

New research makes climate change more threatening for Thailand

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In the last few weeks, a flurry of reports has painted a much blacker picture of the probable impact of climate change on Thailand.

Two years ago, the report of the UN's Intergovernmental Panel on Climate Change (IPCC) created shockwaves in the western world, but hardly fluttered a single eyelid in Thailand. Partly that was because the report suggested Thailand would not be affected as badly as many other parts of the world. Global warming would happen quicker nearer the poles rather than the equator, and over big land masses rather than by the sea. Thailand's northeast might get a bit hotter, but generally Thailand would warm slower than elsewhere. Similarly, while much of the world was set to get drier, Thailand also seemed to escape the worst.

But we can now see that these benign conclusions were a trick of the data. Most of the research and most of the modelling had concentrated on the temperate regions. The relatively benign view of areas like Southeast Asia was a result of ignorance. That ignorance is rapidly being dispersed. Scientists have been peering harder at the local data, and constructing models of the future that concentrate on the tropical and subtropical zones.

It's been getting hotter lately, and in future it's going to get even hotter still.

The average temperature in Southeast Asia has increased by 0.1 to 0.3°C each decade over the past half century. The trend has accelerated recently. In Thailand since 1951, the average minimum temperature has risen by 1.35°C and the average maximum by 0.35°C. In the near future, this acceleration is probably going to increase. According to models developed locally, the mean daily maximum temperature in Thailand will increase by 2 to 4°C by 2070. While in the recent past, the greatest warming has been during the cool season, in future it will happen in the hot season too. There will be more heat-waves, and fewer cool days.

That must sound bad for anyone who can recall the baking days before the recent rains. But it's bad in many other ways too. When the temperature rises by 1°C, rice yields drop by a tenth. Many other crops suffer in the same way. The impact will be severest in the northeast where the jasmine rice grows.

The picture on rainfall is also pretty dismal. Over past decades, the average annual rainfall hasn't changed very much, but the variation from year to year, and place to place, has become more extreme. Dry years are drier, wet years are wetter. Some regions are swamped while others are scorched. Tropical storms have become more intense, though not more frequent.

This trend is also set to intensify. Overall the models suggest that average rainfall will decline in the near future, but then begin to increase. More strikingly they predict that the variations from year to year and place to place will become more erratic. Storms will increase in frequency and intensity. That means more floods and more droughts.

Forest fires have already become a bigger problem. In dry forest areas, they used to occur once a year, and now often occur twice. In moist and evergreen forests, which used to be virtually fire-free, they are becoming more common. The haze over Chiang Mai in the later part of the cool season has become an annual event. Minimizing deliberate burning of the forests has had little effect because the underlying cause is natural.

Landslides and mudslides are also becoming more common. In the past they were mostly confined to the south with its steep mountainsides and sharp monsoon rains. Over the last decade they have become annual events in the north as well.

The picture on sea levels is also becoming clearer and more disturbing. Until recently, some Thai scientists argued that local sea levels were not rising, unlike the rest of the world. The new data show that the sea level in Southeast Asia has risen at a rate 1-3 mm a year over the past half-century. This trend is set to continue, but there are great disagreements over the rate. At a minimum, the sea will be 40 cm higher than it is now by the end of this century, but that could rise to a metre or more depending on the melting of ice sheets and glaciers.

The rise of sea levels will swamp coastal areas, particularly on the eastern coast of the peninsula. It will also increase seasonal flooding in Bangkok and other towns. The OECD ranked Bangkok seventh in the world among cities where climate change will affect people and property.

The impact of rising sea levels is magnified by the effect of more intense storms which destroy coastal mangroves and other natural barriers. The seacoast along the upper Gulf of Thailand between the Thachin and Bang Pakong rivers has already become severely eroded. In Phra Samut Chedi district of Samut Prakan Province, the sea is advancing at 25 metres a year. In Bangkok's Bangkhunthien district, the rate is only fractionally slower. Village settlements and cultivated areas have been abandoned.

In total some 200 kilometres of coastline are suffering erosion from the upper Gulf down the eastern coast of the peninsula. Some of the other most critical areas are Pak Phanang district of Nakhon Si Thammarat, and Tak Bai of Narathiwat.

This flurry of new and more disturbing information has still not fluttered many eyebrows in Thailand. In Europe and north America, people woke up to global warming when they could see the changes for themselves. Summers really did feel warmer and winters milder. Different flowers appeared. For most people here, that's not yet true. But the animals may be ahead of us. Birds are beginning to move to new areas. Gibbons in Khao Yai are changing their sites and their habits because the distribution of trees on which they feed is changing.

Before long we'll have to change too.

P.S.

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