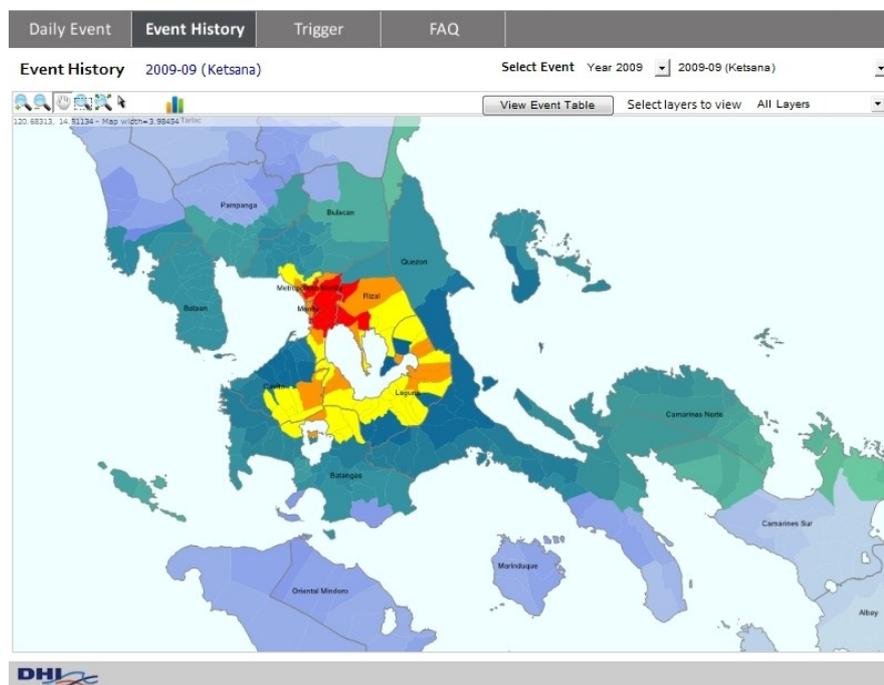# Typhoon Trigger
A tailor-made insurance against natural catastrophes

DHI

A natural catastrophe can take all your possessions at once. But it might also ruin whole communities and cooperatives in the long run, by destroying their financial base and making reconstruction impossible. A novel insurance product aims to protect cooperatives in the Philippines from insolvency following typhoons. DHI provides online real-time monitoring of weather events all over the country, serving as the basis for the insurer's payout scheme.

Where the typhoon hits the hardest

It's just a tiny red dot on the map. However, within this red dot, many lives might be taken and existences ruined. The map is based on DHI's real-time weather monitoring. The red dot marks the area where typhoon Ketsana had hit the hardest in September 2009. But it will also be the area where an insurance payout will allow reconstruction works and sustain life after the typhoon.

Typhoon Ketsana hit the Philippines in September 2009. DHI recorded and analysed the events. Heavy rains (blue shading) and wind (green shading) were measured in the area surrounding Manila and triggered a payout (triggered municipalities are colour-coded in red=20-year-event, orange=15-year event, yellow=10-year event). Those municipalities possessing a portfolio can profit from the novel insurance product. All the data are easily accessible on the associated homepage.

SUMMARY

Client
Munich Reinsurance Company, Singapore Branch (Munich Re)

Challenge
An insurance solution for microfinance providers to protect their credit portfolios against natural catastrophes.

Solution
A weather-indexed insurance product

Value
- Payout scheme related to the severity of a weather event
- Protecting the low-income population against financial breakdown following extreme weather events
- Enabling rebuilding activities
- Transparent payout and loss calculations
- Minimization of claims and business administration costs
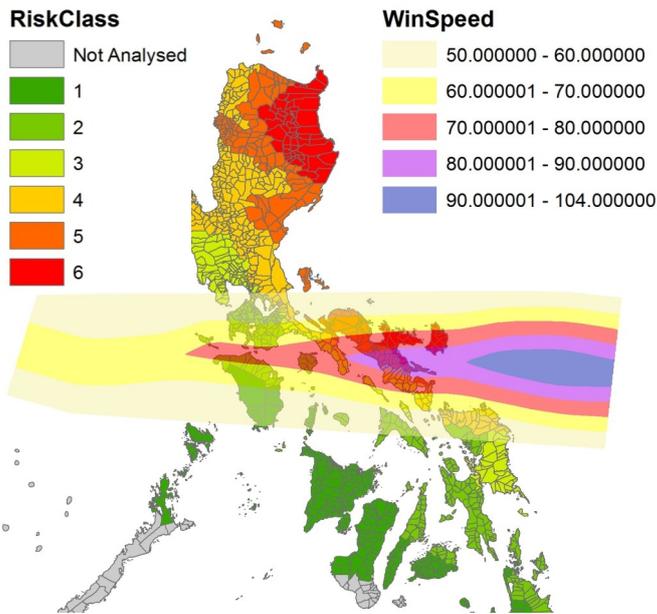- Minimal required underwriting skills for primary insurer

Location/Country
Philippines

Client testimonial
" The unique and challenging needs of the low income population require the bundling of expertise which goes far beyond traditional insurance. Our product is an excellent example of creating synergies between different stakeholders, enabling the development of an affordable and effective protection against severe weather events."

Thomas Mahl, Business Development Manager at Munich Re

RiskClass
- Not Analysed
- 1
- 2
- 3
- 4
- 5
- 6

WinSpeed
- 50.000000 - 60.000000
- 60.000001 - 70.000000
- 70.000001 - 80.000000
- 80.000001 - 90.000000
- 90.000001 - 104.000000

Interpolated wind field of a typical typhoon track crossing the Northern Philippines, together with the municipalities and their encoding into risk classes based on both rainfall and wind speed.

Insured, where and when it is most needed

On average, the Philippines and its surrounding areas record 20 tropical cyclones per year. Such extreme weather events pose a high financial risk to microfinance institutions such as cooperatives. Member borrowers can't pay back their loans, potentially dragging the cooperative into insolvency. As a result, financing of reconstruction after a typhoon becomes virtually impossible. To offset this risk, cooperatives lend money at higher interest rates, posing an additional burden on low-income households.

To disentangle that situation, Munich Re, one of the world's leading reinsurers, together with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), aimed for an insurance solution to protect the low-income population against the effects of natural catastrophes. If the microfinancers' portfolio would be insured against extreme weather, financial liquidity could be guaranteed particularly at times when it is most needed. But how do you measure extreme weather, such as a typhoon? And how do you calculate the associated insurance payout?

How to trigger an insurance

Commissioned by Munich Re, DHI developed an "Insurance Event Trigger" for the Philippines. DHI set up a real-time monitoring system of weather events all over the islands. Wind and rainfall were identified as the two major causes of insurance loss and threshold values – so called triggers – set up for these two parameters. That enables DHI to categorize the severity of a weather event into a 10-, 15- or 20-year event.

If a cooperative is situated in an area encountering an extreme weather event, the 'Insurance Event Trigger' triggers a payout by the insurance company. The amount paid out depends on the loan portfolio and the severity of the event. As a result, the cooperative remains solvent and can meet its obligations to its members. The money can be used, for instance, to assist members in rebuilding their houses or replacing livestock and farming equipment. Thereby this microinsurance product, based on DHI's decisions support technology, benefits both the cooperatives and their members.

All information on weather events, trigger values, portfolios and associated payouts is instantly available to subscribers through the associated website, which has been installed by DHI.

On average, 20 tropical cyclones hit the Philippines each year, leaving behind destruction and financial breakdown, and often tragedy and death.

Quantifying the loss

Besides the real-time monitoring of weather events, DHI developed damage scenarios for Munich Re, differing in terms of the return period of extreme weather events and in terms of payout. According to these damage scenarios, DHI calculated the corresponding payout for Munich Re, such as the Maximum Loss and Annual Expected Loss. Thereby, the real-time trigger system can be adapted depending on any further economic assessment from Munich Re.

Climate change will likely lead to more frequent extreme weather events. Microinsurance solutions are therefore expected to gain relevance for the population in vulnerable regions as well as for the insurance industry. The number of red dots will be increasing - luckily some of the consequences can be moderated with the help of the novel insurance product and DHI's Typhoon Trigger.

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