

The outlook for climate-related weather disasters is stormy for S-E Asia

By Vinod Thomas

THE deadly forest fires enveloping swathes of territory in Australia are the latest and most dramatic illustration of the devastating impact of human-induced climate change. Yet policymakers show no urgency to reverse climate change, as evidenced by the collapse of COP 25 climate summit in Madrid late last year. A way forward is to strengthen public understanding of the ongoing climate disaster, which could swing public opinion in favour of taking action.

A recently published journal article ("Impacts of Carbon Dioxide Emissions on Global Intense Hydrometeorological Disasters", in *Climate, Disaster and Development Journal*) provides the connection between rising carbon dioxide emissions in the atmosphere and the uptick in flood and storm disasters across the globe. It says that if the current trend of accumulation of carbon dioxide continues, extreme floods and storms will double within 13 years. This scenario will severely strain the capabilities of the region to cope.

The stakes are very high for South-east Asia because its baseline of natural calamities is already among the highest in the world. A recent International Monetary Fund (IMF) report notes that South-east Asia is one of the most vulnerable areas in the world to climate-related weather disasters, but also one that is not adequately prepared to withstand the risk. Furthermore, this group of countries is also witnessing one of the world's biggest jump in greenhouse gas emissions.

This article presents an economic framework to understand the rise in floods and storms worldwide. The framework includes vital socioeconomic factors – especially people's exposure to hazards and their vulnerability to them. South-east Asian countries rank among the top countries worldwide on measures of exposure and vulnerability. In addition, the framework includes climate variables such as atmospheric precipitation and sea level temperature. The study adopts an economic approach on climate data from 155 countries over 46 years over 1970-2016.

EXTREME EVENTS

The findings show that people's exposure and their vulnerability contribute to turning hazards of nature into disasters. For example, the more the density of population in harm's way and more the degree of poverty, the worse the incidence of extreme events. But in addition to exposure and vulnerability, climate change plays a significant part. The continuous rise in atmospheric carbon dioxide concentration and global warming are significantly associated with the increase in the incidence of extreme events.

Specifically, the results suggest that if the level of carbon dioxide increases by one per cent, floods and storms would increase by nearly 9 per cent. The yearly increase in atmospheric carbon dioxide has been about 2.4 parts per million (ppm) or about 0.6 per cent from the base 396.5 ppm level for 2010-16. Accordingly, the number of intense hydrometeorological disasters could increase by 5.4 per cent annually for an "average" country facing annually nearly one extreme disaster (defined as one that causes 100 or more fatalities and/or affects 1,000 or more people). So, with the current trends in carbon dioxide accumulation, the number of intense floods and storms could double (ie, one more extreme event) in a span of 13 years.

All this matters for South-east Asian nations at the frontline of storms and floods. Compared to one extreme disaster a year for the average country, Philippines faces nine times, Indonesia four times and Thailand twice as many extreme events (for 2010-16). One more extreme event in these countries, for example one more event like the Philippine's Super Typhoon Haiyan of 2013, or the great Jakarta floods of 2013 or the great Thailand floods of 2011, would strain the ability to cope; a doubling of the numbers in 13 years would be catastrophic.

This link between the incidence of natural calamities and increase in atmospheric carbon dioxide has implications for Indonesia's policy. Rather than reacting to events as one-off and unpredictable occurrences, human-made events call for investments in climate action. Historically, the focus was to respond after the disaster strikes rather than plan for recurrent calamities. Far more needs to be done to strengthen coordination and communication in disaster prevention and allocating adequate budgets in time.

DISASTER PREPAREDNESS

When it comes to climate disasters such as floods and storms, disaster preparedness would have two big components. On the one hand, there needs to be climate adaptation, such as relocating people from highly exposed coastal regions of the country or building better coastal defences to withstand extreme hurricanes.

On the other hand, there is a strong case for stepping up climate change mitigation by switching from high carbon sources of energy such as coal to clean sources like wind and solar. It would also pay to engage with the big emitters such as China and India to persuade them to decarbonise their economies to their own and others' benefit.

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