



# Scaling Parametric Insurance in Pacific Small Island Developing States through Meso- Level Solutions

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## Introduction

Pacific Island countries face significant exposure to climate-induced hazards such as tropical cyclones, droughts, and floods, as well as geophysical hazards such as volcanic eruptions, earthquakes, and tsunamis. These hazards frequently result in disasters, exacerbating the region's pre-existing development challenges. According to the 2013 World Bank Report, extreme natural events have affected approximately 9.2 million people, caused almost 10,000 reported deaths and resulted in damage of nearly US\$3.2 billion in the Pacific Region since 1950. Over US\$112 billion worth of infrastructure, buildings, and cash crops are at risk in the Pacific, and inaction through adaptation and mitigation would be extremely costly<sup>1</sup> to individuals, households, communities, businesses, and governments alike.

Vulnerability in the Region is exacerbated by inadequate socio-economic development planning, increasing exposure to and losses from natural events.<sup>2</sup> Furthermore, the looming consequences of climate change are expected to amplify the intensity and severity of cyclones, droughts, and flooding, compounding the Region's challenges. Tropical cyclones remain the most damaging peril in terms of economic loss, followed by earthquakes<sup>3</sup>.

Upon their occurrence, these extreme natural events disproportionately impact vulnerable and low-income populations, especially women, people with disabilities (PWDs), youth, and micro, small, and medium-sized enterprises (MSMEs). Unfortunately, most of these vulnerable population segments lack access to insurance instruments that cover natural events. Faced with a catastrophic shock, they resort to various coping mechanisms, including seeking assistance from family and friends, depleting their savings, borrowing, reducing number of meals, and consuming less preferred foods, among others. However, these mechanisms often prove insufficient when an extreme event happens.

While governments typically offer support in response to such extreme events, assistance through various ex-ante and ex-post instruments proves inadequate. Ex-ante instruments primarily comprise government reserve funds and contingent credit, while ex-post instruments involve budget reallocations, often funded by external and internal borrowing, donor assistance, and international humanitarian aid. Unfortunately, these resources are notably insufficient, particularly following major catastrophic events like earthquakes and tropical cyclones. This underscores the compelling need to complement these traditional instruments with parametric insurance solutions.

Parametric insurance instruments operate at micro, meso, and macro levels. At the micro level, these products insure individual participants such as farmers, vendors, fishers, and small businesses. Micro-level products can be directly offered to participants or through aggregators such as microfinance institutions, associations, and other vulnerable segment-serving entities. The defining characteristic of micro-level parametric insurance is their focus on individual participants as insured parties, whether directly or through aggregator partners acting as master policyholders.

The first micro-level CDRFI instrument in the Pacific was introduced through the UNCDF-led Pacific Insurance and Climate Adaptation Programme (PICAP) in 2021, initially in Fiji and subsequently in Tonga and Vanuatu in 2022. This product is offered to participants through aggregators like cooperatives, associations, processors, and financial institutions. Despite bringing hope to Pacific Islanders, the coverage remains limited, reaching only a fraction of households.

Meso-level insurance refers to insurance designed for aggregators, which include institutions such as development banks, microfinance institutions, provident/pension funds, associations, and cooperatives. These entities act as both policyholders and insured parties. Payouts to aggregators may be allocated to their clients or members entirely or partially, contingent upon the nature of the product. Currently, there is limited experience with meso-level products in the Pacific. Therefore, this publication focuses on promoting these products through the UNCDF-led PICAP. These solutions aim not only to complement the Programme's micro-level initiatives but also the macro-level products provided by the Pacific Catastrophe Risk Insurance Company (PCRIC), where both national and local governments can serve as policyholders and insured parties.

1 World Bank (2013). Acting on Climate Change and Disaster Risk for the Pacific. Retrieved from <https://www.worldbank.org/content/dam/Worldbank/document/EAP/Pacific%20Islands/climate-change-pacific.pdf>

2 ibid

3 ibid

## Why Meso-Level Parametric Insurance?

While instruments at micro, meso, and macro levels have their distinct advantages and challenges, meso-level parametric insurance emerges as a promising and effective solution. It not only complements micro- and macro-level instruments but also addresses some of the challenges encountered when offering insurance at both micro and macro levels. Insights drawn from various parametric insurance pilot programs conducted across diverse markets shed light on the limitations faced when attempting to provide insurance coverage at micro- and macro-levels.

On one hand, various obstacles exist at the micro-level, including limited financial literacy among individual participants, high expenses associated with raising awareness and distributing insurance products to dispersed and remote clients, and the absence of suitable platforms for collecting premiums and distributing payouts. Infrastructure deficiencies and limited access to banking, mobile, and payment services worsen these challenges. Additionally, micro-level parametric insurance faces higher basis risk and scalability issues, especially within underdeveloped value chains. On the other hand, while macro-level solutions address some micro-level challenges such as premium collections and basis risk, they tend to discourage on-farm risk management practices and productive investments. Furthermore, macro-level instruments encounter difficulties in distributing payouts and inculcating an insurance culture among individual participants. Amid the challenges encountered at both micro and macro levels, meso-level parametric insurance emerges as a bridging solution.



Meso-level parametric insurance products offer the following distinct advantages:

- **Rapid Scalability:** These products can be deployed at scale quickly, benefiting from the existing network and infrastructure of risk aggregators, thereby ensuring broader coverage and quicker response times in the event of a disaster.
- **Reduce basis risk:** By aggregating risk across multiple participants and regions, meso-level solutions inherently have lower basis risk, providing greater accuracy and predictability in payouts.
- **Lower administrative and distribution costs:** The involvement of risk aggregators streamlines the administrative and distribution processes, reducing costs compared to micro-level initiatives that require extensive outreach and education efforts.
- **Promotion of investments<sup>4</sup> :** Meso-level insurance not only provides financial protection to risk aggregators but also encourages productive investments<sup>5</sup> by vulnerable population segments, fostering economic growth and resilience within the community.
- **Proactive risk management:** The engagement of risk aggregators and collective groups facilitates proactive risk management practices and disaster preparedness, making communities more resilient to future shocks.

However, it is crucial to acknowledge that aggregators might face reputational risk if the product fails to perform as expected due to basis risk. This underscores the significance of adhering to due processes in product design, alongside other measures aimed at mitigating basis risk. Another potential challenge arises when aggregators pass the cost to their clients, potentially rendering their products or services unappealing, especially in highly competitive markets. Nevertheless, integrating parametric insurance into their offerings might provide a competitive edge. To render parametric insurance valuable, raising awareness among aggregators' clients or members about the implications of climate change and other natural hazards, and how parametric insurance facilitates swift recovery post-catastrophic events, is essential.

4 Productive investment refers to any investment (e.g., spending money on plant and equipment/machinery, technology, agriculture inputs etc.) aimed at increasing production/output/productivity or generate income (See e.g., Karmakar et al., 2022; Cavallo & Serebrisky, 2016).

5 Insurance including meso-level insurance mitigates risks that discourage participants from investing in higher-yielding investments (see e.g., Stoeffler et al., 2022).

## Objectives

In line with PICAP's overarching goal to enhance the financial preparedness and resilience of Pacific households, communities, small businesses (MSMEs), organisations, and governments in effectively managing the impacts of climate change and natural hazards, meso-level parametric insurance solutions have the following specific objectives:

1. To achieve scale and cost efficiencies in providing insurance coverage to vulnerable groups and communities.
2. To enhance the resilience of these entities, enabling them to continue their support and services to vulnerable groups and communities.
3. To promote sustainable development by mitigating the economic losses associated with disasters and facilitating faster recovery.

## Meso-Level Parametric Insurance Value Propositions for Different Risk Aggregators

Risk aggregators can be classified into three main categories:

1. Institutions that provide credit and/or sell goods and services to vulnerable groups on credit hereafter referred to as "lending institutions" (e.g., development banks, MFIs, microfinance banks, cooperatives etc.),
2. Institutions that purchase commodities produced by vulnerable groups (i.e., processors, exporters, traders etc.),
3. Institutions or groups that provide other goods or services, hereafter referred to as "other institutions or groups" (e.g., provident funds, pension funds, associations, NGOs, advocacy and lobby groups etc.).

The value proposition for each class of risk aggregators is outlined in the next paragraph.



## Value Proposition for Lending Institutions

Just as in other developing economies, lending institutions in the Pacific, including development banks, microfinance institutions, and financial cooperatives, play a crucial role in serving vulnerable groups often excluded from the formal financial system. However, the threat posed by extreme natural events jeopardises their ability to assist this vulnerable market and impacts these groups' repayment capacity and access to finance. Embracing climate and disaster risk financing instruments (CDRFI), notably parametric insurance, can safeguard the loan and credit portfolios of these institutions, enabling swift recovery from catastrophic events. Parametric insurance enables institutions to settle outstanding loan or credit balances either partially or entirely, depending on the payout and existing balances. Furthermore, these payouts can be utilised to offer additional financial support to customers, aiding their recovery from such devastating shocks. Failing to implement measures to manage these shocks has far-reaching implications for both lending institutions and their clients.

Primarily, catastrophic events result in substantial loan write-offs, eroding the balance sheets of lending institutions. In the absence of robust financial support or access to alternative funding sources, these events can precipitate the collapse of lending institutions. Furthermore, such occurrences lead to the drying up of credit markets due to widespread defaults, leading to an escalation in capital costs. Consequently, vulnerable

groups encounter difficulties in obtaining finance or are subjected to higher interest rates. Thus, parametric insurance becomes essential for lending institutions as it safeguards their balance sheets, thereby preserving their capacity to continue providing essential services post-extreme events.

Without access to CDRFI instruments, lending institutions often manage their financial exposure by significantly reducing lending or imposing higher interest rates on borrowers/customers in high-risk regions, thereby restricting financial access. This impacts the adoption of technology and investments in other areas vital to the livelihoods and businesses of vulnerable groups. Therefore, it is apparent that parametric insurance is mutually beneficial for lending institutions and their customers. Specifically, meso-level parametric insurance solutions offer the following benefits to lending institutions:

1. **Enhances risk mitigation:** Meso-level parametric insurance offers lending institutions a proactive and reliable tool to mitigate financial risks associated with catastrophic events. By having this insurance in place, they can protect their loan portfolios and reduce the potential losses caused by borrower defaults due to such events. This also helps vulnerable groups recover quickly following a catastrophic event.
2. **Improves business continuity:** With meso-level parametric insurance, lending institutions can maintain their operations and continue lending even in regions prone to natural hazards. This ensures uninterrupted business continuity and revenue generation for lending institutions and continued access to services for vulnerable groups.
3. **Saves Costs:** Instead of bearing the full burden of recovery lending or loan write-downs after a catastrophic event, lending institutions can rely on parametric insurance coverage. This can lead to substantial cost savings in terms of capital allocation and financial recovery efforts. The benefits also extend to vulnerable groups that access finance at relatively lower rate than when insurance is not in place.
4. **Enables the firm to diversity risk:** Meso-level parametric insurance allows lending institutions to diversify their risk exposure. By transferring some of the catastrophic risk to the insurance provider, they can maintain a more balanced and resilient loan portfolio.

5. **Fosters customer retention and attraction:** Offering parametric insurance as part of their lending packages can attract borrowers who are concerned about their ability to repay loans in the event of a disaster. It can also improve customer loyalty by demonstrating a commitment to borrowers' financial well-being.
6. **Offers a competitive advantage to the firm:** Lending institutions that embrace meso-level parametric insurance can gain a competitive advantage in the market. They can differentiate themselves by providing a unique and valuable service that sets them apart from competitors.
7. **Promotes sustainable growth and investments :** Lending institutions, by reducing the financial impact of catastrophic events, can sustain their growth plans and continue serving their communities, even in disaster-prone areas. Moreover, access to insurance fosters investments in livelihood support and business development among vulnerable groups by stabilising interest rates and facilitating access to finance.

Two models can be employed to provide parametric insurance to lending institutions. The first model, known as the 'pure parametric insurance model,' is tailored for risks or events that limit borrowers' ability to repay their loans. When a triggering event occurs, borrowers' loans are either partially or fully forgiven, and the lending institution utilises the payouts, along with other internally or externally sourced funds, to assist borrowers in need of financial support. Any surplus from the payout can be given to the borrower(s).

The second model integrates parametric insurance with contingent credit. Upon the occurrence of an insured event, the lending institution receives payouts and a contingent loan (with predetermined terms and conditions). This allows for the write-off of borrowers' outstanding loans, and the proceeds from both payouts and contingent loans can be allocated for recovery lending.

The choice of the model may depend on the financial capacity of the institution or its capability to secure additional funds for recovery lending. Regarding premium financing, the premiums can be financed by adding them to the cost of the loan or including them in fees charged to customers/members. Alternatively, they can be financed from member contributions, particularly for member-based organisations.



## Value Proposition for Institutions that Purchase Commodities Produced by Vulnerable Groups

Organisations involved in agricultural, aquaculture, and various commodity sectors—such as processors, millers, and traders—play pivotal roles within both wholesale and retail markets. These entities, by purchasing commodities from vulnerable groups, serve as linchpins in ensuring a smooth flow of goods through the supply chain. However, in the event of extreme natural occurrences impacting their supply sources, including farming and fishing communities, these value chain actors face direct repercussions. Catastrophic events have the potential to severely disrupt commodity supply chains, potentially leading to shortages. Such disruptions can trigger a domino effect, profoundly impacting wholesale and retail markets, potentially resulting in spikes in product prices. Parametric insurance could be a viable option for these institutions to shield themselves against such disruptions and potential losses stemming from catastrophic events. Parametric insurance offers the following specific benefits to these entities:

1. **Supply chain resilience:** Meso-level parametric insurance offers processors, millers, and traders a proactive solution to safeguard their supply chains. It provides financial protection in the event of extreme weather and/or other catastrophic events that can disrupt the flow of agricultural commodities from supplying communities. This resilience ensures a consistent and uninterrupted supply of raw materials for their operations.
2. **Cost reduction:** Rather than bearing the full financial burden of supply chain disruptions and higher commodity prices caused by catastrophic events, meso-level parametric insurance helps control costs. It can cover losses related to procurement delays, increased transportation expenses, and the need to source commodities from more distant locations, ultimately minimizing financial strain.

3. **Competitive Advantage:** Businesses that embrace meso-level parametric insurance can gain a competitive edge in the market. They can assure their customers of a reliable and consistent supply of products, even in the face of adverse events, which can enhance their reputation and customer loyalty.
4. **Financial stability:** Catastrophic events can severely impact the financial stability of processors, millers, and traders through inventory losses, reduced revenue, and increased operational costs. Meso-level parametric insurance acts as a financial safety net, helping these businesses maintain their economic stability and navigate challenging times.
5. **Business continuity:** When supply sources are affected by extreme events, businesses may struggle to meet contractual obligations and deliver products on time. Parametric insurance ensures business continuity by providing funds to cover costs associated with fulfilling orders such as price increases.
6. **Enhanced risk management:** By proactively managing the risk of supply chain disruptions, processors, millers, and traders can focus on their core operations and growth strategies with greater confidence. They can allocate resources more efficiently, knowing that they are financially protected in case of unexpected events.
7. **Sustainability:** For businesses committed to sustainable sourcing and responsible supply chain practices, meso-level parametric insurance aligns with their objectives. It allows them to continue supporting local farming communities while mitigating the risks associated with extreme events that can disrupt these relationships.
8. **Access to capital:** Having parametric insurance in place can improve access to capital and credit. Lenders may view businesses with insurance coverage as less risky borrowers, making it easier to secure financing for expansion and growth.

It is worth underscoring that risk aggregators in this category buy parametric insurance for their own accounts. In the event of a triggering event happening, they use the payout to cover losses stemming from disruptions in their supply sources. Concerning premium financing, these aggregators can fund premiums from internally generated funds, allocating an annual budget specifically for this purpose.

## Value Proposition for Other Institutions (Groups) that Serve Vulnerable Groups

Various institutions or groups have interest in the financial stability of their customers or members. Unlike entities providing loans, goods, or services on credit or engaging in commodity purchases from vulnerable groups, these institutions or groups may instead provide other goods and services to vulnerable populations. Examples of such entities encompass provident/pension funds, trade-based associations (e.g., farmers unions/associations), community-based groups, and NGOs. These organisations or groups have the capacity to act both as policyholders and insured parties, allowing them to pass on policy benefits or payouts to their members or customers in case of a policy trigger. Parametric insurance provides the following specific benefits to such institutions or groups:

1. **Membership and customer satisfaction:** These institutions or groups can enhance member satisfaction and retention by offering meso-level parametric insurance as a value-added benefit. This assurance demonstrates their commitment to members' financial well-being.
2. **Community and social impact:** NGOs often work in or support vulnerable communities. Meso-level parametric insurance enables them to provide a consistent and reliable source of support, and this is more vital when disaster strikes. This can have a significant positive impact on the communities/members they serve, enhancing their resilience and well-being.
3. **Collaboration and partnerships:** Organisations with insurance coverage are often viewed as more reliable partners by other stakeholders, including donors, investors, and government agencies. This can open doors to collaborative opportunities and increased funding support.
4. **Cost-effective risk transfer:** Instead of bearing the full financial burden of catastrophic losses, these organizations can transfer a portion of the risk to the insurance provider. This can result in cost savings over time, particularly when compared to the high costs associated with post-disaster recovery efforts.

Given the interest that risk aggregators in this category have in the financial stability of their customers or members, they can purchase parametric insurance to

support them when an insured event occurs. Upon a payout, funds can be distributed to members or customers based on their specific needs. Depending on the type of the organisation, premiums can be financed from different sources. Table 1 below shows possible premium financing sources for potential risk aggregators.

**Table 1: Premium Financing Sources for Different Risk Aggregators**

Risk Aggregator	Possible Premium Financing Sources
National provident funds	<ul style="list-style-type: none"> <li>• Voluntary schemes - savings</li> <li>• Investment returns</li> <li>• Cost reductions</li> </ul>
NGOs (advocacy/lobbying groups)	<ul style="list-style-type: none"> <li>• Donor funds</li> <li>• Member subscriptions/contributions (if any)</li> </ul>
Associations, trade-based organisations, non-financial cooperatives	<ul style="list-style-type: none"> <li>• Surplus/savings</li> <li>• Member subscriptions/contributions (if any)</li> <li>• Donor Funds</li> </ul>

## General Implementation

The following activities are critical in the implementation of meso-level parametric insurance solutions:

**Partnerships:** Collaborate not only with different risk aggregators such as financial institutions, processors, traders, cooperatives, associations, and international organisations but also with hazard data providers, regulators, policymakers, risk modelers and donors, among other partners in the development of parametric insurance solutions.

**Pilot programs:** Conduct a series of pilot programs in selected regions to assess product viability, fine-tune coverage parameters, and gather data for risk assessment.

**Awareness and education:** Raise awareness among meso-level entities and their customers/clients or members about the benefits and importance of parametric insurance.

**Premium financing:** To bolster confidence in parametric insurance, it may be necessary to mobilise and offer smart premium subsidies to deserving risk aggregators.



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