



# SCALING UP RISK TRANSFER MECHANISMS FOR CLIMATE VULNERABLE AGRICULTURE-BASED COMMUNITIES IN MINDANAO, PHILIPPINES

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**ACTION AREA:** ——— Adaptation

**FOCUS AREA:** ——— Financing

**COUNTRY:** ——— Philippines

## SECTORS

**INVOLVED:** ——— Agriculture; Other

**TIMEFRAME:** ——— May 2014 - December 2017

**CASE SUMMARY:** ——— The Philippines is one of the most natural disaster-prone countries in the Asia-Pacific. Climate change projections indicate an increase in vulnerability, particularly in terms of unpredictable rainfall patterns. This puts the livelihood of farmers and food security in the Philippines at risk, especially on the island of Mindanao, also known as the "food basket" of the country.

In an effort to address these climate risks, the government-owned Philippine Crop Insurance Corporation (PCIC), in collaboration with UNDP, started the project "Scaling Up Risk Transfer Mechanisms for Climate Vulnerable Agriculture-Based Communities in Mindanao" in 2014. The goal of the project was to strengthen the resilience of vulnerable farming communities by enhancing the uptake of pilot-tested climate risk insurance and increasing local capacities to improve agricultural productivity and disaster risk reduction.

To increase the uptake of insurance, the project improved the payout mechanism, customized insurance products to local needs, and provided the farmers with financial support. To improve local capacities and increase agricultural productivity, the project set up a participatory training and learning program for farmers and other key stakeholders, where all were encouraged to share their experiences on how to enhance productivity in agriculture and reduce disaster risks.

The project constitutes a good practice because it is based on comprehensive technical analyses and effective in terms of its intended objective. Furthermore, the project brings about sustainable development benefits for the farmers.





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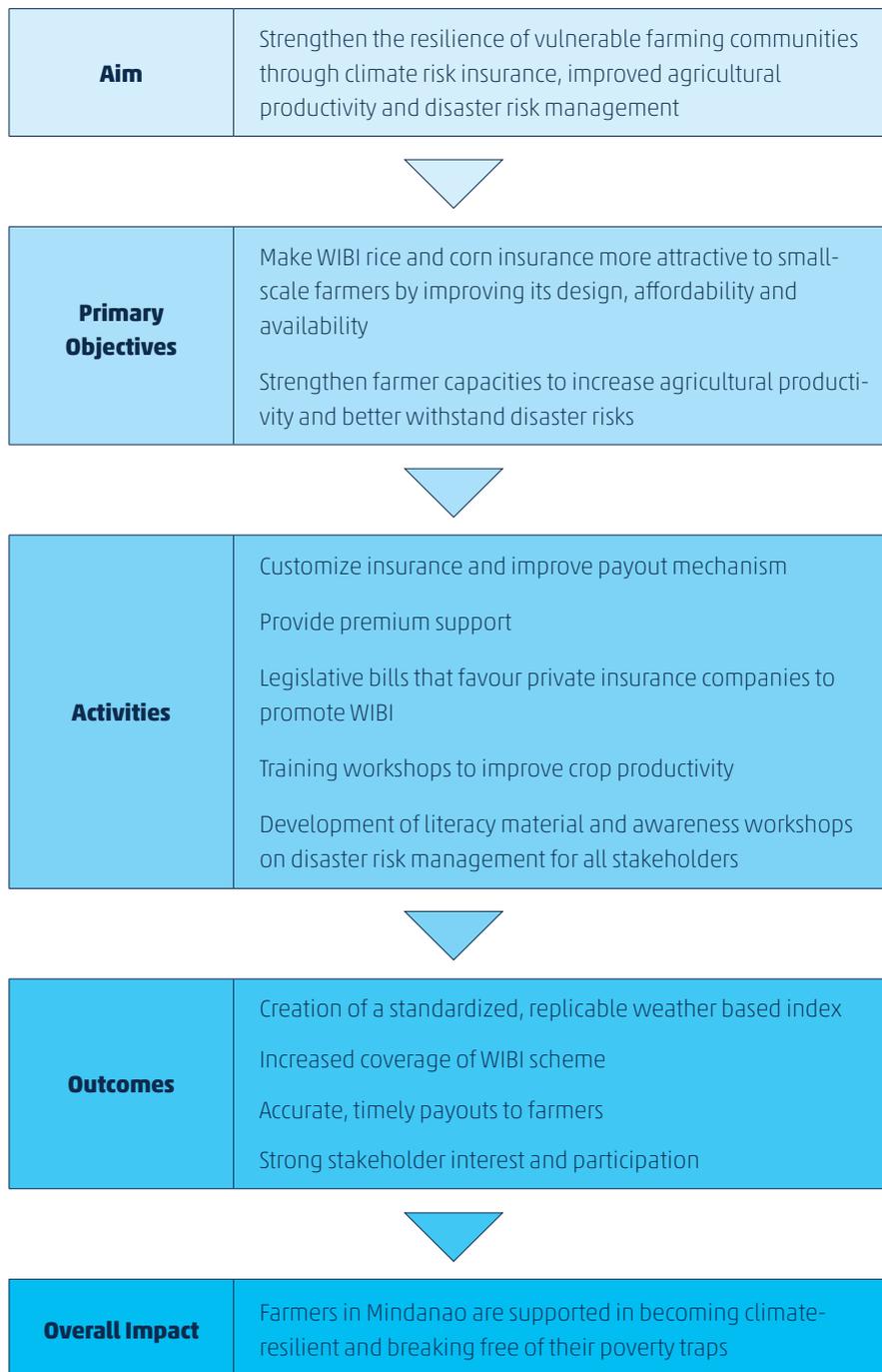


Figure 1: Case summary

**BACKGROUND:** ————— The Philippines is one of the most disaster-prone countries in the world. It is regularly impacted by typhoons, heavy precipitation and flooding, which pose major threats to lives and livelihoods. Future projections on climate change point to an increase in climate hazards such as extreme weather events and to greater rainfall variability. This puts lives and livelihoods increasingly at risk.

One of the communities most affected by these climate risks are farmers. Their reliance on non-resilient crops, use of pesticides or herbicides and other anthropogenic stressors, such as changes in rainfall patterns, can lead to major livelihood losses. The economic impacts of natural disasters on this community and the country at large can be huge. Agriculture accounts for 8.5 percent of GDP and provides employment to about 10.3 million people (PSA 2018). Thus, there is a need for adaptation solutions that take into account local conditions in order to better prepare Filipino farmers for the impacts of climate change. In this context, adequate insurance schemes have been identified as a valid adaptation solution.

To reduce the farmers' vulnerability to intensifying natural disasters and increasing rainfall variability, the PCIC, with support from UNDP, launched the "Scaling Up Risk Transfer Mechanisms for Climate Vulnerable Agriculture-Based Communities in Mindanao" project in 2014. The project sought to:

- a) expand the uptake of a pilot-tested weather index-based insurance (WIBI) to 2,000 agricultural households in two regions on the island of Mindanao;
- b) create awareness among the farmers to improve agricultural productivity and local disaster risk management.

Mindanao was chosen as the implementation area of the project because it is the "food basket" of Philippines, and, thus, critical to the country's food security. It is also one of the poorest regions in the Philippines, with a high prevalence of small-scale farmers who depend on agriculture for their livelihoods.

The project was delivered through a collaboration between the government-owned PCIC and numerous other public and private stakeholders. Its key goal was to make previously pilot-tested (index-based) rice and corn insurance more attractive to small-scale farmers by improving the design, affordability and availability of these insurances. In addition, the Mindanao project sought to strengthen the capacities of farmers in the target area, increase agricultural productivity and better withstand disaster risks. To this end, the project conducted training workshops, stakeholder meetings and distributed awareness material in 30 districts (~85,000 individuals) in order to exchange ideas and raise awareness on productivity-enhancing measures and disaster risk management.

Weather index-based insurances (WIBI) are a promising tool to reduce the financial impacts of weather-related hazards. However, they have not been very popular among farmers. Some of the reasons for the limited uptake have been the complexity of the products and the "basis risk" inherent to index-based insurances.

Index-based insurances pay out on the basis of the performance of an index or model rather than on actual losses. Simply put, the policyholders get a payout when specific weather conditions – such as the amount of rainfall in a specific geographic area – fall outside of predefined parameters. The advantage of index-based insurance is that it allows for quick payouts and cheaper premiums. In contrast to traditional insurances, the insurance company does not need to send a loss adjuster to 'ground zero' for checking and verifying claims. This saves time and money. The downside is, however, that the index or model requires a large number of data points, without which it may not always match the actual



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situation on the ground. This may lead to a situation where farmers may receive no payouts despite experiencing significant crop losses. This problem is called “basis risk” and is typically related to modelling errors, insufficient data inputs and/or the paucity of weather stations to measure the threshold values. Basis risk often undermines trust in these products and, thus, their uptake.

**ACTIVITIES:** ————— Several activities were conducted to enhance the uptake of a pilot-tested weather index-base insurance (WIBI), to improve agricultural productivity and to raise awareness of disaster risk management – the main goals of the project.

- **ENHANCING THE UPTAKE OF WIBI:** To stimulate the uptake of the insurance, the project team tailored the available index-based rice and corn insurances to local needs, improved the underlying payout mechanism of the insurance, provided premium support, set a number of regulatory and fiscal incentives for the private sector to provide the insurance and created awareness among farmers to increase insurance literacy.
- **PRODUCT CUSTOMIZATION:** During the pilot phase and the project at large, meetings were conducted by the WIBI development team to understand the issues faced in implementing the insurance schemes. In addition, several willingness-to-pay (WTP) surveys were conducted to find out how much farmers would be able and willing to pay for the insurance. These were then used to customize the insurance to better meet the needs of the farmers.
- **INDEX IMPROVEMENT:** The Philippine Rice Research Institute (PhilRice) incorporated water requirements of rice and corn crops, soil percolation rate, drought-related crop stress, as well as historic rainfall levels for the region, to develop a more tailored and improved index with more reliable thresholds. The project team used data from 60 weather stations, with another 70 stations to be added soon. The certified rainfall data from the index were released every 10 days instead of once a month. This improved the transparency and accuracy of the index and ensured timely payments to affected farmers.
- **PREMIUM SUPPORT:** In order to stimulate public interest in the WIBI scheme, the Government of Philippines subsidized the premiums for all farmers who wanted to participate.
- **REGULATORY AND FISCAL INCENTIVES:** Apart from collaborating with a few Local Government Units (LGUs), PCIC does not have enough of a presence in Mindanao for widespread promotion of WIBI. Therefore, private sector engagement had to be created. For this to materialise, the government guaranteed to cover all WIBI-related liabilities experienced by private insurers. A Memorandum of Agreement was signed between PCIC and three Financial Service Providers (Bukidnon Cooperative Bank, King Cooperative and Cooperative Bank of Misamis Oriental). This allowed farmers who had accounts with these three banks to easily enrol in the scheme, thereby improving the spread of the scheme across the districts.
- **INSURANCE LITERACY:** Workshops were conducted to increase awareness on the functioning of the insurance schemes and agricultural best practices.
- **INCREASING AGRICULTURAL PRODUCTIVITY:** To improve local capacities to increase agricultural productivity, the project held several meetings with all stakeholders to encourage them to share their experiences about enhancing productivity in agriculture and better managing disaster risks. The farmers were provided with software that used soil type, fertilizer use and crop variety to determine the best agricultural practices for farm plots. The Climate Change Commission, set up by the President of the Philippines as part of the country's Climate Change Act (2009), subsequently

trained 606 farmers on the negative impacts of pesticides and herbicides. During the project period, crop yield and poverty reduction were assessed to see how these activities had helped farmers in increasing productivity.

- **CREATING AWARENESS OF DISASTER RISK MANAGEMENT:** 21 districts were trained and made aware of disaster risk reduction and climate change adaptation, with sessions being held on the basics of natural hazards and climate change, on how to assess vulnerability, and on the inter-relationship between disasters, climate change and development. Some of the participants completed the Training Of Trainers (TOT) at the Enhanced Climate-Smart Farmers' School, and went on to make farmers in their region aware of how to improve climate resilience to natural disasters. The Project Management Office (PMO), headed by PCIC, conducted inter-agency workshops for all WIBI-Mindanao project partners to prepare standardized knowledge products that could be distributed to farmers in order to increase their awareness.

## INSTITUTIONS

### INVOLVED:

The project was implemented by the Philippine Crop Insurance Corporation (PCIC). The project structure included a Project Board, a Project Management Office (PMO) and Responsible Parties (including the Philippine Rice Research Institute, PAGASA, Department of Agriculture, Agricultural Credit Policy Council, Agricultural Guarantee Fund Pool, Climate Change Commission, Agricultural Training Institute) which were engaged to provide technical expertise for the project.

The Project Board was responsible for making management decisions for the project, as well as providing supervision and strategic guidance. It was comprised of representatives from the Department of Agriculture, PCIC, UNDP, the Climate Change Commission and the National Economic and Development Authority.

### COOPERATION WITH:

The project was developed and implemented with support from UNDP and GEF, with UNDP also providing technical and operational expertise.

### FINANCE:

The Government of Philippines co-financed the project through a guarantee coverage of USD 14.65 million. The administrative and other project-related costs, including that of the PMO, were supported by UNDP-Philippines through a grant of USD 1.6 million. USD 1.05 million was added by GEF's Special Climate Change Fund (SCCF), which was used to spread awareness about disaster risk management.

### IMPACT OF ACTIVITIES:

- **IMPROVED AWARENESS:** The project improved awareness among farmers about climate change induced disasters, and trained them in climate adaptive strategies to make their production more resilient to climate change. Large-scale farmers saw an increase in agricultural yield following the Rice Crop Manager training and the enrolled farmers also saw a notable decrease in crop damage in years where WIBI payouts were not given.

- **HIGHER AGRICULTURAL PRODUCTIVITY AND SOCIAL CO-BENEFITS:** By September 2016, 103 farmers had received payouts amounting to PHP 900,000 (approx. USD 16,755) (UNDP, 2016). The payouts allowed farmers to buy seeds and fertilizer, leading to higher crop yield. They also used the payouts to pay for food and education for their children, leading to nutritional augmentation and a better future for the latter.



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- **POLITICAL SUPPORT:** The successful engagement of the project stakeholders in working towards an effective and replicable product led to enhanced interest from both the Congress and the Senate of Philippines in the process of rolling out the WIBI product across the country. In 2016, Congressman Yap supported the recapitalization of PCIC from PHP2 billion (approx. USD 36,967,560) to PHP 10 billion (approx. USD 184,837,800) (UNDP, 2016). This will allow PCIC to take on all WIBI-related liabilities, thereby reducing the risk for private insurance companies that promote the WIBI scheme. The high level of government interest has strengthened the roll-out of the next phase of the project, where the WIBI scheme will be scaled up to include other regions.
- **ENHANCED REPLICABILITY:** Due to the indexing protocol created by PhilRice, a standardized index for rice and corn has been created, which can be easily replicated across the country. Studies have also been conducted to include other crops as well as more varieties of rice and corn.

### WHY IS IT

#### GOOD PRACTICE:

- **EFFECTIVENESS:** The project played a significant role in establishing WIBI as an effective risk transfer mechanism. This was done by engaging small farmers, Financial Service Providers, Local Government Units, and other stakeholders in working towards the project outcomes, as well as promoting policy changes that amend the regulations concerning crop insurance. It created a strong collaboration between PCIC and other government agencies, which will be particularly important in sustaining the program during the national roll-out. More broadly, its activities have enhanced the country's resilience to climate change.
- **SCIENCE-BASED:** As part of this project, scientific studies were conducted to create an indexing protocol and to build an understanding of the crop water requirement, the soil percolation rate and the stress due to droughts. Based on a variety of climate and soil parameters, an accurate index was created that could correctly measure weather-related crop damage. This increased the credibility of the index, while ensuring that it was an accurate representation of ground reality. Because the payouts were based on scientifically determined data instead of ground checks by insurance agents, the error was reduced. Farmers were thus able to receive faster payouts that were of the amount they deserved.
- **SUSTAINABLE DEVELOPMENT BENEFITS:** The project positively impacted the overall economic as well as the social well-being of farmers. The increase in yield meant that farmers became financially stronger. The payouts received in flood/drought years helped the farmers buy crop inputs and seeds for the next cropping season. In certain cases, the payouts were immediate enough for the farmers to salvage the current crop season. The money was also used to supplement their basic requirements and buy food and pay for their children's school. Thus, the project also indirectly contributed to enhanced social living standards and development, for example through securing the education of the next generation of Filipinos.

#### SUCCESS FACTORS:

- **STAKEHOLDER ENGAGEMENT:** The project was based on Memorandums of Agreement (MoA), which were drafted and signed by all project partners. They ensured the roles and requirements for each party were well-defined, leading to stronger and more effective collaboration and a good overall process. Notably, the commendable management also contributed to attaining all objectives and addressing additional research gaps. The farmers were able to provide inputs and experiences during Board meetings, leading to a better common understanding of different actor perspectives in the project. A number of participatory workshops ensured that farmers understood the WIBI system and were aware of its benefits.

• **MEASURABLE, RELIABLE AND TRANSPARENT DATA:** The WIBI index was kept simple enough so the farmers could understand it, and workshops were conducted to train them in reading the index and making them aware of weather-based insurance schemes and agricultural best practices. In addition, the Insurance Commission (IC) was only able to approve of WIBI if the data that was used to create the index was made available to the public, so that the insured parties had a way of validating it and checking the real-time weather conditions for their region against the index. Farmers were introduced to best practices to manage emergency situations such as natural calamities, as well as to enhance their agricultural production. These strategies improved the transparency of the index and the insurance scheme. As a result, the farmers' trust and acceptability of the index based scheme increased. The target of enrolling 2000 farmers in the WIBI scheme was achieved by the project within two years.

**OVERCOMING BARRIERS / CHALLENGES:** \_\_\_\_\_

**WHAT WERE THE MAIN BARRIERS / CHALLENGES TO DELIVERY?**

**INFORMATION:** The farmers, Financial Service Providers and other implementing partners had no or limited understanding of the WIBI scheme.

**TECHNICAL:** Basis Risk: Index-based payouts led to a mismatch between modelled and actual losses.

**HOW WERE THESE BARRIERS / CHALLENGES OVERCOME?**

- Several workshops were conducted to promote literacy. In addition, PR materials and project progress reports were created.
- The Insurance Commission held meetings with private insurance players to increase awareness about the WIBI scheme and encourage their participation in rolling out the scheme across the country.
- Only farms within a 20 km radius of a weather station were offered the WIBI insurance scheme. This ensured that all farmers were close enough to the weather station, so that the data which fed into the index was accurate enough to reflect reality on the ground.
- Farmer workshops helped creating awareness about the index parameters and how to validate it.

**LESSONS LEARNED:** \_\_\_\_\_

- **COMMUNICATE IN THE LOCAL LANGUAGE:** The awareness and capacity building should be conducted in the local language. This was not the case in this project and so proved to be a barrier to understanding and disseminating information about the project to farmers.
- **USE STAKEHOLDER INPUTS TO IMPROVE THE PROJECT:** The WIBI-Mindanao project constantly refined the index based on inputs from its stakeholders during the Board Meetings. This created a more robust index and increased the farmers' trust in the scheme as a result of their participation in the process.



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### HOW TO REPLICATE

**THIS PRACTICE:** ————— The project is likely to soon be followed by a Phase II, in which the Government of Philippines and PCIC will replicate the project, expand the geographical coverage of WIBI and include more types of crops besides rice.

- **CONDUCT ASSESSMENT STUDIES:** It is essential to conduct a variety of studies on index development, especially to assess the crop water requirement, historic rainfall, willingness to pay premiums, reinsurance potential, and impacts of WIBI on crop yield and income in order to create a robust and credible index that is tailored to the needs of a specific region and crop type.
- **CREATE STRONG ENGAGEMENT AND PARTNERSHIPS WITH THE RELEVANT STAKEHOLDERS:** This was vital for the effectiveness and deployment of the WIBI insurance in its initial phase. Hence, while replicating, the implementers should plan on how to best involve the Local Government Units, local finance providers and other stakeholders from the start of the project, to provide institutional support, while ensuring that all stakeholder roles are properly defined through Memorandums of Agreement.
- **ENCOURAGE PRIVATE SECTOR PARTICIPATION:** There should also be a provision of regulatory-based incentives for private insurance players to encourage their interest in supporting the scheme. This will require strong political support from the government and will ultimately enhance the reach of the scheme.

### CONTACT FOR

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### FURTHER KEY

**RESOURCES:** ————— Arquiza, R. M. R. (2018). Terminal Evaluation Final Report. Scaling-up Risk Transfer Mechanisms for Climate Vulnerable Agriculture-based Communities in Mindanao "Weather Index-Based Insurance (WIBI) Mindanao Project". UNDP-GEF Report.  
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- UNDP about Enabling Regions 10 and 11 to Cope with Climate Change (Project Climate Twin Phoenix): [http://www.ph.undp.org/content/philippines/en/home/operations/projects/environment\\_and\\_energy/TwinPhoenix.html](http://www.ph.undp.org/content/philippines/en/home/operations/projects/environment_and_energy/TwinPhoenix.html)
- The Philippine Crop Insurance Corporation (PCIC): <http://pcic.gov.ph/>

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### CASE STUDY

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