# Can Southeast Asia Respond to Climate Effect?

**Saroj Srisai (Thailand)**
Head, Environment Division, ASEAN Secretariat / ALFP 2017 Fellow

Climate change is proved to be one of the major threats for the Southeast Asia region in the many decades to come. Those countries, whose coastlines are long and surrounded by water and sea, are particularly vulnerable to climate change, and might suffer higher impacts than those countries with shorter coastlines. In particular, the countries that are predicted to be more vulnerable than others within the region are Indonesia, the Philippines, Thailand and Vietnam.

Climate Impact on Forest in Southeast Asia

As most of the countries in Southeast Asia are still developing, and most economies are still agriculture-based, climate change will certainly have both a direct and indirect impact on their growth. From a study conducted by the Asian Development Bank, by the end of the 21st century as much as 6.7% of growth might be impacted from climate change. The major causes of such economic losses will be the effect of sea level rise; water shortages that will have an impact on crop yields and agriculture, and floods that would certainly damage infrastructure and plantations. Overall, climate change will be a major threat to food supplies and financial prosperity, which subsequently will hinder all the development and growth of countries within Southeast Asia. Following such losses, the behavior and life patterns of humans and living creatures will certainly be impacted. Various dimensions of change are predicted, not only economic but also social and political: the impact is certain to be massive.

Economically, it would cost about 2.2% of Gross Domestic Product (GDP) by the year 2100. However, this figure only takes into account the economic concern from markets and GDP. If we add the factor of health, the impact would increase to 5.7%, while biodiversity losses would further increase the impact to 6.7% of GDP.

The number will be as high as 7.5% if losses from climate-related disasters are to be included. In summary, with all of the above-mentioned factors combined, the loss value of GDP at the end of this century due to climate change far exceeds the projected cost globally of climate change, which is predicted to be at 2.6% of GDP at the moment.

The average temperature rise until the end of the 21st century is estimated to be 4.8 degrees Celsius compared to the 1990 level if nothing is done to combat global warming. The countries in Southeast Asia are likely to suffer from drops in rainfall, which will lead to worse droughts, more forest fires, more destructive tropical storms, and worse flooding. All of these natural disasters could displace millions of people, and are likely to make them homeless. In addition, it could destroy about 965 square miles of mangroves, which are a natural shield for many natural disasters along the coastlines in the region.

The social structure and behavior of people could also be affected by climate change. Many residents might be displaced out of their homes, which will certainly have strong effects on their daily routines and activities, in particular in the case of severe natural disasters. However, normal life activities could also be affected with a gradual temperature rise. An obvious example is the crop growing patterns, harvesting, and yields that result from the level of humidity, rainfall and temperature. A shift in the normal season throughout the year will also be common, which might end up in changes of various activities such as new academic school terms for students and summer vacation periods, as well as the opening and closures of some natural tourist destinations.

Most politicians in the Southeast Asia region only look at the problem of climate change from the environmental angle, while in fact this is wrong. Many other aspects will also need to be considered: two prominent ones are unemployment and poverty. Climate impact could easily put thousands of people unemployed and under the poverty line. An easy example would come from illegal logging and palm oil plantations, where thousands of villagers live their lives. The continuation of illegal logging together with deforestation contributes to 75% of emissions within the region. Without proper measures to solve the problem now, all those villagers will unavoidably be affected by climate change. They will certainly lose their jobs and will have no way to earn an income.

The comprehensive study by the ASEAN Technical Working Group on Climate Change suggested that to mitigate the impact of climate change, the following measures are to be taken seriously and rather quickly: irrigation networks, flood control systems, early warning systems and protection of coastal mangroves. The study also found that 40% of energy-related carbon emissions could be reduced by 2025 if countries invested in more energy-efficient buildings, fuel-efficient cars and public transport. Diversification of the fuel mix toward renewable energy could also add another 40% reduction of emissions from the usage of traditional fossil fuels in power generation.

International cooperation is also a key to success. Climate change is truly a no-boundary problem; it is indeed a global concern. Though the level of emissions have been minuscule from the

Southeast Asia region compared to those of major economies like the United States, China or India, the ASEAN countries should get substantial financial assistance in their ambition toward a low-carbon society, in particular from those developed or richer countries. Global agreements such as the Paris Climate Agreement adopted in December 2015, certainly prove the vitality of the world in putting big synergy together towards achieving a reduction of emission levels. Climate change is no longer an issue of a single big emitting country, nor of regional cooperation, but it is indeed a truly global issue that needs to be addressed immediately before it is too late.

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