# Lessons Learned from Disaster Management in Southeast Asia: Transboundary Haze Pollution and Way Forward

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At the end of 2015, the ASEAN region had to cope with a severe haze pollution problem. The most affected countries were Indonesia, Malaysia, Singapore and southern part of Thailand. The effect of the problem had gone large to a regional level. It was no longer a matter of a national interest to solve the problem. Regional cooperation needed to come into place. When one thinks of a haze pollution issue, it could be classified as both a disaster as well as an environment problem, and the problem must be solved collectively at a regional level. When the haze problem occurred in 2015, there was an environmental agreement called the ASEAN Agreement on Transboundary Haze Pollution in place, and all 10 member countries of ASEAN, namely, Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, had ratified the agreement by then, but still the problem existed. As Indonesia is known to be a peatland country where most of the haze is originated from, Indonesia was blamed as the country producing the haze fire that had spread out all over the region. With these points in mind, this paper will discuss briefly how the haze is originated within the region, and then move on to the discussion of the importance of Haze-Free Roadmap, and how international community such as Japan could work with ASEAN on this issue as the issues related to environmental problems and disasters are indeed the "common" problems that all regions of Asia are facing.

## Understanding the Cause of the Problem: Peatlands

Peatlands are the largest carbon store in the terrestrial biosphere containing twice as much carbon as the biomass of all the world's forests combined. All peatland ecosystems in Southeast Asia are forested and thus doubly important to strategies for reducing emissions from forest loss and degradation. The global Assessment on Peatlands Biodiversity and Climate Change prepared by the Global Environment Centre (GEC) and Wetlands International indicated that the degradation of peatlands is resulting in annual emissions of approximately 3 billion tons of CO2—approximately 40% of all global emissions from land use change. The majority (70%) of these emissions are from degradation and deforestation of tropical peatland forests primarily in Southeast Asia. These emissions exceed the estimated emissions from degradation and deforestation of all other tropical forests types combined. Emissions from forest loss and degradation in Southeast Asia now exceed emissions from Africa or Latin America. And among the Southeast Asian countries, Indonesia possesses approximately more than three-quarter of the peatland existing in the whole region, and thus, it has always been accused of being the

main producer of haze, while other countries such as Singapore, Malaysia and southern part of Thailand are being considered the recipient.

Peatland forest degradation is one of the most important environmental and social problems of global significance in the ASEAN region. From statistics, in the years of severe El-Niño drought (such as 1997–98), up to 12 million ha of forests, peatlands and other areas were burned, creating smoke clouds that covered much of the ASEAN region for months, which then caused significant social, economic, health and environmental problems affecting many of the region with approximately 580 million inhabitants. The economic loss from such large-scale fires was estimated in the range of US$5–15 billion. During normal years, fires still affect 1–2 million ha of forests and cause significant national or transboundary impacts. Annual carbon emission in Southeast Asia from deforestation or degradation of peatland forests by drainage is estimated at 1.2–1.5 billion tons of CO2, or around 5–7% of annual global emissions from fossil fuel.

The root causes of the peatland forest degradation is a combination of factors: the drainage of peatlands and opening of forests (which make them susceptible to fire); lack of knowledge on peatland forest status and degradation level (i.e. susceptibility to fire); lack of affordable alternative land-clearing and preparation options for poor forest-dependent communities other than by using fire; and natural or climate change-enhanced droughts. In the southern part of ASEAN, peatland forest degradation occurs in areas linked to drainage and agricultural activities. Peat soil, once drained, is very susceptible to fire, which generates large amounts of smoke and can spread to adjacent forest systems or agriculture land. In the northern part of ASEAN, the exact extent of peatland forest degradation is poorly documented. The status of peatlands in the region and their linkage to the issue of fires needs to be investigated further. Experiences and progress in certain aspects of peatland forest management should be shared within the region, as success in one country's actions could be transferred to another affected country to generate benefits and opportunities, more so for those least able to influence change, such as the poor and women. With all these factors combined, the problem of ASEAN haze broke out, and the region is in need of finding a solution to cope with the problem.

**Regional Initiative to Solve the Problem: ASEAN Haze Agreement**

In recognition of the importance of addressing the issues described above, ASEAN Member States approved the ASEAN Agreement on Transboundary Haze pollution (AATHP) which entered into force in 2003, as well as the ASEAN Peatland Management Strategy (APMS) 2006–2020. Progress on the implementation of the APMS has been encouraging five member states (i.e. Indonesia, Malaysia, Philippines, Thailand and Vietnam) that have been active in assessing their peatlands and are in the process of completing their Nation Assessment on Peatland (NAP). The adoption of the NAPs in these countries and their subsequent implementation are needed. In the northern part of the ASEAN region, there is a lack of local

capacity to undertake necessary assessments. Therefore, building such a capacity to undertake peatland assessments to gain knowledge of peatland forest extent and management issues is needed. It is also in line with country and regional priorities for biodiversity conservation (e.g. National Wetland Action Plans and National Biodiversity Action Plans and Strategies), climate change mitigation and adaptation (e.g. Second National Communications to the United Nations Framework Convention on Climate Change or UNFCCC), and national plans for forest and land degradation. All of these discussions are specifically in line with Recommendation 12/15 of the Convention on Biological Diversity (CBD) SBSTA,[1] which called for "collective action to address the conservation of tropical peat swamp forests."[2]

ASEAN countries will have to focus on strengthening governance and finance mechanisms to address degradation of peatland forests at the local level in their countries including provision of support to forest-dependent peoples. This will require drawing on and effectively disseminating practical experience at the local level in different countries and influencing national, regional (through ASEAN) and international (through UNFCCC and CBD) policy responses to forest degradation. It will also notably require reduction in rate of forest degradation; enhancement of regional and national cross-sectoral policies and programs to reduce peatland forest and degradation; influence on climate change policy agendas through input to post Kyoto architecture and strategies for LULUCF[3] and REDD;[4] and conceptualizing application of REDD mechanisms to peatland forests.

REDD activities in peatland forests are potentially much more effective and efficient: (1) Tropical peat swamps contain much more carbon (largely in their peat soil) than forests on mineral soil: on average ~3,000 tC/ha against ~250 tC/ha; therefore peatland forest degradation leads to much larger cumulative emissions per area, meaning that protection and restoration leads to much larger avoided emissions; (2) Net emissions from peatland forest degradation continue on the same spot for many decades, whereas those from deforestation only continue when progressively more areas are affected; and (3) In volume, worldwide emissions from degraded peatlands are equivalent to those from deforestation but originate from a much smaller area.

There is an estimated 30 million hectares of peatland in the Southeast Asian region, making it the most dominant wetland forest type. The tropical peat swamp forests of Southeast Asia feature some of the highest freshwater biodiversity of any habitat in the world and are home to the largest remaining populations of Orangutan (Pongopygmaeus) and many endemic fauna and flora species.

[1] SBSTA stands for Subsidiary Body for Scientific and Technological Advice, https://unfccc.int/process/bodies/subsidiary-bodies/sbsta
[2] Global Environment Facility, "Project Identification Form," https://www.thegef.org/sites/default/files/project_documents/3-28-14_-_Final_PIF_doc_0.pdf, 18.
[3] LULUCF stands for Land Use, Land Use Change and Forestry
[4] REDD stands for Reducing Emissions from Deforestation and Forest Degradation

The "implementation of regional and national strategies for sustainable management of peatland forests" and "the incorporation of peatland management into policies and plans related to forest and land-related resources to mainstream peatland forests"[5] is crucial and inevitable. The program shall be "implemented under the framework of the ASEAN Peatland Management Strategy (APMS) 2006–2020 which was [e]ndorsed at Ministerial Level by the 10 ASEAN countries in November 2006."[6]

The aim for ASEAN Member States is for the reduction of peatland deforestation and degradation through climate change funding mechanisms to benefit local communities via climate mitigation and adaptation funds, REDD mechanisms and voluntary carbon funds. "Through the finalisation of National Action Plans for peatland forests," it will also contribute to "the development of a cross-sectoral/ integrated approach to reduce deforestation and combat forest degradation."[7]

Knowing the issue of peatlands causing haze pollution in the region is very serious, the political will of the 10 ASEAN Member States countries are to come together and create an ASEAN Haze-Free Roadmap.

**What Is in the ASEAN Haze Roadmap**

"The Roadmap will serve as a strategic framework for the implementation of collaborative actions to control transboundary haze pollution in the ASEAN region. It consists of four main components, i.e. the vision, the overall goal with indicators, key strategies with measures of progress, and actions. The Roadmap also indicates specific timeframe for the implementation of the proposed actions."[8]

**Vision**

The Vision for the Roadmap on ASEAN Cooperation towards Transboundary Haze Pollution Control is:

**"Haze-Free ASEAN by 2020"**

> "Haze" means "Regional transboundary haze pollution from forest and/or land fires" while "Haze Free" is defined as "Measurable improvement of the situation of regional transboundary haze pollution from forest and/or land fires through quantitative indicators and targets."[9]

[5] Sustainable Management of Peatland Forest in Southeast Asia, http://www.aseanpeat.net/index.cfm?&menuid=158
[6] Ibid.
[7] Ibid.
[8] ASEAN, "Roadmap on Asean Cooperation towards Transboundary Haze Pollution Control with Means of Implementation," https://asean.org/wp-content/uploads/2012/05/Haze-Roadmap.pdf, 2.
[9] Ibid.

**Overall Goal and Indicators**

To attain the above-mentioned vision of Haze-Free ASEAN by 2020, the overall goal of the Roadmap is as follows:

> "To eliminate regional transboundary haze pollution through intensifying collective actions to prevent and control forest and/or land fires"

It builds on the principle of sustainable community that promotes social development and environmental protection, among others.

Indicators include:

- An improvement on the percentage of Pollutant Standards Index (PSI) or Air Quality Index (AQI);
- An increase of numbers of days having moderate or good air quality;
- A decrease of health impacts related to haze pollution.

Baseline references for targets employed are average of the last five-year (2010–2015) values.

**Key Strategies, Measures of Progress and Actions**

The following are the key strategic components that translate the principles of the ASEAN Agreement on Transboundary Haze Pollution into concrete and collective actions under the Roadmap:

i. Full Implementation of the ASEAN Agreement on Transboundary Haze Pollution (AATHP);
ii. Sustainable Management of Peatlands for Peatland Fires Prevention;
iii. Sustainable Management of Agricultural Land and Forest for Large Scale Forest and/or Land Fires Prevention;
iv. Strengthening of Policies, Laws and Regulations and their Implementations, Compliance and Enforcement;
v. Enhancement of Cooperation and Information Sharing and Strengthening of Capacity of Institutions at All Levels;
vi. Enhancement of Public Awareness and Cross-Sectoral and Stakeholders Participation;
vii. Securement of Adequate Resources from Multi-Stakeholders for Transboundary Haze Prevention; and
viii. Reduction of Health and Environmental Risks and Protection of Global Environment.[10]

[10] Ibid., 3.

Currently, all 10 ASEAN Member States are working closely and collaboratively in trying to achieve what is contained in the roadmap to reach the ASEAN-Haze Free by 2020 as planned. Various intergovernmental-bodies were created within ASEAN to oversee the issue of transboundary-haze pollution. Those bodies will meet on an annual basis approximately 3 times a year, and more often if needed, especially during the dry season of the region.

**Seeking Our Commons in Asia: Lesson Learned as an ALFP 2017 Fellow**

The issue of transboundary environmental pollution is clearly a "common" issue within Asia, not just for the Southeast Asia region. Currently, the fast growing economies, such as China in Northeast Asia and India in South Asia, are facing a severe environmental pollution problem—though the nature of the problem might not necessarily come from the same root as Southeast Asia, but in this case, mainly from industrial and manufacturing industry and country economic development as a whole, rather than the peatland and forest fires. However, the impact of the smoke in both countries is also large, and it is of transboundary by nature as environmental pollution has no boundary of political administration of countries. Asia is currently facing this problem altogether. The ASEAN region has worked closely with other Asian Dialogue Partners on this issue, particularly with China and Japan to help solve the problem. This shows positive response and awareness of the whole Asian region to come and work together on the issue.

The Ministry of Environmental Protection of China, together with ASEAN countries, established the China-ASEAN Environmental Center (CAEC) based in Beijing. The ASEAN-China Strategic Action on Environment (2016–2020) was adopted by both sides. One of the main issues listed under its priority plan of action is "transboundary environmental pollution." Equally, the Japanese government has created the Japan-ASEAN Integration Fund to support community building and integration efforts within ASEAN. Environmental issue is also identified as one of the key priorities for the usage of the fund. Japan has particularly expressed its interest in working on the Peatlands and Transboundary Haze projects at a regional level through the fund. The big project is now being reviewed and considered by both Japan and ASEAN sides.

There is absolutely no doubt that environment and disaster management of any kind is a "common" issue for Asia. With the pressing intensity of global warming and climate change, resource depletion, geopolitical location of Asia, together with all the economic development of Asia at large, they have all imposed the risk of Asia exposing more to disasters and environmental degradation. Only when Asia is working on this issue collectively, the impacts shall be observed. Currently, ASEAN has shown Southeast Asia an example of a strong leadership and determination in solving the problem by ratifying the ASEAN Agreement on Transboundary Haze Pollution in 2014, and in adopting the Roadmap on ASEAN Cooperation towards Transboundary Haze Pollution with means of implementation, or the ASEAN Haze-

Free Roadmap by its leaders in 2016. However, more collective actions could be taken in a concrete manner throughout the whole Asian region since at the end of the day, we are all connected to one another as a continent.

While taking part in the Asia Leadership Fellow Program in 2017, I expanded my horizons about solving disaster and environment problems and have come to include many other issues, such as health, innovation and technology, gender, culture of communities as well as media. To comprehensively solve the haze-related environmental disaster, we will have to include the health aspect of the problems that could be incurred. Haze is certainly affecting the respiratory system of people living under it. In order to identify hotspots to tackle forest fires more quickly and in a timely manner, satellite and technology could no doubt provide great assistance. Many cultural norms and gender values could also provide a better perspective and help reduce and mitigate the effect of forest fires if understood correctly. Men are probably out in the palm filed while women are probably cooking using stove at home. Media is indeed an important factor to give people the correct information; however, if not used correctly, it could panic society even more. Coming from various countries, working in different fields, but having one goal for a better Asia, the ALFP 2017 has broadened my thinking and perspectives, and was indeed a memorable and wonderful experience.

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