



**TABLE 3**  
**Creating New Environmental  
Framework**

**Pre-Discussion Essay**

We would like to remind all the delegates that submitting an essay stating your position is enforced, which makes the discussion more rewarding and to reach on the concrete framework. The due day of the pre-conference essay will be announced once the academic headquarter informs us.

1. The environmental situation in each ALSA National Chapters --

How is the environmental situation in your country? (History of environmental problem in your country, ongoing cases, what kind of measure had been made, etc.)

In general, Thailand has major environmental problems, but Thai people never take it seriously. We do have successful campaigns, but unfortunately it was never kept in long-term. Similar to other countries, main problems occurring in Thailand are water pollution, air pollution, resource depletion, waste generation, and intensive farming. The water pollution issue is most significant in Thailand, for example, any river or canal you can locate in Bangkok will have unpleasant smells and color. The water is likely to be dark and opaque along with the floating trash that people carelessly threw into the river. The contaminated water is also due to the factory waste. There are Thai laws that set the quality of the factory's waste, but in my opinion, this law was not enforced effectively. Currently Thailand is facing drought problems due to the shortage of rain and increasing consumption. In addition, the meteorologist estimated that this year Thailand is likely to be short of water supply.

Air pollution problems in Thailand include factories, cars, motorcycle, and buses. Pollution from cars, motorcycle, and buses are due to the major traffic jammed in the main city such as Bangkok and Chiang Mai. On an average, people are likely to be on the road for about 8 hours per day. There are limits set by the law on the amount of pollution released, but it mainly covers the factory's waste. Resource depletion in Thailand is due to the increase in consumption. Not only the resources are used in the production process, but also some resources are used as decorations. For example, trees in Thailand's conserved forest were cut down illegally to make furniture. There are laws against these actions, but there are also political powers covering these actions.

For the waste generation problem in Thailand, it is a fact that Thai people consume more therefore we have more waste. The real problem of the increase in waste is that Thailand is lacking in waste management. Actually, we have a poor system in waste management. There is a little chance for Thai people to separate their trash, and even the trash bus separates the trash incorrectly. No law clearly cover this trash management problem, but there are some restriction and fees for those who throw their trash away in the wrong place, still it is not enforced properly. Thailand is known as an agriculture country therefore, the intensive farming issue is likely to occur. Some farmers use a lot of pesticides during their plantation process and they did not know how to manage and recover their land properly. When pesticides are used continuously the farmers land and the land nearby will be contaminated. Then the farmers will face the problem that their lands are no longer capable of producing productively. There are laws making sure that the products from the farmers are not contaminated and safely eatable, but there is no law permitting the farmers from using pesticide or any other chemicals.

2. Considering priority of economic growth and environmental situation in your country, do you think your country is perpetrator of the climate change? Or victim of the climate change?

In my opinion, for the past 5 years, Thailand's economy has not grown much, it might seem that the GDP rises but still the 'real' economy has not yet rise. I think that every country in the world is responsible for the global warming issue, including Thailand. It is not fair if you blame the cause of global warming on any country because we all desire to consume more. In my perspective, one of the biggest problems that led to global warming is the increase in consumption. Due to the fact that the population around the globe is increasing, people need more and the demand has doubled through the past century. When we demand more the company produces more, and its result as more waste. No country has yet raised the best solution to deal with exceeding waste without contaminating the environment. Thailand's impact on the cause of climate change is that Thailand has many factories that produce products for consumption. But I think that Thailand did not impacted much due to the country and population size compare to other country.

Again, I think that every country in the world is a victim of the climate change, therefore I think

that every country has changed in responding to the climate change issue. For Thailand, the average temperature and humidity were significantly increased. Also the climate started to change, therefore the months of each climate are getting off the normal route. Thailand is lucky that we do not have much natural disasters, therefore we can concern on others changes.

3. What can Asia do for solving climate change with achieving sustainable society? How Asia can be together and cope with this borderless problem?

It is a fact that Asia is huge, but solving the global warming issue as a whole seems to be ambiguous. Each country will come up with their best solution, the solution that fits their country structure the most. For the least Asian countries can do is to set a common limit on releasing gases or waste that will affect the global warming issue. Again, Asia is big, so I suggest that the limit should be set in proportional to the economy and environment situation in each country. In addition, I think we should find an effective way to reuse and recycle the waste from our consumption.

I also suggest that we solve the global warming at its source, therefore, us. We are the one who consume more, desire more, so if we would lower our demand there is no need for the company to produce more or even at the current amount. It is normal for people to want more and show off their social status but if we all start thinking in a bigger picture, therefore seeing the effects of global warming. We should start planting our generation ideas on consuming less for the sake of the next generations and we should start something now before it is too late to change.

## Essay about climate change

Jeon Nuri

Korea has many environmental problems. In relation to global warming, Korea has problem, too. Korea's average temperature is rising for 80 years. Compare to 1969, 1999 Korea's average annual temperature rise  $1.17^{\circ}\text{C}$  (considering urbanization effect,  $0.76^{\circ}\text{C}$ ). For a long time, Korea's climate has been classified as 'temperate climate', with clear 4 seasons and with one time rainy season. But recently, with rising of temperature, the climate of Korea is changing to subtropical climate. There are many negative effects of change. Agriculture, fishing industry, and forestry of Korea can't adjust to change of climate. Many native plant and animal can't adjust to subtropical climate. Foreign species easily invade to Korea. The number of bad drought or flooding rises. I think Korea is perpetrator of the climate change. 2009, the ranking of Korea is 8<sup>th</sup>, in world total CO2 emitting country rank. And the ranking of Korea is 3th, in world CO2 emitting per person rank in 2011.

There is many regulation to decrease CO2 emission so to protect global warming. Asia also need to accept these regulations. But some developing country will have bad effect on their industry because of cost of regulation. In addition, the main cause of today's global warming is developed country, not developing country. So I think that first the count which already has emitted CO2 too much need to regulate there CO2 emission. Then step by step the county which has high emission needs to accept regulation. Then developing county will have enough time to accept regulation and developed country can share there technic of decreasing CO2 with developing county.

## **SINGAPORE'S ENVIRONMENTAL PERSPECTIVE**

Joey Lim

Singapore, being a tiny city-state, and owing to its unique geographical location (being encased by Borneo and Malaysia), is fortunate to be free of most major environmental disasters such as tsunamis, earthquakes or typhoons. It seems then that Singapore has a low incentive to be environmentally responsible because it is quite immune from such repercussions.

However, it is testimony to the all-encompassing problems that pollution can cause, that even Singapore has fallen victim to environmental problems before. For example, Singaporeans were adversely affected when the price of rice rose sharply following the floods in Thailand in 2012. A more concrete example would be the haze situation that came into the international spotlight in 2013.

### **2013 ASEAN Haze Crisis**

In 2013, Singapore's smog index hit the critical 400 on the Index, making it potentially life threatening to the ill and elderly people, according to a government-monitoring site.

Parts of Malaysia close to Singapore have also been severely affected by the smog this week. The haze crisis has had a dramatic impact on life in Singapore, with the city-state's residents scaling back their activities in a bid to protect themselves.

Fast-food deliveries have been cancelled, the army has suspended field training and even Singapore's top marathon runner has been forced to run indoors.

Hunched commuters are wearing masks or cover their mouths as they travel to and from home, with major drug stores running out of breathing masks.

The haze crisis had caused tensions to escalate dramatically between tiny Singapore and its vast neighbor, with the city-state repeatedly demanding that Jakarta step up its efforts to put out the fires.

### **Who/what is to blame?**

The problem of haze is attributable to the practice of open burning of vegetation including entire forests to clear land for agricultural uses.

Despite much finger pointing by the Singaporean government and its people towards the Indonesian government, it might not be the case that Indonesians are solely to blame. A senior official in the Indonesian president's office said fires had been spotted on land owned by 32 companies in the region, some of them based in Malaysia and Singapore.

Water-bombing helicopters were dispatched and firefighters on the ground have struggled to put out the blazes, which are burning under the surface of the peat.

Firefighters tackling blazes in Bengkalis district, the worst hit area, were "overwhelmed" and unable to cope.

### **Solution?**

In 2014, Indonesia has ratified the ASEAN Agreement on Transboundary Haze Pollution after a delay of more than a decade, (fellow ASEAN members had all earlier ratified the Agreement). Singapore enacted its Transboundary Haze Pollution Act.

The Singapore Act criminalizes/penalizes any engagement in or even the condoning of any conduct, which causes or contributes to any haze pollution in Singapore. This is a distinct though related, to the offence of open burning which is illegal in ASEAN countries. Therefore if a prosecution has commenced under the Act, the concerned government is obliged under the ASEAN Agreement to share relevant information, and most significantly to act correspondingly through their national laws against the open burning that is causing the transboundary haze in Singapore.

Indonesia, for example, claimed in 2013 that foreign entities are the cause of open burning, and other governments have told Indonesia to act on these entities through the full force of their national laws. The Agreement and Act should now put such rhetoric in the past to joint practical legal action.

This serves as a good case example for Asia. With the use of Asia-specific regional agreements, and international pressure for ratification to these treaties, Asia can definitively contribute towards solving climate change.

## INDONESIA AND ITS' PARTICIPATION IN CLIMATE CHANGE

Marieta Nurnissa

Indonesia has the total area of 1,904,569 sq km, with the majority of land area, and slightly less than three times the size of Texas. Indonesia is home to the world's richest biological diversity of plant and animal life on the entire planet (USAID, 2008). Indonesia is the world's largest archipelago, consisting of 17,000 islands and spanning across two biogeographic regions - the Indomalayan and Australasian (World Bank, 2010). Being an archipelagic state, Indonesia is vulnerable to the impacts of climate change, such as prolonged droughts, drastically-increased frequency in extreme weather events, and heavy rain that comes to big floods as a result. Indonesia has some environmental issues, such as sewage, water pollution from industrial wastes, air pollution in urban areas, smoke and haze from forest fires, and mostly deforestation.

According to PT. Pelangi Abadi Citra Enviro (PEACE) along with The World Bank, Indonesia is in the top three Green House Gases (GHGs) emitters in the world, due to land use change and deforestation. The first is China, and US is following in the second. This is mostly because the significant release of carbon dioxide from deforestation. About 75 percent of carbon dioxide emissions come from deforestation and land conversion, followed by forest-related energy consumption (23 percent), and the remainder is from forest-related industrial processes (2 percent)<sup>1</sup>.

From non-forestry sector, the emissions are small but growing rapidly. Emissions from industry and transport sector are growing rapidly along with industrialization and economic growth. Meanwhile, emissions from agriculture and waste are relatively smaller than from forestry and non-forestry sector. However, GHGs from Indonesia's waste sector ranked it as the sixth largest emitter according to USEPA.

Based on these facts, the impacts of climate change will be heavily felt by the country. First, Indonesia will experience modest temperature increase. The annual mean temperature in Indonesia has increased around 0,3 degrees Celsius since 1990. It is expected that, in the year

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<sup>1</sup> PEACE, "*Indonesia and Climate Change: Current Status and Policies*", Jakarta; 2007, page 3

2020, Indonesia's annual mean temperature will have increased to 0,36 to 0,47 degrees Celsius. Second, Indonesia will experience more intense rainfall with the increase of 2 percent to 3 percent more rainfall in Indonesia each year. The amplified rainfall is expected to persist and result in a shorter rainy season, with a substantial increase in the risk of floods<sup>2</sup>.

Third, food security in Indonesia will also be threatened. This might be the largest concern, considering that Indonesia does have problems in agriculture sector. Climate change will change precipitation, evaporation, run-off water and soil moisture; therefore it will have effects on agriculture, furthermore, food security. Fourth, sea level will increase due to increased volume sea water and the melting of polar ice caps. Fifth, sea-level rise will reduce farming and coastal livelihoods, for example, the loss of fish and prawn production. Last but not least, climate change will have an increase temperature of 0.2 to 2.5 degree Celsius, which will affect marine biodiversity due to the warming of ocean water.

Furthermore, the effects of climate change in Indonesia also affect Indonesia's economy, population, human health and environment. On the economy aspect, Indonesia's economy has grown rapidly during the last two decades. However, if climate change is not adequately addressed, it will have severe consequences on economic development and the reduction of poverty (Asian Development Bank (ADB), 2009). Climate change will also greatly affect Indonesia's environment and biodiversity. For example, when the El-Nino event occurred back in 1997-1998, over 2 million hectares of peat swamp forests were burned, which directly contributed to climate change because these swamps can hold around 30 times more carbon and tropical rainforests. Even though Indonesia is the world's top three GHGs emitter, it seems like Indonesia is the perpetrator but also the victim of climate change at the same time.

Indonesia signed the Kyoto Protocol in 1998 and hosted the 13th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), which served as the Third Meeting of the Parties to the Kyoto Protocol (COP / MOP) in Bali, December 3rd-14th, 2007. Indonesia has also created the Indonesia Climate Change Trust Fund (ICCTF) to address climate change in the context of national development priorities, by accessing international finance

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<sup>2</sup> Ibid, page 39

through nationally-owned institutions<sup>3</sup>.

A sustainable society is one that ensures the health and vitality of human life and culture and of nature's capital, for present and future generations. In its' relation with solving climate change throughout Asia, it can be concluded that a strong policy throughout Asia is needed. Not just national policies, but an international policy or agreement that is ratified by Asian countries. A climate-friendly technologies are also needed, therefore, Asian countries must unite to establish the technology that is needed for future generations. Addressing climate change issue is also needed in other sectors, such as health, energy, environment, education, etc.

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<sup>3</sup> Aidy Halimanjaya,, Smita Nakhooda, Sam Barnard, *The Effectiveness of Climate Finance Review of the Indonesia Climate Change Trust Fund*, ODI; 2014, page 9

Malaysia is a country that has seen incredible development and growth in the past few years, but due to the rapid industrialization, it is wrought with many environmental issues ranging from deforestation and pollution, to over-fishing and coral reef destruction.

With the increasing demand for oil, Malaysia has evolved to become one of the world's top exporters of palm oil, accounting for 44% of the world's exports, but this comes with the price of deforestation, particularly of the lower-lying tropical rainforests, so as to clear land for the palm oil plantations. According to the UN, Malaysia's deforestation rate ranks as the highest among all tropical nations. As a result, many animals such as the endangered Borneo pygmy elephants, Malayan tigers, orangutans and hornbills have lost their natural habitats, and the low-lying areas have witnessed more frequent and severe flooding. A tiny species of snail called *Plectostoma sciaphilum*, only found in a specific hill in Malaysia is believed to be extinct due to the levelling of the hill. Although the National Forestry Act 1984 was enacted for sustainable forest management, it has not been enforced, leading to the loss of more lands to industrialization.

In addition, despite clean-air legislations being introduced in 1978, air pollution remains one of the most pressing issues in Malaysia. Malaysia ranks 4<sup>th</sup> globally in terms of greenhouse gas emission, with 37.2 tonnes of carbon dioxide equivalent per capita. Malaysia is prone to periodic forest fires as a result of el Niño, and this, in addition to the open burning from neighbouring Indonesia, largely contributes to the haze and air pollution in the country. It is important to note that Malaysia has adopted the Kyoto Protocol as well as the subsequent UN Framework Convention on Climate Change in an attempt to curb global warming via reducing the emission of greenhouse gases.

In terms of prioritising economic growth or environmental issues in Malaysia, it is clear that the nation tends to favour the prior rather than the latter. Although there are legislations against pollution, deforestation and conservation in place, they are largely unenforced and crimes committed whilst destroying the environment usually go unpunished. That is, however, not to

say that Malaysia is continually turning a blind eye. Although Malaysia can be said to be one of the perpetrators of climate change, it can be seen that they are taking measures to rectify the problems they have caused. The Environment Institute of Malaysia (EiMAS) and Environmental Quality Council (EQC) were started to promote public awareness of the environmental issues Malaysia is facing. They also form the bridge, linking the Department of Environment and the industrial sector so as to promote conservation efforts through economic efficiency, accountability and social equity.

One of the ways in which Asia can combat global warming is through the introduction and enforcement of environmental treaties and/or conventions similar to the Kyoto Protocol, but with more management. Simply put, these treaties/conventions will not merely be enacted, but also enforced so that all who sign and ratify them are bound. In doing so, for every Member State that breaches the treaty/convention, there will be severe punishment that could possibly be in the form of fines and this would be a deterrent to the other states.

Another way in which Asia can achieve a sustainable society is through education. People in the rural areas in particular lack the knowledge of what is going on and as such, their ignorance contributes to the issue more. With proper education, these people as well as those in the cities can learn how to avoid creating more carbon emissions and further diminish their carbon footprint.

With regards to how Asia can combat climate change, it is imperative that rather than pushing the blame to one another, each individual country must bear responsibility for the situation we are currently in. Climate change is a problem for everyone, not just one country alone. As such, tackling the issue together, especially since this issue extends beyond borders, will be for the betterment of all.

Indonesia has faced a lot of environmental problems since the last decades. On the surface, Indonesia's environmental problems such as deforestation appear to be issues of poverty, population pressure and poor governance. In reality, the situation is more complex.

During 2000 and 2005, the UN Food and Agriculture Organization estimates that Indonesia lost a massive 1,87 million ha of forest every year.<sup>4</sup> That's 9,36 million ha over a 5-year period – an area the size of Portugal. When a forest area of that size is lost, this carries a range of serious impacts, which some of them could lead to climate change.

Losing forests means losing all of its trees and the habitats inside it. Removing trees deprives the forest portions of its canopy, which blocks the sun's rays during the day and holds in heat at night.<sup>5</sup> This disruption leads to more extreme temperatures swings that can be harmful to plants and animals. Trees in Indonesia's forests also play a critical role in absorbing the greenhouse gases, such as CO<sub>2</sub>, that fuel the climate change. Fewer forests means larger amounts of greenhouse gases entering the atmosphere—and increased speed and severity of global warming.

One cause of Indonesia's phenomenal rate of forest loss is global demand for wood pulp and palm oil, and the resulting clearance of forests for plantations. Palm oil is now considered a major source of income for Indonesia and for more than 3.5 million people working in this sub-sector. But this expansion comes at a heavy price. Another cause of Indonesia's massive rate of deforestation is global demand for timber. Approximately 80% of timber production in Indonesia is considered to stem from illegal logging.<sup>6</sup>

Regarding this matter, Indonesia could be categorized as the perpetrator of climate change. Kalimantan Island, or also known as Borneo, is host to a vast area of the country's remaining

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<sup>4</sup> FAO. 2005. Global Forest Resources Assessment. FAO Forestry Paper 147. 348 pp.

<sup>5</sup> "Modern-Day Plague", National Geographic, <http://environment.nationalgeographic.com/environment/global-warming/deforestation-overview/> (accessed July 18, 2015).

<sup>6</sup> WWF. 2006. Failing the forests: Europe's illegal timber trade. Report. 102 pp.

tropical rainforests. Rainforests in the Heart of Borneo also have a crucial function as the lungs of the world, because they produce oxygen needed to help overcome the impact of climate change.

Given the important role of the rainforests, Indonesia's Ex-President Susilo Bambang Yudhoyono on January 5, 2012, signed a regulation authorizing the use of 45 percent of Kalimantan island as biodiversity conservation and tropical rainforest vegetation reserves to make the island the world's lungs.<sup>7</sup> The remaining 55 percent of Kalimantan island, however, can be used to support the government's program to achieve energy self-sufficiency and develop the island into a mineral, coal, oil and gas mining center, the regulation said. In a speech to G20 leaders on Sept. 25, 2009, Mr. Yudhoyono said the government was crafting a policy that would cut emissions by 26 percent by 2020 from "business as usual" (BAU) levels.<sup>8</sup>

Considering the importance of Heart of Borneo as the world's lungs, it is not only Indonesia's duty to preserve the forests. The governments of Brunei Darussalam, Indonesia and Malaysia have signed a declaration on Heart of Borneo on February 12, 2007, committing themselves to the conservation and sustainable development of a 22 Million-hectare Heart of Borneo. The three countries which share Borneo or Kalimantan Island, are working with WWF to conserve 220,000 km<sup>2</sup> of rainforests -almost 1/3 of the island- through a network of protected areas and sustainably-managed forests.<sup>9</sup>

However, preserving the rainforests in the Heart of Borneo requires nothing but a huge funding. Due to the fact that every single person in this world is also depending on the Heart of Borneo, I believe that every country, without any exception, supposed to take part in the preserverance of the forests. Asian countries, as neighbor countries who have the uttermost dependancy on the Heart of Borneo, could help in form of economical support, technological support, or any other form of supports needed. These supports will help us ensure the preserverance of the most influential rainforest in the world, in order to reduce the gas emmissions and help to

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<sup>7</sup> Fardah, "News focus: Heart of Borneo designated as "world's lungs", Antara News, <http://www.antaranews.com/en/news/79968/news-focus-heart-of-borneo-designated-as-worlds-lungs> (February 18, 2012)

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

overcome this climate change problem.

Another solution for this climate change problem is an effective Asian framework which creates restriction law for the amount of carbon dioxide emissions. Carbondioxide, while not regulated as an air pollutant, is the transportation sector's primary contribution to climate change. Carbon dioxide emissions are essentially proportional to fuel consumption –each 1% increase in fuel consumption results in a corresponding 1% increase in carbondioxide emissions.<sup>10</sup>

In order to restrict the amount of carbondioxide emissions, every vehicle should do a Federal Test Procedure (FTP) periodically. FTP is the basis for certification of new vehicles to applicable emission standards in the United States.<sup>11</sup> I am suggesting that Asian countries should apply this regulation not only for new vehicles, but every vehicle on a routine basis.

Asian countries are suggested to make a regulation containing that every vehicle in each country are obliged to do a Federal Test Procedure (FTP) every 3 months. If the owner wants to prolong the Vehicle Registration Certificate, every year the owner of the vehicle should bring 4 certificates stating that the vehicle has passed the FTP as an absolute requirement.

Considering each developing country in Asia has their priority of economic growth and the fact that holding a Federal Test Procedure to every vehicle in the country on a routine basis requires a lot of fund from the government, all Asian developed countries could also help and cooperate regarding the fund.

If this regulation runs effectively, and also with the good preserverance of the Heart of Borneo rainforests, the amount of carbondioxide emissions can be controlled, and we'll be one step further to overcome this climate chage problem.

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<sup>10</sup> "Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks", EPA, <http://www.epa.gov/otaq/consumer/420f08024.pdf> (Accessed July 19, 2015)

<sup>11</sup> Ibid.

## Creating New Asian Environmental Framework

Lim Xin Ying

Malaysia as of the Asian tiger economies, has enjoyed remarkable growth over the last few decades, with industrialisation, agriculture and tourism playing leading roles in it's economic growth. But today, despite a relatively positive environmental record, Malaysia faces problems of deforestation, pollution of inland and marine waters, soil and coastal erosion, overfishing and coral reef destruction, along with air pollution, water pollution and the problem of waste disposal.

For the past thirty years Malaysia has pursued industrialisation and has modernised production methods through proactive policies to woo foreign investment. By these means Malaysia has achieved sustained economic growth. In particular, during the decade since 1988, economic growth continued at a remarkable annual rate with timber production. Here, I shall only focus with only one main issue of Malaysia's negligence in the contribution towards climate change, deforestation.

On paper, Malaysia has probably one of the best rainforest protection policies in developing Asia, but in practice logging still carries on as it always has. The majority of Malaysia's remaining forests are managed for timber production, and each state is empowered to formulate forest policy independently. During the past two decades, sustainable forest management has been non-existent. While Malaysia has the policy framework for sustainable forest management in the form of the National Forestry Act of 1984, it has failed to enforce the legislation.

Trees play a major role in global warming by utilising green houses gases, restoring the balance in the atmosphere. Constant deforestation obstructs the ratio of green house gases in the atmosphere to increase, creating global warming. Deforestation affects wind flows, water vapour flows and absorption of solar energy thus clearly influencing local and global climate. Deforestation on lowland plains moves cloud formation and rainfall to higher elevations. Deforestation disrupts normal weather patterns creating hotter and drier weather thus increasing drought and desertification, crop failures, melting of the polar ice caps, coastal

flooding and displacement of major vegetation regimes.

Deforestation also disrupts the global water cycle. With removal of part of the forest, the area cannot hold as much water creating a drier climate. Water resources affected by deforestation include drinking water, fisheries and aquatic habitats, flood/drought control, waterways and dams affected by siltation, less appealing water- related recreation, and damage to crops and irrigation systems from erosion and turbidity

The Food Agricultural Organisation (FAO) identified forest crime and corruption as one of the main causes of deforestation in its 2001 report and warned that immediate attention has to be given to illegal activities and corruption in the world's forests in many countries. In Malaysia, Illegal forest practices may include the approval of illegal contracts with private enterprises by forestry officers, illegal sale of harvesting permits, under-declaring volumes cut in public forest, under-pricing of wood in concessions, harvesting of protected trees by commercial corporations, smuggling of forest products across borders and allowing illegal logging, processing forest raw materials without a license.

Today, The only realistic solution to deforestation is to curb the felling of trees, by employing a series of rules and laws to govern it. Clear cutting of forests must be banned. This practical approach will curb total depletion of the forest cover. Land skinned of its tree cover for urban settlements should be urged to plant trees in the vicinity and replace the cut trees. The cutting must be replaced by planting young trees to replace the older ones that were cut in cityscapes. Trees are being planted under several initiatives every year, but they still don't match the numbers of the ones we've already lost.

The Malaysian government tried to tackle the problem of deforestation, taking steps to protect forested areas, throughout the years by establishing forest parks and wildlife conservation areas, and afforestation. Protected areas alone, however, are not sufficient to conserve biodiversity. They should be considered alongside, and as part of, a wider strategy to conserve biodiversity. The minimum area of forest to be protected is generally considered to be 10 per cent of total forest area. It is reported that 12.4 per cent of the world's forest are located within protected

areas. Tropical and temperate forests have the highest proportions of their forests in protected areas and boreal forests have the least. The Americans have the greatest proportion while Europe the least proportion of protected areas. Where all hope are lost, this is where the international community steps in to take up preventive measures.

Asian countries must work together to develop National Plans to encapsulate their policies and strategies to prevent and mitigate land and deforestation. The National Plans should contain Policies to curb activities that may lead to land and forest fires and control emissions. Many international organisations including the United Nations and the World Bank have begun to develop programmes to curb deforestation mainly through Reducing Emissions from Deforestation and Forest Degradation (REDD) which use direct monetary or other incentives to encourage developing countries to limit and/or roll back deforestation. Significant work is underway on tools for use in monitoring developing country adherence to their agreed REDDS targets.

A Strong and stable government is essential to slow down the rate of deforestation. FAO (2010) considered that half of the current tropical deforestation could be stopped if the governments of deforesting countries were determined to do so. However with only one party working alone is undoubtedly inadequate. Environmental NGO's contribution towards conservation management has been enormous. They have the advantage over government organisations and large international organisations because they are not constrained by government to government bureaucracy and inertia. They are better equipped to bypass corruption and they are very effective at getting to the people at the frontier who are in most need.

Aid organizations like the World Bank have traditionally favoured spectacular large-scale development al projects. In all cases when such projects are proposed there has been a massive opposition from local people. Reducing the demand for southern-produced agribusiness crops and alleviating the pressure from externally-financed development projects and assistance is the essential first/primary step (Colchester and Lohmann, 1993). Campaigns opposing such developments and the campaigns to reform the large aid agencies which fund such schemes should be supported. Local campaigns against specific mining, dams, industrial and tourist

developments should be supported. Further reform of the World Bank and other such organizations is largely the demand of time.

To conclude this article, I quote the 1992 Rio declaration on Environment and Development Rights of the people in the development of their economies and the responsibilities of human beings to safeguard the common environment in line with climate change today. "Nations have the right to exploit their own resources, but without causing environmental damage beyond their borders", "The polluter should, in principle, bear the cost of pollution", "Sustainable development requires better scientific understanding of the problems. Nations should share knowledge and technologies to achieve the goal of sustainability".

### 1. The environmental situation in each ALSA National Chapters: Japan

Today, many of us have the recognition that Japan is one of the leading countries in the world. But we also know that it happened recently. What made Japan grow at this speed? Does it have anything to do with environmental changes?

About 400 years ago, during the Edo era, the shogunate at that time closed the country to foreigners. I can say that this is what made Japan 'Japanese' turning the country and its people conservative. And unfortunately, this isolation made Japan the 'Third World' at the time. The national seclusion lasted for over 200 years until Matthew C. Perry, a Commodore of the United States Navy forced the opening of Japanese ports. This was a shocking event for Japan and its shogunate. A ship that sails by steam, loaded with 9 cannons that glares toward their port. This was a technology that was definitely beyond their knowledge. It only took a year to make the shogunate give up the isolation. So, this is the beginning of Japan's endless curiosity to technology. Only 40 of years it took to change Japan into a blind country running into countless battles. Japan's technology grew as the country sunk to doom with its fascism.

It may hear sad, but Japan's economic growth always had something to do with war.

### 2. Japan as perpetrator of climate change

I must say Japan is definitely not a victim when it comes to climate change. Our country's electricity relies mostly on thermal power generation. And the percentage of dependence on thermal power generation has been rising since 3.11. And the surprising percentage of its importation of fuel rose to 88% which shows the desperate need of the Earth-unfriendly fuel.

As long as Japan is unable to use its Earth-friendly nuclear power plant, the discharge amount of carbon dioxide would not decrease. There are many countries that rely on thermal power generation, but as an economically developed country, we cannot look away from our energy problems that pollutes the air and changes the climate.

3. What can Asia do for solving climate change with achieving sustainable society?

To sustainably cooperate as one, a leader is needed. We need a country that steps forward for this borderless problem, and that should be Japan. As a developed country, Japan has the responsibility for climate change and must show the right way to deal with this approaching problem. As a leader, we must show that this is not a problem in the future, nor a problem that can be settled alone, but a problem that must be faced as a group. There is always a need of player that plays the right role. There is no time to hesitate, and no time to discuss about other areas. As one, Asia can be the first group to overcome this inevitable problem, and light the way for others in the world.

1. The transition, current state and measure of the environmental problem in Japan

I think that the environmental problem is getting serious by placing priority on especially economic growth caused from 1965 to 1974, and expanded the energy demand. It became twice in ten years from 1965 to 1974 and it is equal to seven times as much increase since around 1955. And though economic growth route was led by plant and equipment investment in order to advance export and production. It progress getting heavy and chemical industries for export production such as production equipment.

Air pollution, water pollution, destruction of nature, noise pollution and swing pollution go with getting heavy and chemical industries became great burden on environment. When we refer to environmental problem, there are Four Major Pollution Cases which still pick up often. Four Major Pollution Cases shows "Minamata-disease" in Kumamoto prefecture, "The second Minamata-disease" in Nigata prefecture, "Itai-itai-disease" in Toyama prefecture and "Yokkaichi-asthma" in Mie prefecture. They caused at the rapid economic development in Japan. Four Major Pollution Cases is a typical example of environmental injury to the citizen as a result of industrial expand with economic growth.

Now Japan has a pretty much incinerators compare with the other developed countries. Japan;1243 , USA;351, France;188, German;154 and Britain;55. It is said that we Japanese dump the trash one kg for each person every day. A large number of incinerators in Japan means that we dump and burn so many trash.

Then 4R campaign is carried into effect as a pollution control measure. The 4R campaign shows "Refuse,Reduce,Reuse,Recycle." For example, we bring own bag when shopping or we collect milk cartons or trays to recycle and reduce amount of the trash. Otherwise, the deposit system is carried. The deposit system is the system that we pay regular deposit when we buy some goods. And if we bring back to the shop after use, it will return to us.

2. Is Japan perpetrator or victim for the climate change?

I think at least we are not victim, not to say perpetrator. The climate change relates to the

amount of greenhouse gases emissions like CO<sub>2</sub>. The global warming is a serious problem all over the world. I think environmental pollution with the rapid economic growth is caused by developed countries. Therefore only developed countries are band to reduce CO<sub>2</sub> by Kyoto Protocol. EU for example, got high reduction rate of CO<sub>2</sub> by -8% because they were great responsible for the industrial revolution. As of japan, reduction rate of CO<sub>2</sub> by -6% is quite high. According to the year 2011 data, Japan is the 5<sup>th</sup> country that emits CO<sub>2</sub> in the world. In short, Japan as one of the developed countries, is responsible for the pollution of the environment.

### 3. Effective measure of environment just because Asia

Let's try to consider about "in Japan" because it is too difficult to consider about "in Asia". Discussing the environmental problems, there is an issue between developed and developing countries in the emission of CO<sub>2</sub>. For developed countries, there is a responsibility that they have been emitting a lot of CO<sub>2</sub> to progress economic growth. On the other side, for developing countries, there is a possibility that the reduction of emission of CO<sub>2</sub> may prevent economic growth. Speaking of Japan as one developed country, we need to reduce the emissions of CO<sub>2</sub> and get the real result. Actually there are many self-governing bodies or enterprises planting trees in Japan or abroad. Further, we experienced a pollution problem in the period of rapid economic growth in Japan, We can provide the improvement or risk of what we suffered from the problem and took measures to prevent pollution from our experiences at that time. However by doing these, we also need to respect customs, culture or laws of each developing country. Because Japanese enforced lows is not always to apply for the other countries.

Considering about in Asia, each of us needs to have interests in the environment problems facing now. That might arise more other's opinion and thought for effective measures of environment. Recently I found that half of emission of CO<sub>2</sub> in the world is now from Asia. As of Asian, I should have known this serious issues before. As Asian, we can cooperate in different ways. We developed countries may support our technology to progress economic growth such as agricultural technology instead of shifting cultivation or infrastructure improvement to developing countries. It is very difficult to solve this issue only one country. So we need to discuss to find the best way to solve this issue with various country people like our ST's activity.

## Environmental Issues

Azusa Uchiyama

Environmental problems are issues that are caused by human activities. For example, emissions of pollutants such as are giving effects on water pollutions, global warming, or even to human bodies. In the eighteenth and nineteenth century, environmental problems and diseases related to that were occurring, due to the Industrial Revolution. However, it was in the middle of twentieth century when people started to think about that. In 1962, Rachel Carson published “Silent Spring” which pointed out environmental pollutions due to chemicals. From then, many countries have been concerning about this issue, but it is still a big problem. Although some people claim that this is an issue that cannot be cut off from us, there are things that we can do. To do the best to lighten the influence of the issue, we should firstly understand deeply about that. For example, we should understand how environmental situation in Japan is, whether Japan is victim or perpetrator, and what we can do as Asia.

Firstly, in Japan, it was in the Meiji period that environmental pollution became an issue. For example, in 1880s Ashio copper mine incident became a big problem. In this mine, forest destructions and relating flood of Watarase River which has the source near the mine were concerned previously. In the 1880s, this became a big issue because a lot of fish in the Watarase River surfaced and effects on farming became prominent. In the twentieth century, four major pollution-caused illnesses, Minamata disease, Nigata Minamata disease, Yokkaichi asthma, and Itai-Itai disease became big issues. In 1960s, places people can swim disappeared from the center of Tokyo due to water pollution relating to rapid economic growth. After these times, Environmental Pollution Prevention Act, Environmental Basic Law, and Environmental Impact Assessment Act were established in 1967, 1993, and 1997. Thanks to these laws, the water quality in Tokyo Metropolitan Area has been improved and in Kasai Seashore Park people are allowed to swim from this year. Thus, although many environmental issues have been concerned for about a hundred fifty years, it has been improved in these few decades.

Although some of the environment problems in Japan had been improved, Japan is one of the perpetrators of environmental issues. In the 1960s, four major pollution-caused illnesses were

big problems. At this time, environmental problems were not truly recognized and considered in Japan. Thus, many companies did crucial things which gave great effect after. In the 1970s, the development and install of desulfurization machines and dust collectors progressed and density of dust and sulfur oxide have become one-fifth in two decades. However since the 1970s, the density of photochemical smog has been increasing. Photochemical smog is produced for example by the exhausted gas of cars or factories. It also has effects on human bodies, for example, it causes people sore throat or some people feel something is irritating their eyes. This means that Japan still emissions air pollutants and they are giving effects on world environmental problems. Thus, although Japan overcame environmental pollution in 1960s, Japan is still a perpetrator on environmental issues.

Lastly, there are very few things that we can do together as Asians, since environmental situations differs in each countries. However, as Japan, we can help other countries to recover from environmental problems. As there are many countries in Asia that are suffering from almost same environmental problems that Japan experienced in 1960s, it is one way for Japan to teach these countries how we overcame these problems. It cannot truly be said that this way will success, since financial situations and cultures differs in each country, but it can be a possible solution. Also, introducing environmental education might also be effective. In Japan, we start environmental education in the elementary school. For example, in my school, we went to garbage disposal plant and filtration plant. This made us think about environmental issues since we were little. However in some other counties, environmental education and even normal educations are not developed. Environmental educations are necessary to children think about environmental issues since they are young and to make better environmental situations when they grow up.

In conclusion, each person has to think deeply about environmental situations in their countries, whether their county is giving influence on environmental issues, and what they can do as residents on earth, to improve environmental issues and to preserve nature in the future. In 1960s, Japan suffered from crucial environmental pollution issues which is discussed until now, and photochemical smog has been causing troubles for many decades. It is a possible way for us Japanese to teach other countries, which are suffering from almost the same problems that we

experienced in the 1960s, how we overcame the issues at that time. It is also important to improve environmental education situations in all over the world.

1st answer: Before Meiji Era, though actually there are some small environmental problems such as water dirtiness, they are not as serious as those of present Japan. But Meiji Era brought old Japan the industrious developments and then our ancestors' lives changed to bad ones. They started to use a lot of modern machines which of course emit a huge amount of gas and throw away a lot of polluted -not dirty- water in the bad manner.

There is no doubt that our developments had go on and on and in the result, the 1st public pollution caused. Its name is too famous to say, "Asio Copper Mine accidents". These accidents gave Japanese people the fear of environmental problems.

After WW second, Japan experienced the second biggest developments again, which were mainly related to economics and industries. That reminded them of the surge of public pollutions and ironically realized as the shape of four big public pollutions in 1960s. From this process, our ancestors and we have got to realize the importance of the consideration to environments and now in Japan we take care of them.

2nd answer: I think actually Japan is the former but it is also true that Japan is no longer the perpetrator. Exactly, as I described above, Japan's industrious developments made a lot of countries be able to make machines or everything which have the bad effect to environments to cause climate changes and though we knew that, we pretended not to be able to see that, thus in that point, Japan can be said to be a perpetrator.

But now because many Japanese really realize the importance of protection of environments, many companies, engineers, creates and even common people tend to give priorities to them first. In that point, Japan is the most considerate country, I think. In law-related situation it is often said that those who have high possibility to turn over a new leaf should be treated as it is, so I think this can be applied to Japan.

3rd answer: Because climate changes can be solved by reducing CO<sub>2</sub>, I suggest that Japan should

share its highest skill to other Asian countries by sending more skillful Japanese engineers and more times. To realize this, the cost and process of changing or sending engineers must be easier, so governments should cooperate this project more actively. Actually, I think this problem cannot be solved easily, so I need to get other students' opinions.

## 1. History of Environmental Problem in Japan

We faced severe environmental pollution when we were in the period of high economic growth in 1960s. In 1967, the government enforced the Basic Law For Environmental Pollution Control, and since then Japanese people became conscious of environmental problems and many companies began to develop technology which helps reduce polluted gas or wastewater. In 1973 we experienced the petroleum crisis, so the government carried out energy saving policy. In 1993 Environmental Basic Law was enforced in order to deal with the environmental problems which became more globally expanding and severer. In 1997, Kyoto Protocol to the United Nations Framework Convention on Climate Change was adopted, in which Japan had to reduce the amount of greenhouse gas emission by 6 %.

### Ongoing Cases

From 2008 to 2012, Japan reduced the amount of greenhouse gas emission by 8.2%, so we could achieve the goal of Kyoto Protocol. However, in 2011 atomic power plants all over Japan were suspended because of the accident at the Fukushima No.1 nuclear power plant. To meet the power demand, the amount of electricity generated by thermoelectric power stations had to be increased, so the amount of greenhouse gas emission was increasing.

### What Kind of Measure had been made

The government promotes people to introduce the solar panels on roofs of their houses and offers subsidy. Though the proportion of solar power generation is 14% in German, 18% in Spain, 4% in the US, it is only 0.4% in Japan. In the area of wind power, tidal power and biomass generation, Japan is inferior to other developed countries. On the other hand, Japanese companies have high level technology which contributes to resolving the environmental problems. Many eco-friendly consumer electrical appliances appear on the market.

## 2. Priority of Economic Growth and Environmental Situation in Japan

I think that we should give priority to environmental situation. The economy of Japan have already reached high level and we can't expect the drastic economic growth anymore. Nowadays

there are many countries where wages are cheaper and taxes are lower than in Japan, so even Japanese companies move their factories to such countries. It isn't expected that the number of factories in Japan is increasing. The main industry in Japan is not already industry but service. We don't have to eager to develop our industry, therefore we should look at the environmental situation.

#### Japan is Perpetrator of the Climate Change or Victim of the Climate Change

I think Japan is perpetrator of the climate change. In the world, there are countries which is now suffering climate change. For example, Tuvalu is on the crisis of immersion because of the glaciers melting caused by global warming. In the Sahel, desertification is progressing owing to the decrease of precipitation. To compare these countries, the climate change Japan is facing is of little importance. It's sure that there are more sudden heavy rainfall restricted to a small area, it's not so serious such as immersion or desertification. However, unfortunately Japan is still emitting a large amount of greenhouse gases and contributed to the global warming. Therefore I think Japan is perpetrator of the climate change.

#### 3. What can Asia do for solving climate change with achieving sustainable society.

Now there is no strong relationship in Asia. In Europe EU exists and European countries cooperate each other in economy, politics and environmental problems. In Southeast Asia, ASEAN is an economic relationship, but there is no strong relationship in whole Asia. In Europe many countries are developed countries and geographical small countries. However there are very small countries such as Brunei and very large countries such as China, there are developed countries such as Japan and developing countries such as Myanmar in Asia. There are various countries so it is difficult to unite. However we have to approach the environmental problems and cooperate in whole Asia. Maybe it is difficult to make a mutual agreement about environmental problems. So to begin with, I propose that we should make a frame to discuss about various problems in Asia. I don't think that only discussion is enough to solve environmental problems but now we don't cooperate in whole Asia. First, we stand on the stage of the conference. Then a few countries in Asia have high level technology so they provide their technology to other countries. In return developing countries provide resources and preferential treatment of tax to developed countries. Of course it is ideal that every country positively

embarks on eco-friendly policies, but without economical or technological reward, the environmental problems won't have been solved.

The Republic of Singapore is a city-state located off the southern tip of the Malay Peninsula, and at the heart of South East Asia. Singapore is a highly modern and developed nation, and has enjoyed rapid economic growth since gaining independence in the 1960s. As of 2014, Singapore has the third highest per-capita GDP in the world.<sup>12</sup> Nevertheless, Singapore's economic success is not without cost, as it has suffered from environmental issues both in the past and present.

### **History of Environmental Issues**

Singapore's rapid economic growth consequently meant that it had been a large contributor of carbon dioxide (CO<sub>2</sub>) emissions until the turn of the 21<sup>st</sup> century. Singapore's CO<sub>2</sub> emissions reached a peak in 1994, when the country emitted 19.12 metric tons of CO<sub>2</sub> per capita; this figure was way above the world average of 4.05 metric tons per capita.<sup>13</sup> The main contributors to Singapore's CO<sub>2</sub> emissions were from industries, transportation and power generation.

The Singapore government has since recognised the aforementioned issue, and has in response introduced various policies to reduce the amount of CO<sub>2</sub> emissions. For example, to combat CO<sub>2</sub> emissions from vehicles, the Environmental Protection and Management (Vehicular Emissions) Regulations was introduced in 1999 to prevent vehicles from emitting visible smoke while in use on the road. The rationale is to minimise pollution to the environment and safeguard public health.<sup>14</sup> Additionally, the Source Emission Test Scheme requires industries to conduct source emission tests on their own or engage accredited consultants to do so on their behalf. This allows industries to monitor their air emissions regularly and to take measures to ensure compliance with the prescribed air emission standards.<sup>15</sup>

These policies have a positive effect on CO<sub>2</sub> emissions in Singapore. CO<sub>2</sub> emissions have steadily fallen since 1997; as of 2011, Singapore's per-capita CO<sub>2</sub> emissions was 4.3 metric tons per capita,

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<sup>12</sup> International Monetary Fund, World Economic Outlook Database, April 2015.

<sup>13</sup> World Bank, CO<sub>2</sub> emissions (metric tons per capita).

<sup>14</sup> National Environment Agency, Air Quality and Targets, <http://www.nea.gov.sg/anti-pollution-radiation-protection/air-pollution-control/air-quality-and-targets>.

<sup>15</sup> National Environment Agency, Air Quality and Targets, <http://www.nea.gov.sg/anti-pollution-radiation-protection/air-pollution-control/air-quality-and-targets>.

lower than the world average of 5.0.<sup>16</sup> Additionally, Singapore continues to play its part in environmental conservation; in July this year, Singapore has made a pledge to stabilise greenhouse gas emissions and reduce its emissions intensity by 2030 as part of its contributions to the UN Framework Convention on Climate Change.<sup>17</sup>

### **Ongoing Environmental Issues**

While Singapore has made steady progress in its CO<sub>2</sub> emissions, there remains several ongoing environmental issues that can be improved. Singapore's rapid urbanisation caused it to lose approximately 90 per cent of its natural forests, effectively neglecting the natural environment.<sup>18</sup> As a result, Singapore was found to be the worst environmental offender on a proportionate index among 179 countries in a 2010 report published by the National University of Singapore.<sup>19</sup> That is not to say, however, that Singapore is totally oblivious to environmental conservation. For instance, the Singapore Green Plan 2012 (SGP2012) was re-introduced in 2002, and aims to create an environmentally-conscious Singapore, promoting conservation of the nation's natural resources and the use of green technology to conserve the environment. With regard to nature conservation, the SGP2012 officially states that Singapore seeks to balance the nation's land use needs with environmental preservation to ensure sufficient green spaces for recreation purposes without compromising its urban development.<sup>20</sup> In support of this stance, several untouched forested areas in Singapore, such as the Bukit Timah Hill, have been declared to be nature reserves, are protected by strict conservation practices. Most recently, in 2013, a 5-year plan was introduced to take stock of and monitor the entire island's carbon emissions. The data adduced ensures that Singapore would improve its plan to take better care of the environment.<sup>21</sup>

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<sup>16</sup> World Bank, CO<sub>2</sub> emissions (metric tons per capita).

<sup>17</sup> Channel NewsAsia, Singapore pledges to stabilise greenhouse gas emissions by 2030, <http://www.channelnewsasia.com/news/singapore/singapore-pledges-to/1958688.html>.

<sup>18</sup> Asiaone News, Is Singapore the worst environmental offender?, <http://news.asiaone.com/News/AsiaOne+News/Singapore/Story/A1Story20100514-216266.html>.

<sup>19</sup> Bradshaw, Giam, Sodhi, Evaluating the Relative Environmental Impact of Countries, [http://www.dbs.nus.edu.sg/lab/cons-lab/documents/Bradshaw\\_etal\\_PLoS\\_ONE\\_2010.pdf](http://www.dbs.nus.edu.sg/lab/cons-lab/documents/Bradshaw_etal_PLoS_ONE_2010.pdf).

<sup>20</sup> Urban Redevelopment Authority, Concept Plan 2001, <https://www.ur.gov.sg/uol/concept-plan.aspx?p1=View-Concept-Plan&p2=concept-plan-2001>.

<sup>21</sup> The Straits Times, Government to track Singapore's carbon emissions, <http://www.straitstimes.com/singapore/government-to-track-singapores-carbon-emissions>

### **Singapore – Victim or Perpetrator of climate change?**

Singapore is undoubtedly a victim of climate change. Singapore occasionally suffers from transboundary haze pollution, mainly caused by slash and burn techniques adopted by farmers in the neighbouring Indonesian island of Sumatra. Singapore saw its worst haze episode in 2013 when the Pollutant Standards Index (PSI) hit an unprecedented high of 401 on 21 June 2013.<sup>22</sup> This ranks the situation at a 'Hazardous' level, and far exceeds the 'Moderate' level of between 51 to 100. Besides from damage to the environment caused by serious air pollution, transboundary haze also causes many other knock-on socio-economic effects, such as increased healthcare costs and disruption of air travel and business activities.

Of course, the classification of a country being either a victim or perpetrator of climate change are not mutually exclusive. In other words, it is possible for a country to be **both** a victim and perpetrator of climate change. The question remains as to whether Singapore is also a perpetrator of climate change. This author answers this in the affirmative, albeit in a limited role. As mentioned previously, Singapore's rapid urbanization meant that it has undergone a large-scale, national deforestation, hence causing it to be listed as the worst environmental offender on a proportionate index. However, this is mitigated by Singapore's tiny landmass, meaning that its overall perpetration to climate change is insignificant at most. For instance, while Singapore ranked among the world's highest in terms of per-capita CO<sub>2</sub> emissions in the 1990s, it contributed to less than 1% of the world's CO<sub>2</sub> emissions during that time period.

### **What can Asia do?**

Addressing climate change can be achieved on three different levels: A personal level, a national level and a regional level.

At a personal level, individuals should be made known of the ramifications of climate change, and the urgency of addressing this issue. Successfully doing so would include most of civil society in tackling climate change, hence more effectively addressing this issue. Meanwhile, at a national level, the government should consider introducing laws and policies that focus on lowering the

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<sup>22</sup> BBC, Singapore haze hits record high from Indonesia fires, <http://www.bbc.com/news/world-asia-22998592>.

country's CO<sub>2</sub> and greenhouse gas emissions. Most importantly, at a regional level, countries should more readily participate in international dialogue to collectively tackle climate change. One such example is the ASEAN Agreement on Transboundary Haze Pollution, a legally binding environmental agreement signed by all South-East Asian nations in 2002 and recently rectified in 2014 to reduce haze pollution in Southeast Asia.<sup>23</sup> Doing so would send an important message to society: that climate change is everybody's responsibility.

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<sup>23</sup>ASEAN AGREEMENT ON TRANSBOUNDARY HAZE POLLUTION, [http://haze.asean.org/?wpfb\\_dl=32](http://haze.asean.org/?wpfb_dl=32).