# Earth

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# Climate Change and Its Impact on Insurance Industry

Climate change is a reality for our generation. Frequency of news that current month and year is warmest year on the records is increasing. This change of climate is resulting in more intense cyclone, drought, forest fires, and hailstorms in various parts of world. Insurance Industry is one the few industries that faces the risks of climate change regularly, and, thus is at the forefront to manage those.

Sea Surface Temperature in most regions of tropical cyclone formation has increased in recent years and greenhouses gases (GHG) are the main reason. This warming of ocean directly affects intensity and life cycle of storms by providing more energy to them. For example, studies have found in Switzerland, the winters during the last decade have become wetter and warmer, thus, affecting quality of soils and triggering forest damage during windstorms.

Further, another direct consequence of a warmer ocean is the melting of glaciers and the thermal expansion of ocean water. These effects increase the volume of ocean water and, thus, raising its surface level. Further increase in sea level would result in higher storm surge and would create more insured and economic loss. For example, research by a lead cat modeler indicates that approximately 20 centimeter of sea-level rise at Battery, New York, a station to record monthly mean sea-level, with all other factors remained constant, increased modelled ground-up surge losses of Hurricane Sandy by 30 % in New York.

Generally, climate change can affect financial stability of insurers in one of three ways:

- **Physical risks** such as floods and storms that damage property and disrupt trade. The change in climate may change frequency and severity of events that could result in cyclones, tornadoes, and wild fires affecting more exposure, thus, affecting insurance industry.
- **Liability risks** from parties who have suffered loss or damage from the effects of climate change seek compensation from those they hold responsible.
- **Transition risks** such as those that could arise from the move towards a lower-carbon economy. Insurance regulator may ask companies to invest in Green Energy initiatives, thereby, reducing their investment in fossil fuel companies.

Recent research suggests that more frequent weather events are driving up uninsured losses and making some assets uninsurable. Further, since 1980, protection gap – difference between economic losses caused by natural perils and amount insured has reached around US$ 100 billion.

In 2015, credit rating agency S & P mentioned that it had identified at least 60 instances where natural catastrophes were the main or a material contributing factor in corporate credit downgrades for insurance companies. The more frequent extreme climatic events could adversely affect companies' credit profiles in future.

**Role of Cat Modelers**

Cat modelers are important stakeholder in insurance chain as they help quantify losses occurring due to natural catastrophes. Traditionally, modelers analyse historic data extensively to extract insights, which are valuable in model

development and ensuring accuracy of a model. However, to incorporate impacts of climate change, the models are also paying attention to recent climatic activities.

As new scientific findings are accepted by scientists, those are included in model development. This change of outlook is reflected in modeling meteorological hazards such as cyclones, heat waves etc. where recent events have shown deviation from the average history.

However, it is still challenging to find direct impact of climate change in risk levels. There could be other regions such as multiple storms affecting more urban areas, increase in exposure value due to overall economic development in such areas which were previously uninhabited, change in construction practice etc, and reporting of a catastrophe etc.

**Moving Forward**

Insurers are enhancing their efforts to raise awareness of climate change and pointing out how potential damage can be limited through more prudent land use, stronger building codes, and better planning. Likewise, insurers are helping clients focus on risk management related to climate change, including avoiding harm to the environment. Failure to protect against or disclose such harm may lead to lawsuits.

Some large companies have launched innovative projects to help developing countries adapt to climate change or have invested in renewable energy.

In South Africa, one significant hailstorm was experienced across most of Gauteng in November 2013. The losses experienced by the insurance industry from this single event surpassed the cumulative losses sustained from the six events of 2012. To mitigate future damage and thus potential insurance losses, insurers started proactively informing clients of expected hail storm activity, so that preventative measures could be taken to reduce losses.

A building with vertical garden | Source: *www.arq4design.com*

Climate change is also presenting business opportunities to insurance companies to grow revenues, reduce risk, and improve brand value. Insurance companies in recent years have introduced new kinds of insurance terms and policy exclusions designed to instill behaviours that reduce GHG emissions. Likewise, drivers of hybrid cars are rewarded through premium discounts. Some companies have provided innovative insurance products for green energy users or providers of clean energy services. Insuring Solar Farms, Wind Farms, and buildings with vertical gardens are beneficial for companies.

Such initiatives could be useful for developing economies across the globe. This will not only help to identify areas where economic activities may be promoted but also to reduce protection gap.

Source: *ABI, Geneva Association, Llyods, & Mills Evan, "Responding To Climate Change"*

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