeed, the renewal rate is estimated at between 70% and 80%, indicating that clients are experiencing value with the coverage.

See the Insight: Claims Payout as a Touchpoint to Increase Awareness sidebar below for more on this.

Figure 5: Performance

Portfolio	2017	2018	2019	2020
Total number of policies sold/clients covered	2,600	5,600	7,100	10,100
% farmer clients	Data not available	66%	48%	38%
% women clients	58%	52%	63%	68%
Total annualised gross collected premiums (USD)	129,366	258,732	388,098	517,464
Average premium per client (USD)	50	48	55	51
Total annualised sum insured (USD)	2,283,312	5,213,454	7,011,643	10,983,182
Average sum insured per client (USD)	878	965	988	1087

¹⁵ A backpack is given to each participating family, followed by discussion on risk preparedness. Participants debate on things needed to survive the first 72 hours after a disaster. CONRED provides crucial information such as escape points, reunion points etc. for that region in case of a disaster.

Claims and Incidence Rates

After a 12-month pilot, 85% of clients already had a first claims experience with the insurance product. This was due to the fact that even though the product was designed to protect against severe natural hazards, it also makes small payouts to clients for moderate events. Over the years, clients have received multiple payouts in a year, due to events triggered by drought and excess rain. As can be seen in **Figure 6**, the aggregate claims ratio (ratio of claims paid to premiums collected, or loss ratio) since inception is 82%, with an overall claims incidence (proportion of insured clients receiving a payout, sometimes referred to as claims frequency) of 294%.¹⁶

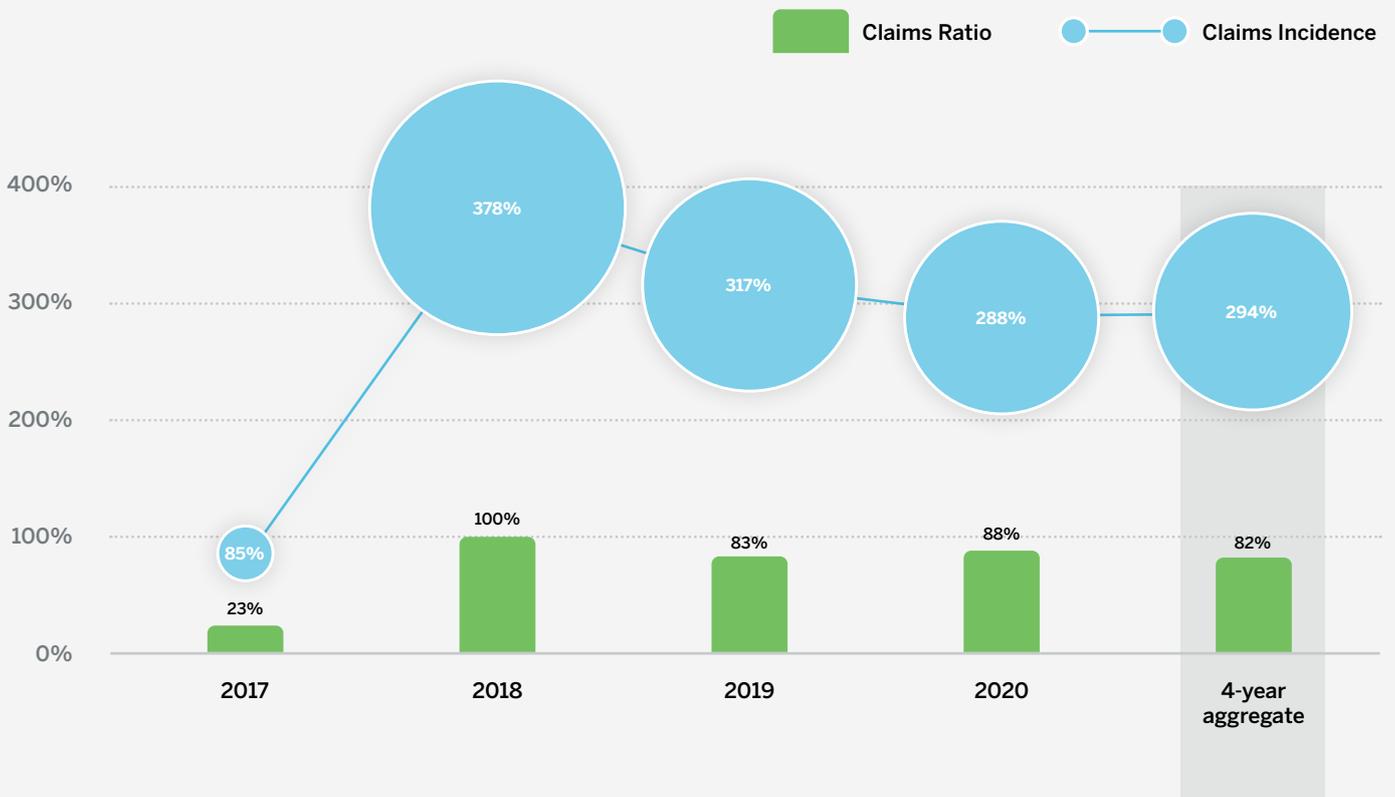


INSIGHT: CLAIMS PAYOUT AS A TOUCHPOINT TO INCREASE AWARENESS AND DEMONSTRATE VALUE

Because Esfuerzo Seguro was the first index-based insurance product in Central America and because the infrequency of severe disasters creates a situation where claims payouts are also infrequent, AR and MiCRO felt that one way to increase customer awareness and show the value of the product was to make small payouts for less severe incidents. This strategy has been deployed by index programmes to make the insurance product tangible and to build trust in the market that insurers will pay claims. Each claims payout was a touchpoint to educate Esfuerzo Seguro customers and a way for them to experience the benefits of insurance. This approach can help to build a voluntary market faster.

However, each claims payout has a transaction cost, and together these smaller payouts have resulted in claims ratios in the high 80% range, leaving little room for larger payouts when a severe event does occur. Hence, with customers having experienced multiple payouts and reputation established, in September 2020 AR and MiCRO adjusted the product parameters to reduce the frequency of payouts and make them more meaningful in amount. This was needed to improve the sustainability of the product.

Figure 6: Claims Ratio and Incidence Rate



¹⁶The jump from 2017 to 2018 reflects the small-scale pilot in 2017

The table in **Figure 7** shows details of claims under Esfuerzo Seguro. The average claims value over time is USD 14 (reflecting the more frequent, low-severity events), with an overall claims incidence of about 300%. This suggests that, on average, each client got three payouts in a year, which totals to an annual payout of USD 42, compared to an annual premium of USD 51.

Figure 7: Claims Experience

Claims Experience	2017	2018	2019	2020	4-year total
Number of paid claims	2,200	20,400	22,500	29,100	74,200
Average claim amount (USD)	14	13	14	16	14
Total amount of claims paid (USD)	29,754	258,732	323,415	452,781	1,064,683

Sustainability

An insurance programme's sustainability depends on whether there is reasonable profit for insurers and distributors, as well as clear value for customers. Combined ratios of the scheme are a good measure of profitability for insurers because they consider outflows (expenses and claims) and inflows (premium).

As noted above, Swiss Re retains 100% of the risk (paying 100% of the claims). Between 20% and 30% of the gross premium stays with Aseguradora Rural as a commission or service fee for administering the product. Thus, from the perspective of the reinsurer, the estimated combined ratios, as shown in the table in **Figure 8**, suggest that in three out of four years, the product has resulted in losses for them, despite the fact that there were no extreme events during this time period.

For AR, the 20% to 30% commission must cover fees for MiCRO and any commissions or fees paid to the distribution channels, as well as its own expenses, such as the cost of administering the claims. It expects profits for all parties to emerge with scale.¹⁷

According to MiCRO, the product has been designed to be sustainable at an average claims ratio of 50% to 70%, and it expects the ratio to settle at this level with time, given the aforementioned adjustments made to the payout structure in September 2020. The extent to which these adjustments impact the long-term claims ratio will be crucial to the sustainability of the programme.

Figure 8: Estimated Combined Ratios

Year	Claims Ratio (claims paid / gross premiums)	Average distribution and administration expense ¹⁸ (fees retained by AR / gross premiums)	Estimated Combined Ratio (claims + expenses / gross premiums)
2017	23%	20% - 30%	43% - 53%
2018	100%		120% - 130%
2019	83%		103% - 133%
2020	88%		108% - 118%

¹⁷ MiCRO's business case, as a technical assistance provider, relies on fee income across multiple countries, with donor assistance during the set-up phase. To continue sustainably, they aim to reach 300,000 to 400,000 clients across all countries of operation by 2023.

¹⁸ Used by AR to pay MiCRO and the distribution channels as well as for its own expenses

Key Learnings

While MiCRO and AR are experimenting with the first index-based insurance product in the region, they have learnt some valuable lessons along the way.

01

Advances in technology have enabled innovative products covering new risks. However, implementation has been tough and progress slow, because it takes time for people and companies to adopt change. MiCRO has dealt with this by allowing local insurers such as AR to experience new risk management techniques without taking any risk on their books

02

Alignment with partners: MiCRO has learnt that it is critical to select partners whose interests are aligned and to set expectations early regarding budgets, resource requirements, effort and time to scale (e.g., not requiring immediate returns).

03

Distribution channels are critical to achieving scale, and hence it is important that the product have strategic importance to the distributor's business. This could be in terms of direct and adequate financial remuneration, but also in how insurance provides indirect benefits by improving the portfolio's risk profile or acting as a differentiating factor from competitors (as in the case of Banrural).

Acknowledgements

The authors of this report would like to acknowledge the efforts and contributions of the team at MiCRO and Aseguradora Rural who made developing this case study possible. We extend a special thank you to:

Carlos Boelsterli - CEO MiCRO

Javier Uruñuela Lopez - Monitoring & Evaluation Specialist from MiCRO



Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with office in major cities around the globe. The MicroInsurance Centre at Milliman (MIC@M) is dedicated to generating access to valuable risk management solutions for low-income people globally. The MIC@M has implemented microinsurance projects in over 75 countries in the last 20 years.

Contact

Katie Biese

katie.biese@milliman.com

Michael J. McCord

michael.mccord@milliman.com

[Microinsurancecentre.org](https://microinsurancecentre.org)

[Milliman.com](https://milliman.com)