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# Facing the challenge of biodiversity conservation and climate change in Southeast Asia

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## 1. Background

One of the biggest meetings in Southeast Asia for managers, scientists and policymakers in biodiversity – The Association of Southeast Asian Nations (ASEAN) Conference on Biodiversity – was held in Singapore from 21 to 23 October 2009. The main sponsors of the event were the ASEAN Centre for Biodiversity and the National Parks Board of Singapore.<sup>1</sup>

The Southeast Asian region has one of the richest biodiversity resources in the world. Although it occupies just 3 per cent of the world's total surface, 20 per cent of all known species live in its mountains, jungles, rivers, lakes and seas. For example, its tropical forests harbour 10 per cent of the world's floral diversity (Gitay et al., 2002). Three of the world's 17 mega-diverse countries are in the region, namely Indonesia, Malaysia and the Philippines.<sup>2</sup> Southeast Asia also has seven of the world's 25 recognized biodiversity hotspots – areas that are known to be biologically rich areas but are under great threat of destruction. Biodiversity resources provide crucial goods and services for the people of the region and the world.

However, Southeast Asia's biodiversity resources are under severe stress and in danger of being lost to future generations. The region

has the highest relative rate of deforestation among major tropical regions. It could lose three quarters of its original forests by 2100 and beyond, and up to 42 per cent of its biodiversity (Sodhi et al., 2004). This unprecedented erosion of biodiversity in the region will have dire ecological and socio-economic consequences.

Among the projected impacts of climate change is the loss of thousands of species and changes in natural ecosystems. Climate change will exacerbate the many stressors that are already endangering biodiversity in the region. At the same time, maintaining biodiverse ecosystems and especially tropical forests can help mitigate climate change. In view of the above, one of the major themes of the conference was biodiversity and climate change.

At the 2002 World Summit on Sustainable Development (WSSD), the Parties to the Convention on Biological Diversity (CBD) committed themselves to achieve by 2010 a significant reduction in the current rate of biodiversity loss at the global, regional and national levels as a contribution to poverty alleviation, and to the benefit of all life on Earth. This is known as the 2010 Biodiversity Target. The conference sought to assess the progress of ASEAN nations in meeting their respective targets. In addition, ASEAN countries need to play an integral part in

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the discussions that will take place during the 10th Conference of the Parties (COP10) in Nagoya and the International Year of Biodiversity in 2010. In preparation for COP10 the conference aimed to strengthen the capacity of ASEAN Member States by providing a forum to exchange perspectives on how to address biodiversity in the region, and to discuss ways to advance the ASEAN biodiversity agenda within the context of the 2010 Biodiversity Target. Finally, the conference aimed to discuss key biodiversity issues that are important to the region and recommend ways forward to meet the region's biodiversity challenges.

## 2. Key messages

### 2.1. Plenary: *Protect the climate, protect biodiversity*

In the plenary, Prof. Andreas Fischlin, a coordinating lead author of the IPCC 2007 report, presented the link between climate change and global biodiversity resources. He emphasized that climate change is already happening and that changes in climate have been observed, such as increasing temperature, irregular as well as decreasing precipitation in many areas, and changes in phenology. The four key messages of the talk were the following: major changes in the structure and functioning of ecosystems are expected as climate warms; 20–30 per cent of higher plants and animals are at high risk of extinction at a 1.5–2.5°C increase in global temperature over the present (mass extinction); land ecosystems could become a carbon source in the future; and the resilience of many ecosystems could be exceeded because of climate change so that they cannot adapt naturally. Several examples were given of how climate change may impact biodiversity. These include species distribution in South Africa, coral bleaching at >1.7°C, increasing ice melt at the poles threatening species such as polar bears, and ocean acidification that will affect corals and those species with shells. To protect the climate is therefore to protect biodiversity resources.

### 2.2. *Effects of climate change on biodiversity, and adaptation options*

A parallel session was devoted to presentation of papers on climate change and biodiversity conservation. Much uncertainty remains over the magnitude of climate change in Southeast Asian countries and how biodiversity resources will thus be affected. The purpose of this session was to explore how climate change will affect biodiversity in the region as well as potential adaptation options.

The first paper focused on the role of Indonesia's forests in climate change mitigation, especially on the current discussions on REDD (reducing emissions from deforestation and forest degradation). Indonesia has the largest greenhouse gas emissions from deforestation in the world. Participants discussed the problem of the present definition of the term 'forest' under the UNFCCC. For example, under certain interpretations, there is no deforestation going on in Indonesia, because oil palm plantations are forests! A definition of 'forest' more consistent with climate change mitigation and biodiversity conservation is needed. The paper argued that including all types of land use (forested and non-forested) would be most effective for climate change mitigation.

The second paper focused on the impacts of climate change on the biodiversity of coral reefs. The key messages of the paper were the following: climate change, runoff and overfishing are the three major issues that must be addressed together to protect biodiversity; prevention is better than cure; reefs are not doomed if we act quickly (but they will continue to change); and the decisions we make now on biodiversity protection will have profound long-term consequences.

The third paper explored the concept of ecosystems-based adaptation (EBA) as an approach to enhance the adaptive capacity of ecosystems as well as to increase the resilience of local communities that depend on them. Four cases from the Philippines were presented illustrating various forms of EBA strategies. A case was made for combining EBA with ecosystems-based mitigation.

The fourth paper discussed impacts and adaptation in mangrove ecosystems. The effects of climate change will be regional in scale, and combine with other direct and indirect pressures on mangroves. Temperature rise and sea-level rise would have impacts on mangrove ecosystems. For example, temperature rise and the direct effects of increased CO<sub>2</sub> levels are likely to increase mangrove productivity, change phenological patterns and expand the ranges of mangroves into higher latitudes.

The fifth paper focused on the potential impacts of climate change on wildlife species. Warming climates and changes in precipitation and seasonality will have a negative impact on orang-utans. Perhaps as a sign of things to come, it was mentioned that forest fires following the 1997–1998 El Niño event killed 1,000 orang-utans (2.5 per cent of the total population). The paper also presented the possible impacts of climate change on the phenology and distribution of birds in Japan and Africa, mainly using model data. Measures were recommended to minimize the impacts of climate change on bird species. The paper recognized that there is limited information in the region on the impacts of climate change on wildlife species, and called for an increase in research in this area.

### 2.3. Deforestation

A side event on REDD for Climate Change Mitigation and Biodiversity Conservation was organized by the Asia-Europe Foundation (ASEF) on 22 October 2009. Deforestation leads to loss of species and increases greenhouse gas emissions to the atmosphere. Thus, pursuing REDD is beneficial for climate change adaptation and mitigation efforts, as well as biodiversity conservation. However, numerous issues surrounding REDD are still under negotiation and the road to REDD implementation is still a long one.

The main messages of this side event were:

- The definition of ‘forest’ under the UNFCCC must be reviewed since the definition

considers even ‘plantations’ of any tall growing monoculture (e.g. oil palm) as forest.

- REDD+ has to pursue long-term goals with ambitious targets, that is, to halve the gross deforestation/forest degradation by 2020 and halt it by 2030. The long-term vision for REDD should include all land uses, but in the short/immediate term, the vision is to review and implement previous agreements on REDD before expanding the mechanism further.
- REDD mechanisms must be started at smaller and localized levels with firm agreements before it is elevated to higher levels.
- Communication and public awareness activities on REDD, climate change and other environmental issues must be improved to encourage more involvement from key stakeholders, including IPs and the business sector.
- Financing mechanisms and schemes must be studied thoroughly to determine whether they should continue to be government-supported or should move towards self-financing.
- A general framework is needed that is flexible enough to meet the different countries’ needs.
- There is still considerable debate on REDD, especially its financing and its governance prerequisites. Hence, capacity building is needed by countries to participate in future activities of REDD.
- REDD is not enough as an approach for sustainable forest management. It needs to be expanded with due precautions and broader consultations with key stakeholders.

### 3. Recommendations

The participants recognized climate change and biodiversity conservation as among the most crucial issues facing not only the region, but also the world. They made three key recommendations:

1. To focus on three major areas when examining the links between biodiversity and climate

change: (i) the role of biodiversity and ecosystem services and the climate system, (ii) impacts of climate change on ecosystem services and (iii) biodiversity adaptation measures.

2. To place more emphasis on the impact of people on ecosystems and more attention on the human dimension of ecosystem dynamics.
3. To implement EBA strategies so that humans and ecosystems will be better able to cope with risks associated with current climate and future climate change.

Specifically on forest ecosystems, the following recommendations were made:

- To develop a more holistic accounting system on carbon credits.
- To broaden existing agreements that cover forests and carbon credits.
- To consider going beyond the ecosystem-based mitigation approach, or carbon sequestration through trees, and recognize agroforestry as an approach that can help enhance adaptive capacity for climate change.

For marine ecosystems, the participants made the following recommendations:

- To enhance international cooperation aimed at curbing the impacts of climate change on coral reefs.
- To further study the relationships between climate change, runoff and overfishing and consider these areas as the three major issues that affect the biodiversity of marine ecosystems.

Finally, the conference urged the ASEAN region to demonstrate its support for developing new

targets beyond 2010 based on lessons in achieving the 2010 target, to help ensure that new directions and new targets are proposed for 2015 and 2020.

## 4. Conclusion

The conference highlighted the threat posed by climate change to the region's rich biodiversity resources. The papers presented were unanimous in warning of the dire consequences of the shift in temperature and precipitation. However, there were very limited empirical data presented from the ASEAN region on how biodiversity could be affected. Most of the papers imported data from other regions of the world and tried to extrapolate it to the region. There is clearly a need to ramp up research efforts to inform policymakers within the region in future.

## Notes

1. Details of the conference can be found at [www.aseanbiodiversity.org/](http://www.aseanbiodiversity.org/).
2. The World Conservation Monitoring Centre, an agency of the United Nations Environment Programme, has identified 17 megadiverse countries, most located in the tropics, which harbour around 70 per cent of the world's biodiversity.

## References

- Gitay, H., Suárez, A., Dokken, D. J. and Watson, R. T., 2002. *Climate Change and Biodiversity*. IPCC Technical Paper V. IPCC, Geneva, Switzerland.
- Sodhi, N. S., Koh, L. P., Brook, B. W. and Ng, P. K. L., 2004. Southeast Asian biodiversity: an impending disaster. *TRENDS in Ecology and Evolution*, 12 (19). 654–660.