

Possibility to adopt LRTAP against Transboundary Haze Pollution: What Should ASEAN Look For?

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Abstract

Transboundary pollution is part of air pollution originating from other countries has an impact on areas that are under the jurisdiction of other countries, The seasonal haze affected the health quality of ASEAN, it is evident that every time a forest fire occurs, the population with respiratory problems increases, including psychological stress. The objective of this paper is to investigate the problems and challenges that ATHP faces. It elaborates on the factors that contributed to LRTAP's relative success. It also analyzes and describes the measures taken in relation to the ATHP and compares its efficacy to LRTAP. The study used empirical-normative research method sourcing from literatures and journals. The study shows that ASEAN formed the Agreement on Transboundary Haze Pollution (ATHP) which has the aim of being a body that works to reduce and suppress air pollution in the ASEAN region, framed within the 1979 Convention on Long-Range Transboundary Air Pollution (LRTAP). In comparison to LRTAP, the aforementioned can be offered as a means of recommendation for the success of the AATHP. It is measurable that the importance placed on contribution, cooperation, scrutiny, democracy, and transparency in the agreement was a contributing factor in LRTAP's success.

Keywords: AATHP; haze pollution; International Law; LRTAP

1. Introduction

Smoke and pollution itself have become one of the biggest threats to global health in modern times (UNECE, 2019). Even for countries as a whole, their focus on the burden of environmental diseases has shifted from communicable to non-communicable diseases in adults (Lim, 2010). In accordance with this situation, it appears that more research is needed related to non-communicable diseases related to the environment, in order to obtain the best effective mitigation measures, while considering the health of the community and their state of socio-economic security.

ASEAN or The Association of Southeast Asian Nations, which consists of 11 countries, namely Malaysia, Brunei, Singapore, Indonesia, Philippines, Thailand, Vietnam, Myanmar, Cambodia and Laos, and recently, Timor Leste, which are located along the southeastern coast of Asia (Swangjang, 2018). The countries that are part of ASEAN have various conditions, with a population of almost half a billion people spread across its ten regions. There is Singapore which is economically strong, as well as those with weak economic conditions such as Laos, Cambodia and Myanmar, as measured through GDP per and Human Development Index

(HDI) score, with the surrounding discussion of the numbers notwithstanding, the economic might of ASEAN members varied considerably (Barlia Annis Syahzuni et al, 2018). An alarming number of forest fires in recent years and palm oil production activities have become a form of environmental and health problems for people living in Southeast Asia and the surrounding region. In addition, the habit of using fire deliberately as an easy and inexpensive step in clearing land and forests, has led to an increase in periods of smoke and pollution during 1997-1998, especially in Indonesia. The often preferred "slash and burn" (Abdullah et al, 2019) decision reduces air quality in Southeast Asia, releasing large amounts of chemical and particulate pollution (dust, smoke ect) into the air, these particles are very small, less than 2.5 microns making these particles easy carried by the wind, these particles are also small enough to be inhaled and enter the deepest human respiratory system (Pavagadhi, 2012). Due to the presence of transboundary winds as well as dry weather conditions caused by the South El Nino exacerbating the severity of the haze or haze due to the increasing area of distribution, it adds to the list of affected countries (Ramakreshnan, 2018).

The losses suffered by countries affected by forest fires are quite large, material and immaterial. One of the largest incident of transboundary haze borne from plantation fire was in Indonesia in 1997 is estimated to have suffered a loss of up to Rp.5.96 trillion or equivalent to 70% of the GDP value of the Indonesian forestry sector at that time. Malaysia was not left behind, suffered losses of up to US \$ 300 million for its tourism industry sector, while for Singapore itself, it suffered a loss of around US \$ 60 million for their tourism sector. Air pollution caused by deliberate forest fires is contrary to international environmental law. Most recently and also is the biggest incident of transboundary haze was in 2016, it was deemed that at least 20 Billion USD is needed in order to control the issue in the region (Zhang *et al.*, 2019). As a result of the issue laid above, one of the principles it violated was "*Sic utere tuo ut alienum non laedes*" which states that no country may carry out or allow activities that can harm other countries (Rosencranz et al, 2019). In addition, it violates another principle of "good neighborliness" which basically states that the sovereignty of a country cannot be disturbed by other countries (Putra, 2015). "General prohibition to pollute principle, the prohibition of abuse of rights, the duty to prevent principle, the duty to inform principle, the duty to negotiate and cooperate principle, intergenerational equity principle", are other forms of international legal principles for environmental protection (Gunawan, 2014).

The above situation shows that ASEAN countries are not free from problems regarding air pollution. An appropriate system is needed that can monitor for the prevention of forest and land fires, as well as other related prevention, as well as improved methods, expertise and assistance to increase firefighting capabilities, especially in Indonesia. This then becomes a challenge for the governments of the countries that are members of ASEAN. All countries that are part of ASEAN have ratified a form of the ASEAN Agreement on Transboundary Haze Pollution (ATHP) as a concrete form of reducing the amount of air pollution in Southeast Asia. The main purpose of establishing the ATHP is to gather information and gain a deeper understanding of the best actions that can be taken by member countries to reduce its main problem, namely air pollution. The Convention on Long-Range Transboundary Air Pollution (LRTAP) which was implemented in 1983 in Europe is one form of how transboundary pollution has been handled successfully.

The paper aims to explore the problems and challenges that are faced by AATHP. Besides, it also elaborates the factors that made LRTAP comparatively successful. Furthermore, it also analyzes and describes the steps taken in relation to the ASEAN

Transboundary Haze Pollution Agreement and analyze the effectiveness of ATHP in comparison to LRTAP.

2. Method

On answering the questions of what should ASEAN and AATHP look from LRTAP as measured from its relative success, this paper will delve into said question with the method of empirical normative judicial research sourcing from literatures and journals, aim of the usage of the method that such course of research describes as well as providing data as thoroughly as possible on humans and its behaviours, circumstances, or other symptoms with the intention to strengthen old theories, analyse theories, build legal abstractions or to compile new theories. The type of data used in this article is secondary data, namely obtained from studies. The author used the type of qualitative research, which the data must be in-depth, clear and specific. In a way to analysis the data, the author used the form of analytical descriptive. By analysing the collected data, use some elements of the data on the object of existing research, then make a conclusion out of it.

3. Discussion and Analysis

3.1. Transboundary Haze in Southeast Asia: An Overview

People who are in poverty level, in urban and rural areas will become poorer due to the reduction of natural resources and the level of pollution that occurs. The industrialization movement of the ASEAN region which continues to develop every year in growth every year, resources that can be used, and reserves that can be accessed by forests (Babatunde and Tareef, 2018). The increase in the use of natural resources as a means of meeting the main ingredients for the production process has changed from "old habits of living within limits" be "primitive" but more sustainable (Burton et al., 2016) .

There have been several cases of environmental destruction practices that proved to be military involvement in them. (Nazeer et al., 2017) In this case, the destructive actions take the form of illegal logging, disposal of waste without risky cleaning processes, smuggling of protected species and fishing in the territory of the country. The quantity of natural resources, the demand for basic needs such as water and energy and the production of waste and pollution have been at their peak. Energy consumption in the ASEAN region continues to double every 12 years (Petinrin et al., 2015).

In 1997, in Indonesia, there were uncontrolled forest fires, these fires were in the form of a series of forest fires that continued until 1998, these fires were caused by El Nino oscillations that caused a long drought at that time. Until now, it is difficult to predict how long the original fog will last and its intensity. Although many variables can be used, such as the number of "hotspots" and the number of combustion activities carried out. The El Nino-Southern Oscillation Phenomenon or ENSO, is more pronounced in Sumatra and Kalimantan for the Indonesian region.

Mid-1997, these fires had started to affect nearby countries in Indonesia. Sourced from Sumatra and Kalimantan, with the wind blowing, the smoke from forest fires has caused air pollution to Malaysia and Singapore, even a small part is able to reach Thailand and the Philippines (Sankaran et al., 2018). The prime minister of Malaysia at the time, Mahathir bin Mohammad, sent a team of *Bomba* and Rescue Malaysia (*Dinas Pemadan Api and Basarnas*

Malaysia) to Indonesia in Operation Haze, with the main objective of reducing the impact of the haze on the Malaysian economy, this was due to the decline. Malaysia's Gross Domestic Product is 0.3%. After this fire period, it is known that around 8 million hectares of land have been burned and millions of people are exposed to air pollution for months. Transboundary air pollution itself is "Transboundary haze pollution" means haze pollution whose physical origin is situated wholly or in part within the area under the national jurisdiction of one Member State and which is transported into the area under the jurisdiction of another Member State (ASEAN, 2002).

In addition to air pollution that is clearly certain to occur, there are other impacts from transboundary haze, ranging from social, cultural and economic impacts, such as:

1. Smoke will interfere with the activities of the residents of the affected area, including economic activities, people who depend on forest products will lose their livelihoods. Residents living around the affected areas will also be disturbed by their daily social activities, the presence of smoke will require them to stay indoors more, there are orders to use masks and school and office facilities that must be closed due to disturbing the thick haze.
2. With the closing of the offices, productivity will decrease. The office closure will cause a decrease in productivity for all employees. Employees will have to work from home, which will lead to a decrease in productivity. Additionally, employees will have to take time off from work to take care of their children, which will also lead to a decrease in productivity
3. Even though they are already inside the house, it is possible that the smog can still enter the house and be inhaled by residents, this is due to the very small size of the smoke particles. If this happens continuously, the quality of the population's health will continue to decline. Based on a small retrospective study, it was found that a number of physical symptoms were exacerbated or worsened during periods of seasonal haze. Symptoms include sore throat or dry mouth, discomfort in the nose and eyes, headaches, skin irritation and difficulty breathing (Nazeer et al., 2017). In addition, a study conducted in Singapore showed that this seasonal haze is associated with mild psychological stress (Roger et al., 2014).

The impact of this seasonal haze on ecological conditions and environmental damage can be in the form of:

1. Damage that occurs from forest fires will not only affect humans, but also to a number of species that live in the forest, the loss of trees (Forswyth, 2014).
2. An empty area, without any vegetation on it, or also known as open land, will increase the risk of flooding in the area because there is no barrier for water (Jan van der Ploeg, 2014).
3. Forest fires will also exacerbate environmental conditions in the long term, because they can increase global warming. Forest fires increase the global composition of greenhouse gases, which increases the average temperature at the Earth's surface. Global warming will trigger climate change which will gradually become hotter. The hotter earth will then trigger another forest fire, and so on until the Earth becomes too hot to live in and there are no forests to produce oxygen (Adediran Daniel et al., 2019).

Forest fires can also affect tourism and transportation activities. Thick smoke greatly disrupted the flight process. Many flight schedules will be suspended or postponed for safety reasons. As a result, tourism activities will also be affected due to the decline in people's

interest in being in places affected by the haze. Some of the crash cases for land transportation also increase during the haze season (Yan Hao *et al.*, 2021).

3.2. ATHP: A Comparison with LRTAP

For more than 36 years, Long-Range Transboundary Air Pollution (LRTAP) has produced 8 important protocols to tackle air pollution in Europe. Starting from, 1984 Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), 1985 Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent, 1988 Protocol concerning the Control of Nitrogen Oxides or their Transboundary Fluxes, 1991 Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes, 1994 Protocol on Further Reduction of Sulphur Emissions, 1998 Protocol on Heavy Metals and its 2012 amended version, 1998 Protocol on Persistent Organic Pollutants (POPs) and its 2009 amended version, and 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone and its 2012 amended version.

This convention is intended as a concrete form to protect the human environment against increasing air pollution, and to gradually reduce and prevent air pollution, including long-distance transboundary air pollution. This Convention is implemented by the European Monitoring and Evaluation Program or EMEP whose working system is directed by the United Nations Economic Commission for Europe (UNECE) (Galizzi *et al.*, 2020).

This convention itself was opened for signature on 13 November 1979, and entered into force on 16 March 1983. Since 1979, this Convention has discussed several major environmental issues in the UNECE region, through the form of scientific collaboration and policy negotiations. The parties that are parties to this convention will further limit and gradually carry out reductions aimed at reducing air pollution, including air pollution across long-distance borders (UNECE, 2015).

Starting with building a solid scientific foundation, this Convention now focuses more on the emphasis given to the development and negotiation of more advanced protocols gradually, while at the same time ensuring that scientific knowledge is always updated (UNECE, 2015).

The protocol that was first signed under the convention was the Protocol on Long-term Financing of the Cooperative Program for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), this protocol was adopted in 1984. This protocol is not altogether set targets for emission reduction, but rather provide an appropriate financing scheme to finance activities under the Cooperation Program for the Monitoring and Evaluation of Long-Range Air Pollutant Transmission in Europe (EMEP). As a backbone of the scientific activity of the convention, EMEP has since provided information to governments regarding emissions, transportation and deposition of air pollution.

The occurrence of acid rain in several parts of Europe, as well as the acidification of rivers and lakes, became the starting point for negotiations for the next protocol, the Helsinki protocol in 1985. This protocol focused on reducing emissions in the form of sulfur or transboundary changes that were trying to reduce by 30 percent (Tørseth, Aas *et al.*, 2012).

After the Helsinki protocol, it became clear that to reduce the effect of acidification it was necessary to suppress the use of other compounds. Nitrogen is one of the compounds that cause acidification. The deposition of these compounds also forms changes in the ecosystem, therefore the Sofia protocol emerged in 1988. (Scott Barrett, 2005) So continuously, the

conventions formed a protocol based on the phenomenon of natural damage that occurred in Europe. The Oslo Protocol, which was adopted in 1994, is the first protocol to have the mandatory quantitative reduction of the principles of cost effectiveness and degree of effect. The reduction obligation is based on the results of a model relationship between SO₂ emissions in each country and exposure to different ecosystems, then considering the sensitivity of these ecosystems to acidification. The convention sets limits on sulfur emissions for each country, the differentiation of the emission reduction obligations of the parties that are party to this convention has established a system of fines for polluters.

For now, the convention has its main activity, namely reviewing and possibly revising its latest protocol. The implementation of the next convention, is more focused on regions in Eastern Europe, the Caucasus and Central Asia as well as Southeast Europe and sharing knowledge and information with other regions in the world (UNECE, 2015).

Based on the brief explanation above, it is clear how each established Long-Range Transboundary Air Pollution (LRTAP) protocol is always based on the needs and phenomena of natural damage that occur. The protocol is based on constant research which is always updated. The existence of the LRTAP and the unity of its eight implementing protocols is the legal instrument which is by far the most effective for controlling boundary embedding in Europe. The LRTAP Convention establishes a legal instrument for air pollution control which is broadly focused on the following issues: air quality standards, reduction of motor vehicle emissions and "protection of the ozone layer" (Fowler, 2020).

ASEAN countries should immediately prepare regional environmental legal instruments regarding transboundary air pollution control such as the LRTAP Convention. Indonesia as an "annual exporter" of forest fire smoke which can cause transboundary air pollution in the territory of neighboring countries is expected to take the initiative to draft the ASEAN Convention on Agreement on Transboundary Haze Pollution (ATHP).

In comparison to the accomplishments of the LRTAP in Europe, the AATHP and its effects have been largely satisfactory, despite the fact that they have not been as successful as its equivalent in Europe (Nazeer et al., 2017). The success of the ASEAN protocols that are comparable to LRTAP is hindered by a number of different factors, of which they are:

1. Institutional capacity

As compared to the enforcement of LRTAP, there is seen to be an Inadequate administrative and government standards continue to be the most major barrier to development regarding international and regional environmental protection at both the municipal and national levels. National government and their commitment can be seen to range from inactive and even in some cases apathy towards the issue, citing the more pressing matter of internal stability and/or economic development.

The institutional capacity is not borne from regulations and the lack thereof, ASEAN since 1985 has passed more than 20 regional agreements in actuality regarding conservation regulations were passed since 1985. This has signified that the lack of institutional capacity is not in the form of merely the capacity of respective government, but also arguably on the institutional commitment of the national governments in the region.

As the largest contributor to yearly transboundary haze pollution in the region, Indonesian municipal courts, for example, are uninformed of the basic norms and regulations required to condemn those responsible for arsonist. Other governments in the region, in addition to their respective judicial systems, have established a more appropriate measure of

punishment; nonetheless, for the clean skies effort in the region to be more effective, a more complete and cooperative approach must be implemented.

Therefore, citing the lack of physical institutional capacity of the governments in the region, in addition also to the aforementioned lack of commitment of the government in the region. In the future, should the problem become a better and a more pressing matter in order to attain success on par with that of LRTAP, there needs to be both an institution that operates smoothly and the necessary framework in place, as in some cases, the region possess the economic means to achieve so, with the lack of commitment being the more pressing matter to address and bridged by the governments in the region.

2. Manpower

In light of the economic compositions of the nations in the area and the region's economic structure, it is not economically prudent for the economic participants to establish an adequate institution that is in keeping with the scenario of environmental protection, it is simply not in the best interest of the participants. Therefore, it will be hard to attract skilled professionals eager to assist in the administration and preservation of forest regions damaged by fires in the absence of a well-developed institutional framework and political willingness.

In spite of Indonesia being the country that causes the most annual transboundary haze pollution in the region, municipal courts in Indonesia, for example, are unaware of the fundamental principles and regulations that must be followed in order to sentence individuals who are responsible for arson. Other governments in the region, in addition to their own judicial systems, have established a more appropriate measure of punishment; however, in order for the effort to clean the skies in the region to be more successful, a strategy that is more comprehensive and collaborative needs to be implemented.

Should we compare this to the North Atlantic and the LRTAP, despite the fact that it is a basic protocol for signatories, any member nation of the treaty is permitted to implement their own stringent environmental standards. This is the case even though the LRTAP is a basic protocol for signatories.

3. Lack of effective restrictions

As was mentioned briefly earlier, there is a great deal of variation and a degree of haphazardness in the enforcement of environmental offenses in the region. While some countries have created clear and sufficient enforcement, others have left exceptions and loopholes. While some countries have created clear and sufficient enforcement, others have left exceptions and loopholes. For instance, legal enforcement and the structural weakness related to exploitation in Indonesia are still quite inadequate, citing historical deficiencies as the source of the problem. The only thing that can be proven through legal proof is that the manager, and not the corporation itself, is at fault.

Corruption will continue to undermine efforts to curb forest fire and land conversion and to prosecute individuals who break the law, regardless of the changes that have been made to the structure of the government and its enforcement of the law. The implementation of effective transboundary haze restrictions that are the result of environmental crimes is hampered not only by internal factors such as corruption but also by external factors.

Hence with the reasons provided above, the success of LRTAP can be examined by ASEAN, and the factors that contributes on the success of the agreement in because of several factors, and mainly relevant to the discussion on this manuscript is that LRTAP is inherently:

1. Flexible Enforcement and Data Transparency among Signatories

In facing the common problem of the pollution and to further extent the problem of transboundary haze, the method of cooperation and facilitation are the tactics that are taken by the executive body of the convention when dealing with noncompliance. Cooperation and positive contribution by the organization makes feasible recommendations to accelerate emission reductions to the noncompliant country.

In addition to this, data transparency as stated in the subtitle refers to the action in which all data pertaining to emissions available to the general public, including historical patterns, benchmarks, as well as the tactics and policies that are utilized by each Convention party. The data is made to the public and is done in a transparent ways so as to the data and the method in which the respective government has contributed to the environmental effort can be scrutinized by the general public.

Each year, parties are expected to submit a report detailing their anticipated emissions. Countries who have not attained the emission targets set by the treaty are obligated to offer justifications and details regarding any impediments they faced in obtaining those targets. The accessibility of data and higher levels of transparency have sped up the development process, boosted levels of compliance, and added incentives to respond to political demands.

2. Mutual Cooperation among Parties

The Convention is widely regarded as one of the most successful mechanisms for promoting worldwide environmental cooperation. The European Monitoring and Evaluation Programme is the institution that is in charge of the scientific coordination for the convention. The European Monitoring and Evaluation Programme (EMEP) is responsible for the collection of emission data, the assessment of the quality of the atmosphere and precipitation, and the simulation of the atmospheric transport and advection of air pollutants (Tørseth et al, 2022). These data are used to evaluate locations that exceed critical loads and threshold values, as well as the volume and importance of transboundary fluxes (changes in the composition and concentrations of air pollutants).

In line with increasingly widespread measures taken against air pollution, intergovernmental cooperation and coordination on policy problems relating to the Convention have taken place. This aid in policy and technical ratification for Eastern European States has been provided. Representatives from the convention have also participated in discussions with representatives from other international and regional agreements and organizations regarding the intersection between air pollution and other environmental challenges such as climate change and ozone depletion.

4. Conclusion

Air pollution in Southeast Asia has long been a concern. The forest fire season that occurred from 1997 to 1998 was the worst case that occurred in the last 2 decades. Headquartered in Indonesia, these forest fires occur because of The El Nino-Southern Oscillation Phenomenon or ENSO, where "hotspots" are in Sumatra and Kalimantan. During the period of the forest fires, Malaysia experienced a loss of 0.3% of Malaysia's Gross Domestic Product is. After this fire period, it is known that around 8 million hectares of land have been burned and millions of people are exposed to air pollution for months. Apart from economic losses, the seasonal haze will also affect the health quality of the population of the ASEAN

region, it is evident that every time a forest fire occurs, the population with respiratory problems increases, even mild psychological stress.

ASEAN finally formed the Agreement on Transboundary Haze Pollution (ATHP) which has the aim of being a body that works to reduce and suppress air pollution in the ASEAN region. It is found that the success, or the lack thereof of the agreement stems from several reasons, first, on the lack of institutional mechanism of enforcement of the region and on the issue of capacity on the enforcement of the agreement, there is a sufficient lack of said factors, that stems from economic and political unwillingness of the parties involved

Manpower of the region stemmed from political and economic willingness also contributes to the lack of effectiveness of the agreement, that there is sufficient lac of manpower availability in the private and in the judiciary of the signatory parties. In addition, there is also an internal factor of procedural deficiencies in the judiciary of the signatory parties that bars effective management and enforcement of environmental crimes. Corruption is also seen as the external factors that inhibits the effectiveness and the inhibiting factor for the effectiveness of the agreement.

In comparison with LRTAP, in which to the above can be provided as a means of suggestion toward the success of the AATHP. It can be measured that the success of LRTAP as an agreement in curbing pollution and promoting clear skies in the Northern Atlantic region and also in relevance with previous conclusion, stemmed from the factors in which there is an emphasis of contribution, cooperation, scrutiny, democracy and transparency in the agreement. Parties to the agreement are scrutinized in their compliance, or rather, their non-compliance pursuant to the agreement. The public also plays a role in which the general public scrutinization of the action of their respective governments, in which the governments are obligated from inside and externally to improve their stances on pollution. More Importantly cooperation of positive nature has been proven on contributing the effectiveness of the agreement.

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