

# Climate change and natural catastrophes – What to expect in Asia and what to do about it



In 2018, Jebi became the most expensive typhoon on record, according to the General Insurance Association of Japan. In the same year, super typhoon Mangkhut hit the Philippines with wind speeds of up to 270km per hour. Weather-related losses are on the rise around the world. **Allianz Re's Mr Markus Stowasser** shares some insights.



**T**he Asia-Pacific region was one of the hardest hit in 2018, with over \$89bn of economic losses caused by natural catastrophes, according to a report by Aon. The second decade of the 21st century has seen the highest ever recorded losses from natural catastrophes, in 2011 and 2017 respectively.

An increasing number of weather-related catastrophes is being attributed to a changing climate. However, there is a much greater factor at play that is contributing to the rising losses – and there are ways to deal with climate-related risks.

## The impact of a changing climate

Climate change is real, and it is happening right now. There is clear evidence of rising temperatures worldwide due to increasing greenhouse gas emissions. This is most felt in the northern latitudes, but is affecting regions around the world. By the end of this century, scientists expect the median global temperature to rise between 1.5 °C and 5 °C.

A warmer world means rising sea levels. Depending on the emission scenario, this is projected to be up to one metre at the end of the century, meaning storm surge events will become more severe. In addition, there is increasing evidence that climate change has an impact on the likelihood

of extreme flooding events. This is in line with the fact that a warmer atmosphere can hold more moisture which eventually can rain out. Asia's coastal mega cities and low-lying river delta areas are particularly prone to the hazardous effects of tropical storms and floods.

A warmer planet can also increase the threat of drought and wildfires, as witnessed in California and southern Europe in 2018. The warmer atmosphere can not only hold more water but also increase evaporation, which means the atmosphere draws more moisture from soil, making the land drier. Drier conditions and higher temperatures increase not only the likelihood of a wildfire occurring, but also the duration and the severity of the event. Wildfires are a threat for Asia, too: In early April, a devastating fire blaze ravaged a large area in the north-eastern region of South Korea, requiring 4,000 people to be evacuated.

## The greatest factor: Human development

However, the expansion of settlements and ongoing economic development around the world over the past decades have been and will remain in the near future the most decisive factors in the rising losses stemming from natural catastrophes. Ongoing economic development also means increasing exposure, which in turn has a major

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effect on the amount of insured losses in case of storm, flood or wildfire. This is a factor not linked to climate change, and it is set to continue: The growth of coastal urban areas in Southeast Asia has far outstripped the national growth rates of the countries in the region. The population of Shanghai, China, for example, has nearly doubled since 1990.

More than ever, understanding the risks these areas face is of vital importance in evaluating how to mitigate them. Increasingly focus will need to be on loss prevention and adaptation in order to mitigate the physical impacts of natural catastrophes.

For the insurance industry this means that underwriters need to become more selective about the risk quality and actuaries will have to account for preventative measures more explicitly in their pricing models. The more physical risks materialise, the more prevention will extend from large-scale protection schemes, for example flood barriers and dams, to individual adaptation measures, which could include adequate waterproof materials or more robust ways of construction.

### Understanding risks

Allianz has developed its own view on natural hazard risk with the Allianz Global Hazard Maps. The maps show, for example, where the earth is most likely to quake or which regions are most endangered of being hit by hailstorms. However, the maps go a step further than just reflecting the hazard values, such as wind speed, flood depth or ground shaking intensity around the world: Together with our colleagues from the actuarial pricing team, we developed maps that also show the risk for each individual peril, which means the hazard values are translated into potential damages to peoples' property by taking into

account vulnerabilities.

The goal is to provide access to this information to every Allianz underwriter, risk engineer and actuary with a simple interactive tool. As this is an in-house product, the maps can be constantly improved with expertise from around the Allianz Group. For example, loss control engineers can identify flood-prone areas that are protected by river levees, thus reducing the price of insurance for our customers. Actuaries can add information on regions where claims have cumulated in the past, creating a better understanding of how natural hazard risk is distributed across the Allianz Group.

Currently the maps cover the perils earthquake, tropical cyclone, extratropical storm, river flood, hail and tornado. Additional perils such as wildfire are planned as well. The maps have a very high local resolution down to five metres for some perils. This allows us to understand the local risk situation of any insured object better.

Data becomes more and more important in understanding the interaction of a changing climate and human factors. For example for wildfires, we need to ask important questions for the risk assessment: What is the local vegetation growth towards fire season due to the previous weather conditions? How close is the property to trees and how is the forest managed? What is the building material? These and other factors can have a strong influence on the risk.

### Fostering a culture of mitigation

Beyond the individual level of resilience are the large-scale prevention measures that are addressed on a municipal or even state level. The role of public administration is very critical and the insurance industry needs to maintain dialogue in order to foster a culture of mitigation,

adaptation and resilience. Insurers can help fortify society's resilience to climate change by continuing to invest in hazard models, promoting their use and advising on building codes and resilient engineering.

Governments' risk management strategies can have a positive impact on the economic resilience of hazard-prone regions. Improved building codes, prudent land-use planning, and effective flood-hazard zone regulations are only a few examples of how high-level risk prevention can work.

Communities will also need to learn how to co-exist with the effects of a changing climate. Rather than fighting the flood waters, for example, this means instead adapting construction so that communities can co-exist with eventual flooding. A good example is the Hamburg Harbor City in Germany which is built in front of the dykes but in a way that the buildings can resist potential flood waters without suffering any damage.

Governments can overcome some of the issues through pooling mechanisms that share the peak risk across a wider pool of participants; however, unless these are designed very carefully, they can make the problem worse by incentivising unsustainable development.

### Supporting the low-carbon transition

The main factor in combating climate change is addressing its root cause: Decreasing the emission of greenhouse gases. As one of the world's largest institutional investors and insurers, Allianz has a leading role to play in supporting the global transition to a low-carbon future. Allianz screens investments for climate-related risks and excludes certain sectors, such as coal-based business models. By 2050, we want all our assets to be climate-neutral. In addition, Allianz announced in May 2018 that we will no longer provide insurance to single-site or stand-alone coal-power plants or mines that are being operated or planned. Allianz is committed to phasing out all coal-based risks from P&C insurance portfolios by 2040 at the latest. 

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