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THE ESTABLISHMENT OF ASEAN FRAMEWORK OF ACTION ON MARINE DEBRIS: THE ROLE OF SHARED KNOWLEDGE

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Abstrak

Sejak 1970-an, polusi sampah laut dianggap sebagai masalah lingkungan global karena ancaman serius yang ditimbulkannya. Berdasarkan data tahun 2010, jumlah polusi sampah laut dari empat negara ASEAN ditambah Cina sudah melebihi seperempat total polusi global. Pada 2015, Sustainable Development Goals *(SDGs) khususnya tujuan ke-14 mengenai kehidupan di bawah air diterapkan untuk menangani isu tersebut dalam ranah global. Namun secara regional, ASEAN sebagai polutan terbesar justru baru membentuk* ASEAN Framework of Action on Marine Debris *pada 2019. Jeda waktu yang besar mengingat urgensi untuk merespons sudah muncul sejak 2010. Bahkan sejak 2011, negara-negara ASEAN telah memulai riset dan upaya penanganan secara individu. Karena itu, pengetahuan mengenai isu tersebut sudah muncul sejak awal 2010-an. Namun pengetahuan tersebut tak serta merta memperoleh atensi dari ASEAN untuk mengatasi secara kolektif. Kami melihat adanya mata rantai yang belum terjelaskan antara munculnya urgensi dan pengetahuan mengenai polusi sampah laut pada awal 2010-an dan terbentuknya rezim tersebut pada 2019. Dalam tulisan ini kami berusaha menganalisis bagaimana urgensi dan pengetahuan tersebut pada akhirnya memperoleh perhatian dari ASEAN dan pada akhirnya membentuk rezim tersebut. Analisis akan dilakukan menggunakan pendekatan* Weak Cognitivism *dalam* Knowledge-based theory*, berfokus pada peran komunitas epistemik dalam menciptakan* shared knowledge *sebagai kunci terbentuknya rezim internasional.*

Kata kunci:

ASEAN, Komunitas Epistemik, Polusi Sampah Laut, Rezim Internasional, Knowledge-based Theory

Abstract

Since the 1970s, marine debris pollution has been considered a global environmental problem because of the serious threat it poses. Based on 2010 data, the amount of marine debris pollution from the four ASEAN countries plus China has exceeded a quarter of the total global pollution. In 2015, the Sustainable Development Goals (SDGs), in particular the 14th goal regarding life under water, were implemented to address this issue in the global realm. But regionally, ASEAN as the biggest pollutant has just formed the ASEAN Framework of Action on Marine Debris in 2019. The time lag is large considering the urgency to respond has emerged since 2010. Even since 2011, ASEAN countries have started research and individual handling efforts. Therefore, knowledge about this issue has emerged since the early 2010s. However, this knowledge does not necessarily get the attention of ASEAN to deal with it collectively. We see that there is an unexplained link between the emergence of urgency and knowledge regarding marine debris pollution in the early 2010s and the formation of the regime in 2019. In this paper, we attempt to analyze how this urgency and knowledge ultimately gained the attention of ASEAN and ultimately formed the regime. The analysis will be carried out using the Weak Cognitivism approach in Knowledge-based theory, focusing on the role of the epistemic community in creating shared knowledge as the key to the formation of an international regime.

Keywords:

ASEAN, Epistemic Community, Marine Debris Pollution, International Regime, Knowledge-based Theory.

INTRODUCTION

Marine debris or marine litter refers to ocean pollution caused by unsustainable production and consumption as well as poor waste management systems and is often accompanied by weak regulations of the relevant authorities governing these matters (UNEP, 2019). Of the many sources of marine debris pollutants, plastic waste is the largest and most worrying source of pollutants. According to the International Union for Conservation of Nature (IUCN) (2018a), the overall global plastic production reaches 300 million tons annually, of which at least 8 million tons end up in the ocean. This makes plastic waste the biggest pollutant, contributing to more than 80% of all marine debris both on the surface and on the seabed. ASEAN (2021) predicted that if the plastic waste problem is not handled properly, there will be more plastic than fish in the ocean by 2050. Marine plastic debris has become a transboundary problem at the global level. The ASEAN Post (2020) showed that the level of plastic waste pollution in the world's waters had reached a catastrophic level of around 100 million tons in 2019. As much as 80-90% of the total plastic waste comes from land (land-based), while the rest comes from activities in the ocean, such as fishing equipment and other activities. The ocean is the largest ecosystem home to billions of marine lives. The pollution of the ecosystem by plastic waste, which is difficult to decompose, poses a threat to marine animals. Animals such as fish and fish-eating birds often mistake plastic waste for food so that the waste is eaten and disrupts the digestion of various biota and causes death (IUCN, 2018a). Galgani (2019) stated that in 2018 an average of 300 marine animals were killed as a result of consuming marine debris, 60% of which were whales and dolphins which are classified as protected animals. Sabatira (2020) added that these protected marine animals were ensnared to death by plastic waste. In addition, large amounts of plastic waste pollution could also potentially damage the coral reefs, threaten coastal tourism, and contribute to climate change (IUCN, 2021).

Marine debris pollution is dangerous not only for marine life but also humans. As the largest ecosystem home to billions of marine lives, the sea is a very important source of food and livelihood. The marine debris pollution contaminates many marine biotas with plastic components, especially micro and nano plastics that are extremely small. These components, if eaten, are believed to have negative impacts on human health (ASEAN, 2021a). Moreover, plastics are produced using various chemicals that are known to be carcinogenic and can disrupt the body's endocrine system, causing growth, reproduction, neurological and immune disorders (IUCN, 2018a). The mismanagement

of plastic waste from production and consumption activities has created a global threat to environmental sustainability and human health.

Basically, plastic waste pollution on marine and freshwater environments has been a problem since the 1970s. In 1972, Carpenter & Smith published their research about plastic pollution in Sargasso Sea which could seriously damage the marine environment. However, this issue only received attention and was raised as a global issue in the 2010s where there was significant increase in marine debris pollution (Xanthos & Walker, 2017). The global framework to overcome this problem was only formed in 2015 through the Sustainable Development Goal 14 (SDG 14) to "conserve and sustainably use the oceans, seas and marine resources for sustainable development" (UNDP, 2021; UN, 2021).

A research in 2010 showed that four ASEAN countries, namely Indonesia (10%), the Philippines (6%), Vietnam (6%), Thailand (3%), combined with China (28%), account for more than a half of the world's total plastic pollution (Jambeck et al., 2015; Ritchie & Roser, 2018). Moreover, the latest data shows that two other ASEAN member countries, namely Malaysia and Singapore, are also considered as among the largest plastic polluters. Malaysia ranks tenth and Singapore is still included in the top twenty in the ranks of world’s marine debris polluters (The Jakarta Post, 2015; Sabatira, 2020; ASEAN, 2021a).

The issue of marine debris has received wide attention from ASEAN member countries. Various efforts have been made to reduce the negative impact caused by mismanaged waste, especially plastic so that it does not end up polluting the sea.

Table 1. ASEAN Member States' efforts to address marine debris issue.

Country	Effort on reducing marine plastic
Brunei Darussalam	2011: the use of polythene bags by retailers started to be restricted from Fridays to Sundays. 2019: the use of plastic bags in major supermarkets was targeted to phase out by this year.
Cambodia	2016: Cambodia's Ministries of the Environment, Home Affairs, Finance and Tourism collaborated with Fondazione ACRA to draft a bill for regulatory charges on plastic bags. 2018: Cambodia was listed as one of the countries for Fauna & Flora International (FFI)'s work on combating marine plastics.
Indonesia	2012-2018: 17 research conducted on marine plastics issue by researchers from Indonesia and international organization. 2017: The Indonesian government was committed to a goal of 70% reduction in marine plastic by the year 2025 through Indonesia's Plan of Action on Marine Plastic Debris 2017-2025. 2018: International Conference on Marine Plastic Pollution Prevention and Management was held.
Malaysia	2013-2018: 7 research conducted on marine plastics issue by researchers from Malaysia.
Philippines	2012-2018: 7 research conducted on marine plastics issue by researchers from Philippines.
Singapore	2012-2019: 9 research conducted on marine plastics issue by researchers from Singapore. 2014: Dual rubbish chutes initiated as part of the National Recycling Programme. 2016: Symposium on Marine Pollution in Singapore and Southeast Asia hosted by educational institutions in Singapore. 2017: Workshop on Plastic Oceans hosted by educational institutions in Singapore. 2018: International Conference on Plastics in the Marine Environment hosted by educational institutions in Singapore. 2019: NUS - Research on marine plastics in SEA.
Thailand	2014-2017: 3 research conducted on marine plastics issue by the government and researchers from Thailand.

	2015: conducted marine plastics research work along the Thai coastline by The Department of Marine and Coastal Resources (DMCR). 2016-2021: established the five-year programme "National Waste Management Master Plan". 2017-2021: established "Plastic Debris Management Plan". 2017: hosted WESTPAC Training Workshop on Distribution, Source, Fate and Impacts of Marine Microplastics in Asia and the Pacific and ASEAN Conference on Reducing Marine Debris in ASEAN Region.
Vietnam	2015-2018: 2 research conducted on marine plastics issue by researchers from Vietnam .

Source: Lyons et al. (2019). Retrieved 11 April 2022 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813009/A_review_of_research_on_marine_plastics_in_Southeast_Asia_-_Who_does_what.pdf

As a region that accounts for more than a quarter of the world's plastic pollution, ASEAN is considered late to be aware about this issue in regional scope. ASEAN's awareness of the need for joint efforts to address this issue only emerged in 2017 by the holding of the "ASEAN Conference on Reducing Marine Debris in ASEAN Region" by the Ministry of Natural Resources and Environment of Thailand in coordination with the ASEAN Secretariat. This conference was held in Phuket, Thailand on November 22-23, 2017, discussing how ASEAN should view and work together to overcome the issue of marine debris in the ASEAN region (ASEAN, 2017). It was then followed up with the establishment of the "ASEAN Framework of Action on Marine Debris (AFAMD)" in 2019 as a more concrete framework for cooperation to deal with marine debris problems, especially plastic waste as the largest source of pollutants (ASEAN, 2019). Finally, the "ASEAN Regional Action Plan for Combating Marine Debris in the ASEAN Member States 2021-2025" was published in 2021 as a guidebook for ASEAN members to harmonise views and carry out actions to overcome marine debris (ASEAN, 2021a). Although the document also refers to the other six SDGs goals (SDGs goals number 3, 6, 11, 12, 13, and 15), the turning point for this document to exist is SDG 14, as stated in the Phuket 2017 conference result published by IUCN (2017).

ASEAN's behaviour is an interesting case to study. ASEAN has realised that its region is one of the world's largest contributors to marine debris pollution since 2010. Since 2011, there has been an urgency to overcome marine debris problems from ASEAN

member states as previously discussed, and, in 2015, there were already guidelines at the global level, namely the SDGs. However, there was a fairly large time gap between the emergence of the urgency to take action and the guidelines that could serve as a reference for concrete steps with the establishment of the AFAMD regime in 2019. As a comparison, United Nations Environment Program's Regional Seas Programmes (RPS), which covers the same issue as the AFAMD, was established in 1974, only two years after the issue of marine debris began to get serious attention. Considering the development of communication and information technology in the 1970s that was certainly not as advanced as it is nowadays, the two years gap between the raising up of the issue and the establishment of the regime is considerably fast (UNEP, n.d.). Other comparisons can be seen in other environmental issues in ASEAN. Between 1997 and 1998, a number of severe haze incidents occurred and were considered an "environmental catastrophe." It took only four years for ASEAN to create a legally binding contract to rectify cross-border hazes through the Transboundary Haze Pollution Agreement signed in 2002 (Hermawan & Astuti, 2021).

As the table above shows, seven out of ten ASEAN member states have already been working on research and formulating solutions for serious marine debris pollution in their respective territories since 2011. There was even significant research regarding the issue conducted in 2010 by Jambeck et al (2015). It shows that the concern about marine debris issues among the countries and researchers has emerged at least since 2010. However, it seems that the concern was not significant enough to gain attention at the regional level. It is evidenced by the emergence of a regional marine debris regime and regional action plan regarding the issue that has only emerged in 2017 and 2019 in ASEAN (IUCN, 2017a; ASEAN, 2019). In this case, there is a large time gap between the emergence of concern about the marine debris issue and the establishment of ASEAN regional regime and action plan to tackle it. Therefore, it can be considered as a missing link that is worth to be examined in this paper.

There have been several scholars who have raised the issue of marine debris and international cooperation on this issue. Kandziora et al (2019) examined the important role of marine debris networks as key to achieving sustainable development. Hsing-Hao Wu (2020) examined the need for a well-designed waste management legal and institutional framework with effective implementation to prevent the land-based Marine Plastic Debris (MPD) by using Taiwan as case study. Sabatira (2020) examined how a regional community can tackle the severe pollution of our oceans by using normative

legal analysis with secondary data sources and literature study techniques. Based on this literature review, there has been no writing that discusses the role of the epistemic community in marine debris regime formation. Therefore, our discussion in this paper seeks to analyse the emergence of the marine debris regime within the ASEAN framework using knowledge-based theory.

This paper is important because its analysis can help readers understand how the epistemic community can become the most influential actor in the process of forming international regimes on specific issues. This paper consists of four sections. The first and second sections examine the research background and the methodology used in analysing the emergence of the marine debris regime in ASEAN. The third section will focus on the analysis of the regime formation using a weak cognitivism approach from knowledge-based theory. The last section is the conclusion of the research and possible gaps that can be used for further research.

ANALYTICAL FRAMEWORK

Knowledge-based Theory: Weak Cognitivism

The knowledge-based theory is derived from the cognitive school of thought in International Relations which seeks to explain the formation of an international regime by dismantling the true cognitive aspect behind the countries' interest in deciding to bring an international regime into existence. This approach emphasized the role of knowledge or ideas whether it is causal or normative as the main factor in shaping a country's beliefs. This theory believes that country's belief is the main source of interest, and therefore, beliefs play a significant role in shaping any policy. Accordingly, belief can be a decisive aspect in forming an international regime, but it is only possible if there are enough countries that follow the same belief. The key to making it possible is transforming knowledge into shared knowledge. In this case, a group named epistemic community usually plays a significant role in transforming knowledge into shared knowledge. Proponents of this theory are Emanuel Adler, Peter Haas, Andreas Hasenclever, Peter Mayer, and Volker Rittberger. There are two different views among cognitivists on how radical a critique of rationalism they think is necessary, namely "strong" and "weak" cognitivism. Strong cognitivism investigates how social actors self-understand themselves, and also what is the origins and dynamics of the self-understanding itself. while weak cognitivism focuses on the origins and dynamics of rational actors in understanding the world.

The demand for regimes in international relations according to weak cognitivism depends on how an international actor perceives an international issue. This perception is a product of actors', or in this case countries' causal and normative beliefs that are considered partly independent from their material realm. As this approach conceptualizes the states as rational utility-maximisers, the utility perception is based on knowledge, which is inextricably linked to material structures. Thereupon, weak cognitivism emphasised the role of scientists and experts to create new insights into causal relationships and actively (and often effectively) promote those changes in public policy both nationally and internationally. In particular, weak cognitivism emphasises the role of trans-national scientists and expert networks which can be referred to as epistemic communities. The main role of these groups is to influence the process of agenda-setting and regime formation through shared knowledge (Hasenclever et al., 1996). Accordingly, this paper will use a weak cognitivism approach in analysing the role of certain groups in influencing the process of agenda-setting and marine debris regime formation.

The epistemic community can be understood as "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge in that domain or problem area" (Haas, 1992). The role of the epistemic community is to form new knowledge into causal relationships and actively promote those changes in public policy both in the national and international realms. They come to affect the processes of agenda-setting and regime formation as the policy process done by state actors requires scientific information and state actors will ask for information from the epistemic community.

Adler and Haas (1992: 37285) stated that the impact of epistemic communities on the creation and maintenance of international regimes can be exerted in four stages of the policy process namely; policy innovation, policy diffusion, policy selection, and policy persistence. In the first phase, policy innovation, the epistemic community can influence the issue framing for collective debate. In the second phase, members of the epistemic community also play an important in policy dissemination. Due to their cross-border connections, experts can give their counterparts in other countries new ideas and policy innovations, which will affect their own governments. In the third phase, namely policy selection, the impact of the epistemic community is quite hard to evaluate because it involves the negotiation process between two (or more) countries which is usually discreet. However, the ability of epistemic communities in providing integrative formulas in complex negotiations can be considered evidence that the groups really play a

significant role in this phase (Adler and Haas 1992:383). In the final phase, epistemic communities could serve as an effective defenders of the regime. It can advocate the regime by arguing that it is the best way to address the issue that the regime aims to overcome. The degree of consensus among community members and the persuasive power of rival scientific networks determine the influence of an established epistemic community on policy persistence. Therefore, the influence of the epistemic community in the creation and maintenance of marine debris regimes in ASEAN throughout these phases will be analysed in this paper.

However, according to Haas (1992) the four phases of the policy coordination by the epistemic community above are only likely to occur under certain conditions namely strong uncertainty among policymakers, the high consensus among scientists, and good institutionalisation of scientific advice. With regard to the first condition, Haas (1992) argued that the increasingly complex global problem demands scientific knowledge. Then, in the second condition, scientists or experts, have to organise themselves as an epistemic community so they could share their knowledge and beliefs about cause-effect relationships and the best method to address the respective issue (Haas 1989; 1992; Adler and Haas, 1992). Then lastly, members of the epistemic community are supposed to endow the desired knowledge and, exert considerable influence on the choices made by policymakers to influence the process of regime formation and regime implementation (Adler and Haas, 1992; Haas, 1992). These conditions will be used to determine the involvement of the epistemic community in policy coordination.

RESEARCH METHOD

This article proceeds with discourse analysis in a case study setting as we see there was a change in the discourse related to marine debris issues in ASEAN. It traces the causal mechanism linking epistemic community to shared knowledge in ASEAN on marine debris issue. The particular significance of using this methodology is to assess the role of knowledge in constructing norms regarding marine debris pollution and how they can influence the emergence of the regime. Discourse analysis is used in this study to examine the knowledge that influences the emergence of the marine debris regime in ASEAN. In conducting the analysis, the resources examined range from official documents and speeches made by government and international organisation officials, to books, and journal articles. Other resources are also utilised to enrich the analysis such as newspaper articles in mass media. The information collected from those diverse resources are

interpreted by the author of this study to understand how the interpretation of knowledge can construct norms that are able to influence actors' behaviours in the international system.

DISCUSSION

The Establishment of ASEAN Framework of Action on Marine Debris: The Formation of Shared Knowledge

As previously explained, although it has been named as one of the largest contributors to marine debris pollution in the world since 2010 and the issue of marine debris has become a concern for its member countries, ASEAN did not immediately respond by forming a framework to organise collective actions to overcome these problems. The establishment of the AFAMD regime only took place in 2019. The emergence of the regime itself was considered a promising cornerstone for handling marine debris pollution in areas that accounted for more than 25% of total marine debris pollution in the world since 2010 (Habib, 2019; Ritchie & Roser, 2018). However, the emergence of this regime raises questions about why the regime was not established earlier since four of ASEAN member states had been declared as the largest contributors to marine debris pollution since 2010 and there had been concerns from ASEAN member states towards this issue.

According to the weak cognitivism approach in knowledge-based theory, an international regime will only be formed when the countries involved have the same interpretation regarding knowledge and the issues to be addressed. The same interpretation of knowledge or referred to as shared knowledge is obtained through a socialisation process that can be carried out in a forum (Hasenclever et al., 1996). According to this theory, the regime of AFAMD was formed because of the shared knowledge that had been agreed upon by ASEAN member countries that was formed through the process of socialisation. In this case, the “ASEAN Conference on Reducing Marine Debris in the ASEAN Region” played a significant role in the socialisation process to form the shared knowledge mentioned above.

The conference was held in Phuket and chaired by Thailand. Thailand thus played a big role in facilitating the formation of the regime by raising awareness towards marine debris issues in ASEAN. In Thailand itself, there was a growing awareness of proven and potential issues resulting from pollution from marine plastics, among the scientific community and beyond. Indeed, the impacts of marine debris are felt by almost all coastal countries, including Thailand. Several findings such as the discovery of microplastics in

the sediments of the Gulf of Thailand in the 2010-2011, in sessile invertebrates from the east coast of Thailand and in marine organisms studied from March to May 2015 in Angsil**,** Bangsaen, Samaesarn, and Sathing Phra, show how marine debris is a real threat to Thailand (Curren et al., 2021). The Pollution Control Department states that annually Thailand produces about 2 million tons of plastic waste, only 25% of which is recycled with the rest is transferred to incineration, and about 50,000 to 60,000 tons flows into the ocean. Thailand is also the largest plastic user per capita in Asia with an estimated consumption volume of 40 kilograms per year (Hermawan & Astuti, 2021). This is also exacerbated by the fact that Thailand has long been one of the destinations for waste disposal from developed countries. Even waste management experts have warned that "Thailand is becoming the garbage bin of the world" (Sukanan, 2020).

Thailand fully intends to actively participate and cooperate with countries in the region as well as international and intergovernmental organisations to address these issues. It is manifested in comprehensive and integrated actions both in terms of policies and practices that involve the full participation of all stakeholders. For example, at a global level, the Secretariat of Coordinating Body for the Seas of East Asia (COBSEA), a regional intergovernmental mechanism that focuses on development and protection of the marine environment and coastal areas of East Asian Seas, is hosted by Thailand. The 2nd meeting of COBSEA Working Group on Marine litter also took place in Bangkok in December 2018. Moreover, despites not being a member, Thailand has also been included in the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) projects which aim to foster and sustain healthy and resilient coasts and oceans, communities, and economies across the Seas of East Asia. In addition, Thailand is also involved in the Program Steering Group of The Sub-Commission for the Western Pacific of the Intergovernmental Oceanographic Commission (IOC-WESTPAC) and hosts its office at Huahong Shi, Phuket Marine Biological Center (Lyons et al., 2019). Meanwhile, Thailand's effort to address this issue on domestic level can be seen in the following table:

Table 2. Thailand domestic policy addressing marine debris issue

Year	Thailand's Policy
1993	- "Ban on the import of used lead-acid batteries for either disposal or recovery"
1994	- "Strict control on the import of used plastic scraps for recovery" (by The National Environmental Board)
1997	- Ratification of the Basel Convention (Thailand is one of two ASEAN countries that have signed)

2002	-	Ratification of the Rotterdam Convention
2003	-	The import of used tyres into the Kingdom of Thailand B.E. 2546 (2003), issued on 23 May 2003
	-	The imports of used tyres (under the harmonized code item 4012.11, 4012.12, 4012.192, 4012.199, 4012.202, and 4012.209) including their rubber scrap, pairings and waste (under the harmonized code item 4004.00) to Thailand have been prohibited (by Ministry of Commerce)
	-	"Ban on the import of the refuse derived fuel for either disposal or recovery" (by Sub-Committee on the Coordination of the Industrial and Environmental Management)
2005	-	Ratification of the Stockholm convention
2016-2021	-	Master Plan on Waste Management
2017	-	Plastic Debris Management Plan (by the Ministry of Nature Resourcesand Environment – MoNRE)
	-	"Smoke-Free Beaches" (by Thai Department of Marine and Coastal Resources)
2017-2021	-	20-Year Pollution Management Strategy Pollution Management Plan
2018	-	"Say No to Plastic Bag" campaign (11,000 mini-markets and convenience stores)
	-	"No plastic cap seals of drinking water bottles" campaigns
	-	"No plastic bags in hospitals" (by Department of Medical Services, Ministry of Public Health)
	-	Plastic bags ban in the national parks (by Department of National Parks, Wildlife and Plant Conservation)
	-	Initiative on "Public-Private Partnership for Sustainable Plastic and Waste Management"
	-	Sustainable University Network (SUN) campaign regarding "single-use plastic" reduction on campuses
	-	MoU between the MoNRE and 16 enterprises regarding "no plastic bags distribution to the customers on 15th and 30th each month"
2018-2030	-	The Natural Resources and the Environment Ministry rolled out a plastic management roadmap

Sources: Hisham & Florent (2019). See also IUCN (2015). Retrieved 14 June 2021 https://portals.iucn.org/library/sites/library/files/documents/2015-020.pdf

As far as Thailand's efforts to increase awareness regarding marine debris issues in ASEAN is concerned, the International Union for Conservation of Nature (IUCN) has an important role as an epistemic community who helped shape Thailand's knowledge of marine debris issues and was involved in the establishment of the AFAMD regime.

The Role of IUCN as Epistemic Community

The IUCN itself is a membership union of government and civil society organisations with the largest and most diverse environmental network in the world. Founded in 1948, the union's reach includes more than 1,400 member organisations and takes inputs from more than 18,000 experts. The IUCN leverages the network to establish itself as a global authority on the status of nature and the steps needed to protect it. As the first global environmental union, IUCN brings together the world's most influential organisations and leading experts in a joint effort to conserve nature and accelerate the transition to sustainable development.

IUCN has emerged as an epistemic community that has a role in policy coordination related to environmental issues. There are basic conditions that allow IUCN to be an epistemic community on marine debris issues in ASEAN especially through Thailand. First, there was a high degree of uncertainty among policymakers. Before 2017, efforts to deal with marine debris were still scattered and centred in each member country as presented in Table 1. As a result, ASEAN member countries experienced the lack of reliable scientific data on marine debris as stated by the Ministry of Natural Resources and the Environment (MONRE) and the Vietnam Administration of Seas and Islands (VASI). This had an impact on difficulties in making informed decisions on how to reduce sources of plastic pollution, monitor progress, and to inform clean-up strategies (Walker et al., 2021).

The second condition is a high degree of consensus among scientists. In this regard, IUCN created beliefs about cause-effect relationships regarding the marine debris issue, by focusing on plastic waste as the main source and the danger it poses to marine life and human security. IUCN then provided appropriate ways to solve the problems at hand through fostering the scientific knowledge and legal analysis to understand how to manage the vast marine realm beyond national boundaries in a better way (IUCN, 2014). Therefore, IUCN's programme of work on marine plastics focused primarily on tackling pollution at its source. IUCN also launched an international programme on marine plastic pollution in several regions, particularly Asia-Pacific to develop innovative solutions to plastic pollution by changing industry behaviour and influencing regulation (IUCN, 2017a).

The third condition is a high degree of institutionalisation of scientific advice where the IUCN, with its ability to supply the desired knowledge, becomes a new group

of actors with political influence. This can be seen from how IUCN has played a key role in UN discussions that would lead to a formal preparatory process for a global and legally binding instrument under the UN Convention on the Law of the Sea (UNCLOS) for the conservation and sustainable use of marine biodiversity beyond national jurisdiction (IUCN, 2016). IUCN was one of the only two environmental organisations with official United Nations Observer Status which allowed it to play an active role in the discussions leading up to the adoption of the SDGs (IUCN, 2018b). IUCN also has a strong presence in the Global Partnership on Marine Litter and Clean Seas tent organised by the UNEP. It also collaborated with the UN Environment Program to develop a plastic leakage hotspot methodology and launched policy, legal and economic assessments to identify these hotspots and remediation options. With knowledge, networks, convening influencing power, IUCN can exert considerable influence on the choices made by policymakers in ASEAN to influence the process of marine debris regime formation and implementation (IUCN, 2019).

Knowledge Transfer: From Epistemic Community to Member Countries

IUCN and the Thai government have a long history of close relations. Thailand has been a member of the IUCN since 1948 and established the IUCN office in the country in the early 1990s (IUCN, 2021a). IUCN and the Thai government are also very often involved in environmental conservation programs in various fields. Thailand became the first Asian country to sign the IUCN's Charter in 1948 and the relationship continued until 1990. IUCN set up its regional office in Bangkok and expanded its program in Thailand in 2001 (IUCN, 2021a). IUCN also supported the elaboration of the Thailand Marine and Coastal Resource Management Act In 2015 (IUCN, 2015). In 2017, with support from the Swedish International Development Cooperation Agency (Sida), IUCN launched the Marine Plastics and Coastal Communities initiative (MARPLASTICCs) in five countries. In this case, Thailand alongside Vietnam, became the only ASEAN member countries that are included in the program (IUCN, 2022).

IUCN has started its project in Thailand since 2013, six years before the implementation of the “ASEAN Conference on Reducing Marine Debris in the ASEAN Region.” From 2013-2021, Thailand continued to receive assistance from IUCN. Although the amount of aid fluctuates, the total number of projects carried out each year tends to increase (IUCN,2021). These projects have become the medium for IUCN to transfer its knowledge on several issues. The increase in the number of projects carried

out also indicates that Thailand has become a strategic partner of IUCN to share its knowledge which can then be disseminated by Thailand in the broader ASEAN and Asian regions. Moreover, IUCN also disseminates its conservation knowledge through a wide array of publications, including toolkits, guidelines, and case studies (IUCN, 2014). Although IUCN also runs its projects in several issues in other ASEAN member countries—Vietnam, Myanmar, and Indonesia—the only IUCN's project on marine debris in Southeast Asia is carried out in Thailand. In this case, the closeness between IUCN and the Thai government since the 1990s through various environmental conservation programs makes it relatively easy for the Thai government to trust any knowledge provided by IUCN, including knowledge regarding marine debris.

The knowledge that Thailand receives from IUCN is also passed through in Thailand's efforts to increase awareness of marine debris issues at the ASEAN level. This can be seen in Thailand's role as Chairman at the "ASEAN Conference on Reducing Marine Debris in the ASEAN Region." During its ASEAN chairmanship in 2019, Thailand also included the agenda of protecting the environment and fighting marine debris. This theme is also in line with the UN SDGs (Kliem, 2019). The Bangkok Declaration on Combating Marine Debris in the ASEAN Socio-Cultural Community (ASCC) was one of the three main issues brought up by Thailand after the 34th ASEAN Summit. In ASEAN, Thailand is the country with the most domestic legal and policy frameworks regarding marine debris. Thailand also has the most major players in marine plastics research in ASEAN, namely Chulalongkorn University, Burapha University Chanthaburi Campus, Prince of Songkla University, Mahidol University, and Ministry of Natural Resources and Environment - Department of Marine and Coastal Resources (DCMR)

Meanwhile, IUCN's important role in the implementation of the ASEAN Conference on Reducing Marine Debris at the regional level can be seen from its role as the co-host. By being a co-host, IUCN took the role as the coordinator of the agenda together with the Ministry of Natural Resources and Environment of Thailand and ASEAN Secretariat. This agenda was vital in the process of inculcating knowledge because it served as a medium for participants to exchange knowledge related to marine debris issues. In the ASEAN Conference on Reducing Marine Debris, Petch Manopawitr, Deputy of the IUCN Indo-Burma Group stated that "The issue of Marine Plastic is well aligned with IUCN's global priorities. Since ASEAN is really a region of focus to make an impact, IUCN will be working closely with the Thai government and other ASEAN

countries to support its action plan and roadmap for implementation in the years to come,". His statement clearly confirmed that IUCN will collaborate with Thailand and followed by other ASEAN countries to tackle marine debris pollution (IUCN, 2017b).

From Knowledge to Policy: Four Phase of Policy Process

The influence of IUCN as an epistemic community in the creation and maintenance of marine debris regime in ASEAN was exerted in four phases of the policy process**.** In the policy innovation phase, IUCN played a role through its collaboration with the Thai government, especially in the Koh Yao Yai area since 2017, in overcoming the problem of plastic waste based on knowledge from IUCN (IUCN, 2018c).[1] The closeness between Thailand and IUCN strengthens IUCN's position as an epistemic community that influences Thai government's policies on environmental issues, including problems related to marine debris pollution. This is evidenced by the establishment of cooperation in handling plastic waste as a source of marine debris between IUCN and Thailand which began in 2017 as previously mentioned. In this collaboration, IUCN plays its role as an epistemic community by providing knowledge regarding the problem of plastic waste as a source of marine debris pollution to the Thai government. According to Adler and Haas (1992), the provision of knowledge from the IUCN to the Thai government can influence the Thai government's view of the issue so that innovations can be made on policies that will be carried out related to these problems.

In the policy diffusion stage, IUCN as an epistemic community started sharing its knowledge to Thailand through funding and projects that have been carried out since 2013 in Bangkok as shown in Table 3. IUCN often holds workshops that discuss marine debris by inviting the Thai government, the private sector, civil society, and national NGOs. In addition, with a total of 47 projects that have been carried out, the process of imparting knowledge to Thailand has successfully influenced Thailand's domestic policy regarding marine debris issues as previously discussed. The knowledge about marine debris was then disseminated by Thailand and IUCN to other ASEAN countries through the ASEAN Conference on Reducing Marine Debris in the ASEAN Region.

The aim of the conference was for participants to exchange information, share knowledge, and discuss the opportunities and challenges in overcoming marine debris problems in the ASEAN region. The conference also sought to exchange information on the most effective methods for addressing debris that already exists in the oceans (IUCN, 2017a). The exchange of information and knowledge, and discussion of these opportunities and challenges was useful for finding agreed common ground on how

ASEAN views these problems at the local, regional and global levels and the most effective way to address these problems (ASEAN, 2017; IUCN, 2017). In other words, the conference had a major role in aligning the interpretations of ASEAN member countries regarding marine debris to create a shared knowledge that allows the formation of the AFAMD regime.

The knowledge socialisation process in the policy diffusion stage began with Thailand and IUCN as the chair and co-chair of the conference, respectively, sharing their concerns about the marine debris issue as a matter that must be solved together by ASEAN. They also shared their national policies and initiatives which served as a model as well as discussion material to form shared knowledge. Moreover, the conference also invited a number of representatives from the public and private sectors that were interested in creating a cleaner ocean to deliver their perspective and innovations. Apart from the public and private sectors, the conference also held a hearing session about inspiring innovations by certain countries with unique innovations. In this case, Singapore, Japan, and Indonesia were role models in terms of inspiring innovations on marine debris issues. The hearing sessions served as a discussion material in focused group discussion to form a shared knowledge on the issue (IUCN, 2017a).

The establishment of the AFAMD as the follow-up of the conference was strong evidence that the conference was successful in creating a shared knowledge between ASEAN member states regarding marine debris. In this case, ASEAN member states have agreed that marine debris is a regional problem that requires regional action to be addressed. According to H.E. Vongthep Arthakaivalvatee, Deputy Secretary General of ASEAN, this issue should be addressed collectively as a region because of the status of some ASEAN member states as the world's largest marine debris pollutants. Arthakaivalvatee also stated that there was a significant yet constant increase in plastic production and use in Asia especially ASEAN and its surrounding regions (IUCN, 2017a). Moreover, according to a research (Jambeck et al., 2015), if the marine debris issue is left without any proper measure to address, the plastic pollution in marine environment would be ten times higher in 2025 than in 2010. Furthermore, Hudaya (2019) stated that ASEAN is one of the most unique regions with a vast ocean territory and situated strategically in the world's most strategic crossroad that connects the Indian and Pacific Ocean. Therefore, according to Agustina & Purba (2021), ASEAN's unique geographical location has its own consequences. Not only they have to deal with their own plastic waste pollution (see IUCN, 2017; Jambeck, 2015; Ritchie & Roser, 2018;

Habib, 2019; ASEAN, 2019; Agustina & Purba, 2021), ASEAN member states also have to deal with marine debris pollutions that originated from their neighbouring countries.

The vast ocean territory makes the ocean one of the main economic sources of ASEAN member countries, especially the fishery sector. Marine debris is considered to be harmful to marine life and its ecosystems (see Jambeck, 2015; Galgani, 2019; ASEAN, 2019; and IUCN, 2021). In addition to livelihood, marine debris also threatens human health and tourism, according to ASEAN Secretary-General, Dato Lim Jock Hoi (ASEAN, 2021b). Therefore, the issue can no longer be addressed by ASEAN member states individually. So, it is natural that ASEAN member states come to an agreement to adopt a shared knowledge and establish an international regime regarding the issue (Agustina & Purba, 2021). Dato Lim Jock Hoi implied that the ASEAN's action plan supports regional policies and platforms and aligns resources to complement existing policies (ASEAN, 2021b). In addition, Wijarn Simachaya added that the establishment of the AFAMD and its Action Plan is a sign of agreement between all ASEAN member states that marine debris is a common problem that must be addressed urgently by ASEAN as an organisation (The Jakarta Post, 2019).

The next phase is policy selection. In this phase, parties involved in the conference negotiated a common policy that must be implemented in overcoming the issues that had been agreed upon. The role of the IUCN as an epistemic community is difficult to see in this phase. However, without the knowledge provided by IUCN which was later disseminated by Thailand in the ASEAN region, especially at the conference, the shared knowledge would have not been achieved and the negotiations to align policies would have not run smoothly. Most importantly, IUCN provided needed information that could be used as material for negotiations by conference participants (IUCN, 2017a).

The last stage in the policy process is policy persistence. Until June 2021, IUCN was still running three projects related to marine debris in the Asia region, including Protection and Conservation of Coastal and Marine Ecosystems in Asia, Framework Partnership Korea, and MARPLLASTICCs which were all located in Thailand. In a broader scope, similar projects and funds are also ongoing on a global scale. The integrity and consensus within have so far maintained IUCN's role as an authoritative and noticeable epistemic community in ASEAN. IUCN's major role in keeping the AFAMD regime running can be seen in the ASEAN Regional Action Plan for Combating Marine Debris in the ASEAN Member States, 2021-2025. In the introduction chapter of the

document, the rational background used to describe the significance of the marine debris problem relies heavily on the knowledge originating from the IUCN (ASEAN, 2021a).

CONCLUSION

To sum up the discussion, the large time gap between the emergence of ASEAN member countries' awareness of the issue of marine debris pollution and the formation of AFAMD as a regional regime is caused by the lack of attention to the policies and research that had been conducted by respective ASEAN member countries and the UN body. Prior to the Phuket Conference in 2017, ASEAN member countries tended to address the issue of marine debris individually. However, the 2017 conference became the turning point, Thailand, which has received knowledge from IUCN, brought up the knowledge to the regional scene through the "ASEAN Conference on Reducing Marine Debris in the ASEAN Region" in 2017. The event became the medium for the process of knowledge transfer from the IUCN as an epistemic community to ASEAN. Therefore, it began to raise the awareness of ASEAN member countries that marine debris is a cross-border issue that cannot be addressed individually, yet it has to be addressed as a region. Therefore, the shared knowledge led to the emergence of AFAMD in 2019.

IUCN was not the only source of knowledge regarding marine debris for ASEAN member states. As already mentioned above, some ASEAN member states have already conducted research regarding the issue since 2011, and there have been some research conducted by some independent researchers between 2010-2016. Nevertheless, these researchers were unable to gain enough attention to build a shared knowledge. On the other hand, the knowledge from IUCN that has been raised by Thailand through the 2017 conference is able to form the shared knowledge among ASEAN member states which led to them agreeing to establish the AFAMD in order to address the issue collectively.

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Note:

[1] In Koh Yao Yai, IUCN engaged in collaboration with the Thai Government in organizing community based tourism projects that focused on island conservation programs including creating cleaner marine and coastal areas (further explanation see IUCN, 2018b; IUCN, 2018d).