



Microinsurance Catastrophe  
Risk Organisation



## C A S E B R I E F :

Overcoming the challenges in designing natural  
hazard microinsurance products:  
a MiCRO experience in Central America

The **Microinsurance Catastrophe Risk Organisation (MiCRO)** is a reinsurance company specialising in the design and implementation of natural hazard risk transfer solutions for low-income segments of the population.

This case study details how **MiCRO** and its partners are trying to overcome technical, awareness, and regulatory barriers for microinsurance, through its work in Central America.



## Background

**MiCRO** was founded in the wake of the 2010 Haiti earthquake by the international NGO, Mercy Corps, and the largest microfinance institution (MFI) in Haiti, Fonkoze. After first launching in Haiti, **MiCRO** went on to provide microinsurance coverage to over 65,000 Haitians. In November 2016, the organisation launched its first product in Central America, “Esfuerzo Seguro”, an index-based bundled earthquake, drought and excess rainfall insurance for small producers in Guatemala, that will also launch in the El Salvador market in 2018.

**MiCRO** was founded as a reinsurance company specialising in the design of risk transfer solutions to the unserved and underserved population in order to fill an important gap towards achieving more equitable access to insurance against natural disasters. As a reinsurer focussed on natural hazard risks, **MiCRO** not only aims to provide reinsurance capital, but also modelling expertise on how index insurance products can be designed, and how the layers of insurance and reinsurance can be optimally structured and divided. In doing so, it can provide the most cost-effective solutions to clients, whilst also confronting product design challenges such as basis risk. In addition, **MiCRO** provides technical assistance to local partners to ensure that the products designed are understood and consumers are effectively protected.

## The Central American expansion

Central America is a region that is highly exposed to natural hazards with the effects of climate change making natural disasters an even more common occurrence. Earthquakes, hurricanes, tropical storms, and droughts continually cause damages that are particularly acute for vulnerable low-income populations who lack an adequate safety net. The most recent large-scale natural disaster in the region was Tropical Storm Agatha, causing close to USD 1 billion in damages to Guatemala and El Salvador.

Unfortunately, despite such high exposure, access to insurance against natural disasters is extremely low across all of Central America. Insurance penetration in general across Guatemala, Honduras, Nicaragua and El Salvador, the initial four Central American countries selected by **MiCRO**, is less than 2% <sup>1</sup>.

In such context, **MiCRO**, with the support of international and local partners such as the Swiss Agency for Development and Cooperation, the Multilateral Investment Fund (FOMIN) managed by the Inter-American Development Bank (IADB), Swiss Re, the KfW Development Bank of Germany, and Mercy Corps, started its expansion in Central America with the objective of designing and implementing holistic risk transfer solutions with real value, that are affordable and financially sustainable.

<sup>1</sup>Swiss Re Sigma Report, 2015.



Partners:



Since 2014, **MiCRO** has been working with local partners such as Aseguradora Rural and Banrural in Guatemala, and Seguros Futuro and Banco de Fomento Agropecuario (BFA) in El Salvador, to design and test such solutions. In November 2016, “Esfuerzo Seguro”, the first index insurance product covering business interruption against natural disasters was launched by Aseguradora Rural and Banrural in Guatemala and it is expected that Seguros Futuro and BFA launch “Produce Seguro” before June in 2018 in El Salvador.

During this process **MiCRO** and its partners has encountered different obstacles, some of which are more difficult to overcome than others.

## Overcoming obstacles

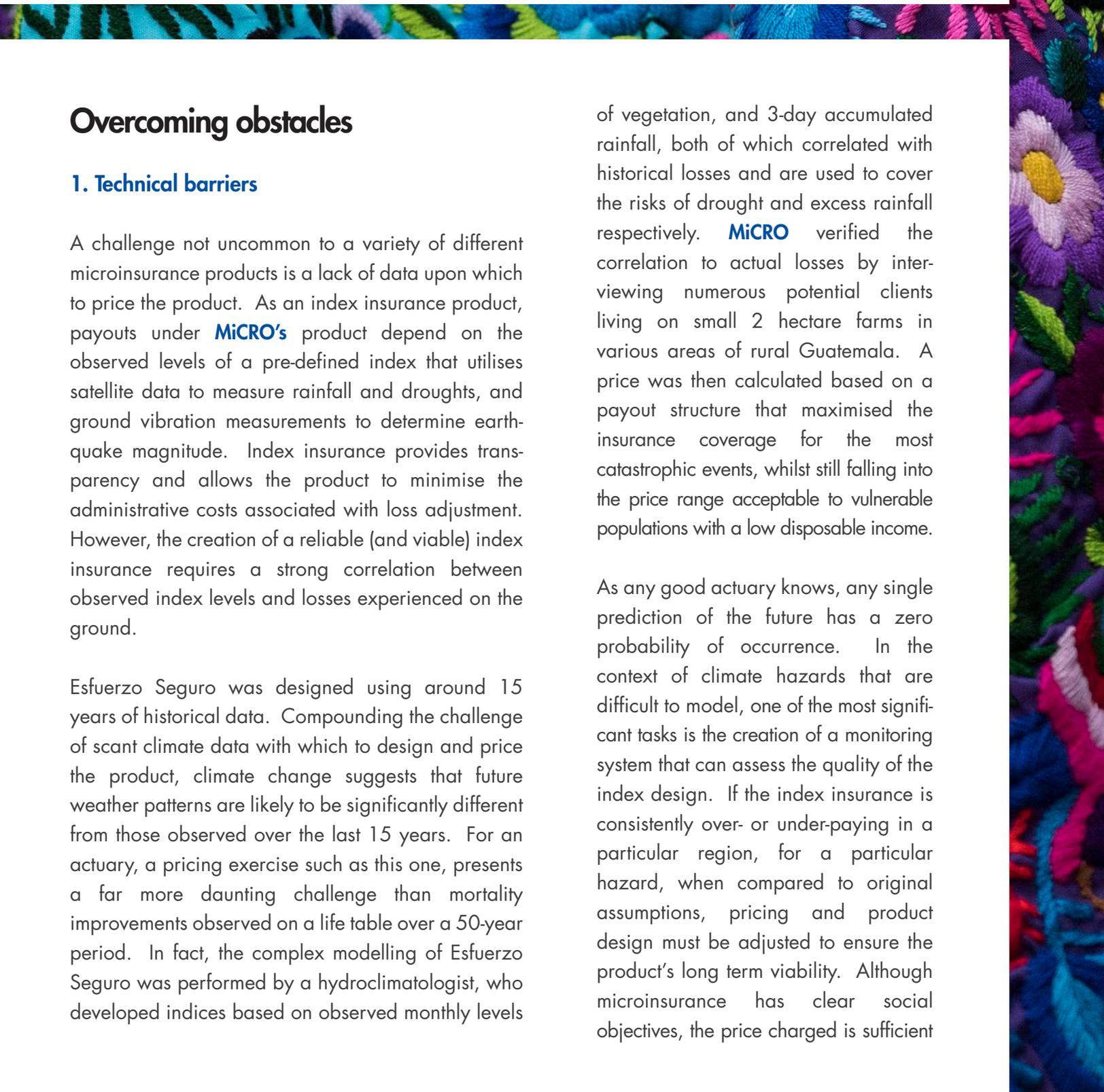
### 1. Technical barriers

A challenge not uncommon to a variety of different microinsurance products is a lack of data upon which to price the product. As an index insurance product, payouts under **MiCRO's** product depend on the observed levels of a pre-defined index that utilises satellite data to measure rainfall and droughts, and ground vibration measurements to determine earthquake magnitude. Index insurance provides transparency and allows the product to minimise the administrative costs associated with loss adjustment. However, the creation of a reliable (and viable) index insurance requires a strong correlation between observed index levels and losses experienced on the ground.

Esfuerzo Seguro was designed using around 15 years of historical data. Compounding the challenge of scant climate data with which to design and price the product, climate change suggests that future weather patterns are likely to be significantly different from those observed over the last 15 years. For an actuary, a pricing exercise such as this one, presents a far more daunting challenge than mortality improvements observed on a life table over a 50-year period. In fact, the complex modelling of Esfuerzo Seguro was performed by a hydroclimatologist, who developed indices based on observed monthly levels

of vegetation, and 3-day accumulated rainfall, both of which correlated with historical losses and are used to cover the risks of drought and excess rainfall respectively. **MiCRO** verified the correlation to actual losses by interviewing numerous potential clients living on small 2 hectare farms in various areas of rural Guatemala. A price was then calculated based on a payout structure that maximised the insurance coverage for the most catastrophic events, whilst still falling into the price range acceptable to vulnerable populations with a low disposable income.

As any good actuary knows, any single prediction of the future has a zero probability of occurrence. In the context of climate hazards that are difficult to model, one of the most significant tasks is the creation of a monitoring system that can assess the quality of the index design. If the index insurance is consistently over- or under-paying in a particular region, for a particular hazard, when compared to original assumptions, pricing and product design must be adjusted to ensure the product's long term viability. Although microinsurance has clear social objectives, the price charged is sufficient



to cover all claims and administrative expenses incurred by the product. This enables the product to continue to be offered into the market, and to be reinsured to minimise the capital strain on local insurers as the portfolio expands its scale. After a twelve-months pilot phase, more than half of the approx. 4.000 clients had received payouts, the highest ones reaching 15%, but most of them below 5%, given that triggering events registered during that period were of moderate magnitude. Even if not severe, clients appreciated the rather small payouts, which help to increase their trust and understanding of the product.

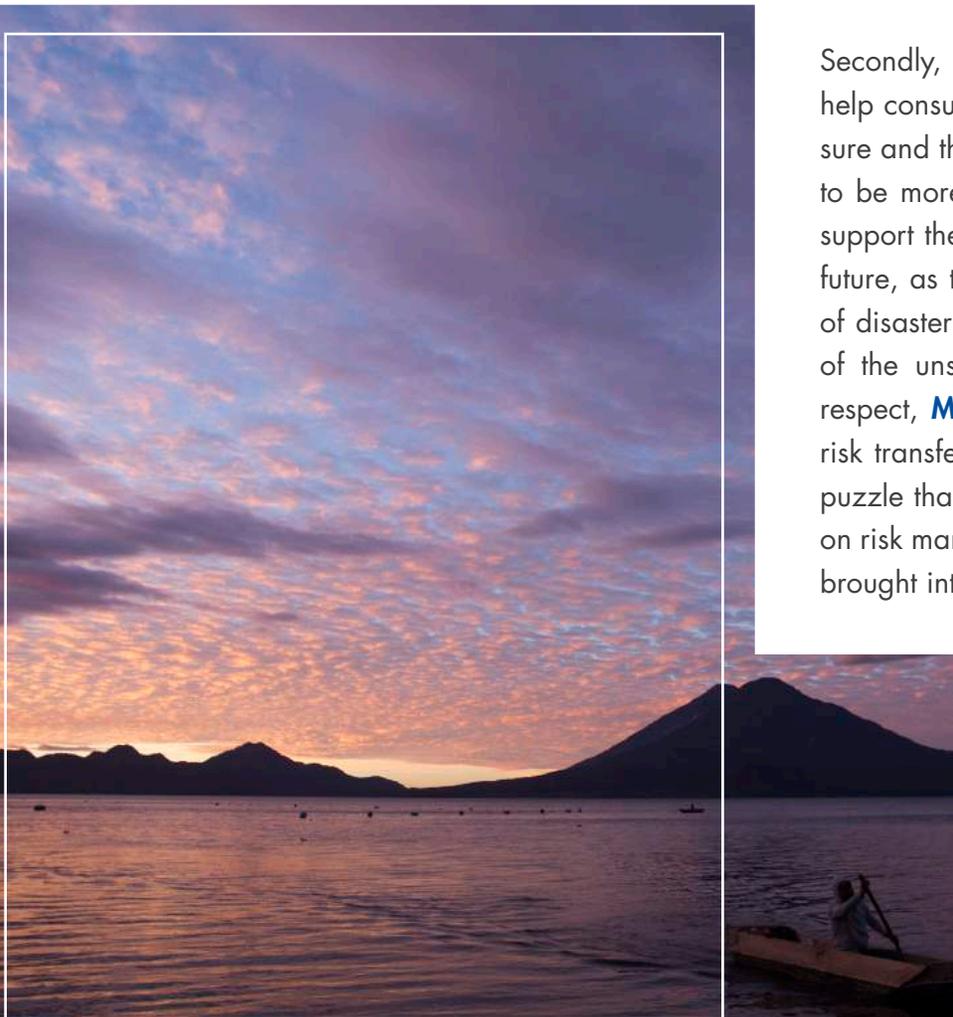
As an organisation with a social mission, **MiCRO** ensures that its product-related expenses are kept to a minimum to make sure that the largest percentage of the premium continues to be direct towards paying claims and supporting low-income livelihoods.

## 2. Awareness barriers

One common challenge in microinsurance is a lack of awareness of the low-income segments of the population, not only about insurance, but also more broadly about other mechanisms that could serve to reduce their risks and improve their preparedness to catastrophic natural hazard events. When the insurance product is index-based, this challenge is exacerbated, mainly because payments are based on indices rather than the losses felt on the ground. To mitigate this, **MiCRO** designed a product with indices and an insurable interest that reduce basis risk, and created a specific Financial Education Program (FEP) and a Value Added Program (VAP) with the following objectives:

Firstly, to build consumer trust and credibility by ensuring that clients are aware of the particularities of index insurance products and therefore, their expectations are aligned with the offered coverage;

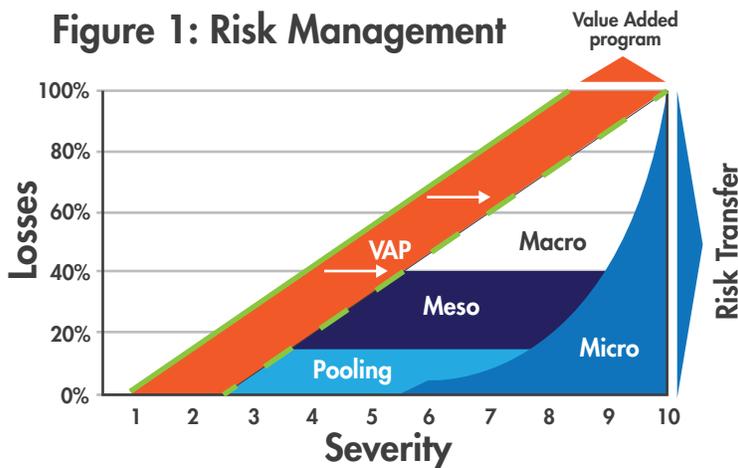
Secondly, to provide a set of tangible services that help consumers to be more aware of their risk exposure and the array of tools available to support them to be more resilient. Such an approach will better support the introduction of insurance products in the future, as the adoption of better practices in respect of disaster risk reduction increases the “insurability” of the unserved and underserved markets. In this respect, **MiCRO** and its partners are conscious that risk transfer solutions are only part of the puzzle; a puzzle that will be incomplete if a broader dialogue on risk management for vulnerable populations is not brought into consideration.



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Indeed, **MiCRO's** approach is holistic as it aims to reduce the impact of economic losses caused by natural disasters by supporting interventions on risk preparedness and mitigation, and by offering a comprehensive set of risk transfer solutions depending on the needs of the clients. Those risk transfer solutions could benefit directly individuals (microinsurance products), or/and aggregators (meso products) or/and provide tools to formalise and sophisticate risk pooling mechanisms already used in the communities as risk management tools:

**Figure 1: Risk Management**



Indeed, **MiCRO's** approach is holistic as it aims to The features of both, the FEP and VAP in Guatemala are outlined below.

The FEP was designed to train both the staff of aggregators and end consumers, about the features of the product. For both audiences, didactic tools were created using basic and familiar elements, such as rulers and colour coded warning systems, in order to convey complex ideas of index insurance products. Training materials, such as videos, games, and infographics, were created leveraging on those didactic tools (See Figure 4). The FEP is of particular interest to supervisory authorities, given their awareness of the challenge and the need to ensure effective consumer protection.

The VAP aimed to offer end consumers a set of services related to disaster risk reduction that could be perceived by the user as positive additions that make the product more tangible and appealing.

In order to do so, **MiCRO** partners with local institutions to provide linkages to disaster risk reduction programs for its target clients, as well as bundling its insurance offering with savings and loans products offered by local financial partners. This approach not only provides a more holistic risk management solution, but makes the insurance risk transfer solution more effective in transferring the residual risk after other risk mitigation activities are accounted for. In Guatemala and El Salvador, **MiCRO**, with the support of governmental entities such as Coordinadora Nacional para la Reducción de Desastres (CONRED) and the World Food Programme (WFP) in Guatemala, is promoting the adoption of family emergency plans and good disaster risk reduction practices through an incentive package that allows clients to win items to put together their 72-hour emergency kit, and by transferring weather forecasts and emergency warnings through SMS to end clients.



Figure 2: FEP Esfuerzo Seguro video



Figure 3: FEP Esfuerzo Seguro indemnification table



### ¿Cómo funciona Esfuerzo Seguro?



Figure 4: FEP Esfuerzo Seguro tools and products.

The FEP and the VAP currently being piloted are first versions that will be improved over time. A monitoring and evaluation system is assessing if both programs are accomplishing their objectives.

### 3. Regulatory barriers

The roll out of index insurance products in certain jurisdictions, such as Guatemala and El Salvador, requires that the respective supervisory authorities approve the products before they are offered in the market. The process of achieving product approval for an innovative insurance product, such as index insurance, can be challenging for reasons such as the following: (i) very few countries have developed regulatory frameworks to enable index insurance products; (ii) this means that index insurance products should be designed following the guidelines of regulatory frameworks that are very traditional, notably in respect of the interpretation and implementation of the indemnity principle and the insurable interest<sup>2</sup>; and (iii) that the complexities of index insurance products increase the concerns of supervisory authorities with respect to consumer protection.

In order to overcome the challenges of the product approval process, a dialogue platform between the supervisory authorities, the local insurers and **MiCRO** was established from the initial stages of product design. The objective of the platform is to create a direct channel of communication that facilitates the joint design and implementation of these products in both countries. Local insurers and **MiCRO**, together with the active support of both supervisory authorities, crafted the insurance products to ensure that they are innovative but also adapted to the regulatory frameworks of each jurisdiction. During this process of collaboration, **MiCRO** supported the process not only by reviewing in detail the regulatory framework of both countries and ensuring that the products designed were aligned with local provisions, but also by enabling an experience-sharing platform with supervisory authorities of other jurisdictions that have approved similar products, or which have issued, or are in the process of issuing, specific regulatory frameworks. In late 2016, **MiCRO** organised a workshop on the regulation of index insurance products specifically targeted to supervisory and regulatory authorities ([more information in this link](#)). In addition, the concerns of the supervisory authorities of Guatemala and El Salvador in respect of disclosure of information in a transparent and simple way of a complex product were considered and analysed in depth, and they were central while designing the FEP, marketing materials and contractual documents.

As a result of months of collaboration and dialogue, the supervisory authorities of Guatemala and El Salvador approved two index insurance products. It is important to emphasise that the joint collaboration with the supervisory authorities will still continue even after the products have been approved. This will ensure that the supervisory authorities follow closely the developments of the product and can monitor and evaluate their relative impacts on the end clients.

<sup>2</sup>Unless a specific dispensation has been provided by the supervisory authority for a particular pilot.

## II. The future: How to achieve financial sustainability

The long-run success of **MiCRO's** programs in Central America is still to be proven over time. Nonetheless, **MiCRO** recognises a number of key factors in its approach that will lead to its financial sustainability and most importantly, to achieving its social mission.

**MiCRO's** products are simple to understand, connected with tangible services and designed using a widely applicable insurable interest. These three elements facilitate the "replicability" of the model with other aggregators and in other jurisdictions, whilst ensuring that the product responds to specific and relevant needs. Initially working through microfinance institutions, Central America presents numerous opportunities to partner with other aggregator such as microfinance institutions, producer cooperatives, and financial cooperatives, amongst others, to reach the vulnerable low-income populations that have uninsured exposure to natural hazards. Such elements are key to ensure scale and financial sustainability.

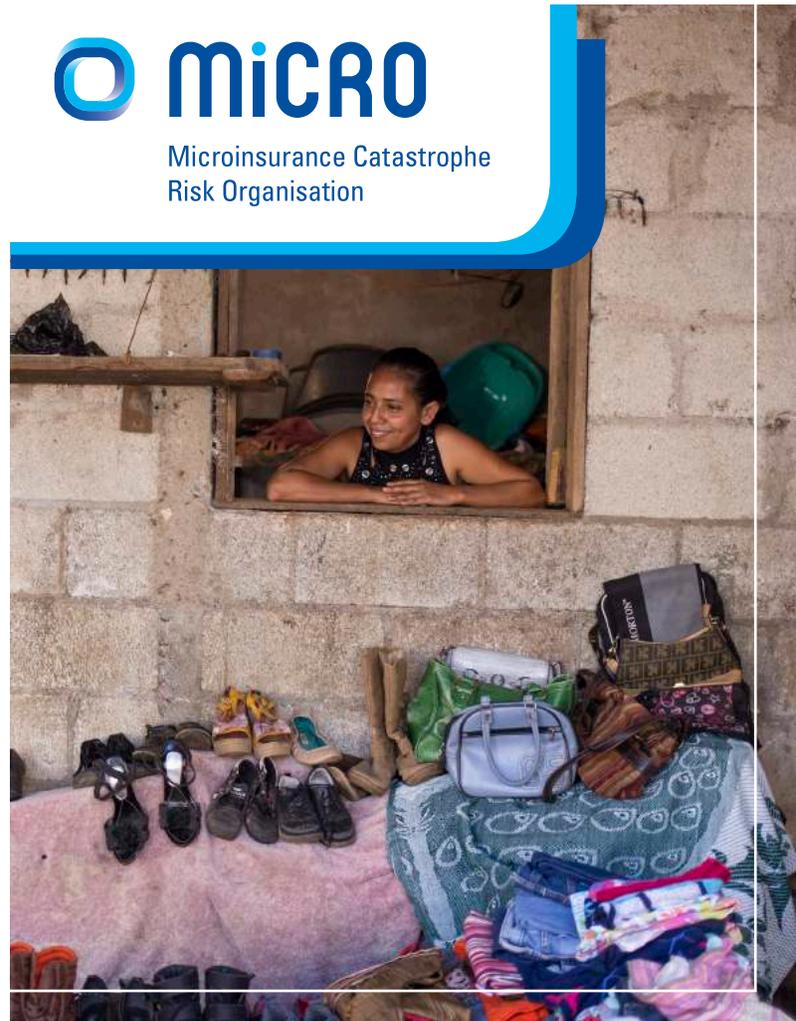
By providing direct technical assistance and product development knowledge to a wide range of local partners, **MiCRO** is installing capacity in each jurisdiction; a key element that, over time, will enable the introduction of other index insurance products in the market that will allow consumers to choose the products that best fit their needs and particularities. **MiCRO** as a reinsurer, will have the ability to develop, implement and hold the risk of the products it designs. In-house modelling and pricing provides the organisation with a deep understanding of the risks it is covering, something that is crucial for a reinsurance company.

For **MiCRO**, it is key to disseminate knowledge to supervisory authorities and regulators about index insurance products, as it is not just about approving one product, but it is about promoting a wide offer of responsible index insurance products in their jurisdictions.

**MiCRO** stands with the belief that the most impactful way to improve the lives of vulnerable low-income populations in Central America is to design socially impactful solutions that can be financially sustainable in the long-term. As its first products launch, **MiCRO** continues to take steps in this direction, unlocking solutions to expand natural hazard microinsurance across the world.



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