Indonesian Blue Economy Dilemma: An Environmental Quandary on International Trade Shipping Lane within The Indonesian Legal System

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Abstract. The responsibility of the Archipelagic state to uphold the sovereignty of the territorial waters integrity comes with responsibility, and within those responsibilities also comes the Environmental Responsibility within Indonesia's jurisdiction. The Maritime and Shipping Industry has been known as Indonesia's main lifeline of international trade, yet it comes with a price which is environmental impact. Emission and ecological impact from all kinds of ships under foreign flags going through Indonesia's territorial waters is a concern that has to be addressed through transparent means. This study will be carried out by correlating and comparing a set of data, procedures, and regulations involved in the mitigation of ecological effects of the maritime & and shipping industry with a qualitative method using normative judicial theory. The conclusion of this research shows that Indonesia is still a slow-moving country to regulate emissions and environmental damage that can be addressed by Indonesia's cooperation with other countries to use IoT, UAVs, or Geospatial Satellites and the concurrent monitoring and accountability of government shipping.

Keywords: Environmental Impact, Accountability, Transparency, Emission, Jurisdiction, Shipping Corridor

1 Introduction

Indonesia is a country that has a high potential for trade, especially for managing trade routes in the world. Located between the Pacific Ocean and the Indian Ocean, the Indonesian government continues to increase development in the maritime sector throughout the country. The Indonesian government created the so-called Pendulum Nusantara to form a Sea Toll development concept that

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has a major role in accelerating and expanding the development of Indonesia's maritime sector.[1] In addition, Indonesia has several large ports that have infrastructure that continues to be developed by the Indonesian Government to be able to accommodate large ships in the world.[2] This is solely to make the implementation of logistics distribution and the national economy in Indonesia efficient and equitable. These activities are indeed based on Indonesia's position as a country that is included in the Southeast Asian region which is important for countries in the world that become Sea Lines of Communication (SLOC) and Sea Lines of Trade which are vital for international trade carried out.[3]

This makes it imperative for the Indonesian government to take a significant role in improving international sea lines of communication and trade, to take advantage of good opportunities for the national economy. This is reinforced by the opinion of Geoffrey Till, a maritime expert from King's College of London, that Indonesia's waters within the SLOC make its position significant in the development of globalization of world shipping.[4] With this potential, Indonesia should have policies or laws and regulations that can accommodate all systems related to the fulfillment of the maritime sector. Especially by accommodating several strategic Indonesian water areas with the fulfillment and development of appropriate infrastructure. For example, the Malacca Strait is crossed by 70,000 ships per year.[5]

Indonesia's potential for maritime trade and communication has resulted in emissions from the ships' journeys. These emissions can lead to the deterioration of Indonesia's waterways, especially with the release of air pollution. Furthermore, even with the infrastructural facilities and infrastructure in place, the emission of exhaust gases by docked ships can damage Indonesia's ecosystems or waterways[6]. Therefore, both the development of SLOC and SLOT must be balanced with appropriate environmental monitoring policies to protect the environment and Indonesia's national economy. Especially to be able to reduce the emissions released by these ships, which generally emit large amounts of exhaust gas when the ship is at the dock. Therefore, ships that dock at ports or pass through straits in Indonesian waters must have rigid regulations that apply to them.

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[1] Ade Supandi, “Development of the Navy's Strength in Support of Indonesia's Vision as the World Maritime Axis,” Jurnal Pertahanan & Bela Negara Vol. 5, No. 2 (2015), p. 5.

[2] Ariesta Diana, "Revive Maritime Industry with Sea Toll", in Indroyono Soesilo, Defense Science and Technology Supporting Indonesia PMD, (Bogor: Sains Press, 2015), p. 16-18.

[3] Geoffrey Till, *Seapower* - A Guide for the Twenty-First Century-Second Edition, (London: Frank Cass Publishers, 2009), p. 345-349.

[4] *Ibid.*

[5] Yun Teo, Target Malacca Straits: Maritime Terrorism in Southeast Asia, Studies in Conflict & Terrorism, Vol. 30, No. 6 (2007), p. 89.

[6] Tri Kusumaning Utami and Feronika Sekar Puriningsih, Calculation of Exhaust Gas Emission Levels at Belawan Port, Jurnal Warta Penelitian Perhubungan Vol. 26, No. 5 (2014), p. 291.

Moreover, because the loading and unloading process takes a long time, it makes the use of emissions higher.

Indonesian environmental regulatory framework started with the Basic Human Environmental Law of 1982, yet along the way, it was still riddled with issues. A few of those issues are liability and accountability, though we could argue the issues of liability have been fixed by Indonesian Law number 32 of 2009 concerning Environmental Protection and Management, those issues still entail as in the complexity of enforcement of environmental law, which is not easy to be fixed. In the general principle of environmental law, Indonesia applies strict liability as one of the main principles of environmental liability yet it has never been explicitly mentioned as such, for this is one of the challenges of Indonesian regulation of not being direct nor transparent enough to achieve legal fiction. Strict liability in the general principle of law is defined as a liability without wrongdoing, in which the entity must uphold its responsibility and action to the standard of law it required, and as in this manner of definition to be treated to action as follows, *inter alia*[7]:

1. Existence of a high risk of harm;
2. The result of the harm is great;
3. Inability to eliminate the risk even by reasonable care;
4. The extent of the action is not considered as common activity;
5. The action activities outweighed the dangerous risk.

The issues of strict liability will entail the following issues, accountability. The relationship between liability and accountability could be found from a legal perspective, as in whose account those liabilities will befall unto, those are the questions most jurists will have to magnify in these issues, though in a sense accountability has its problem, but a liability issue is always an accountability problem. Emission and environmental emission control do exist in Indonesia's regulation framework, yet it's limited in the sense those regulations only apply rigidly to Indonesia's subject of law, Indonesia is a vast country with numerous subjects of law that uses its territories as corridors for international trade, whether by maritime activities or by aviation activities, though the bulk of those trade is by maritime activities. The regulation for maritime activities and its environmental liability for merchants or any kind of vessels that going through Indonesia do exist, but it's limited in the sense it is determined as limited for maritime environmental protection yet hard to enforce, with challenges as the large volume of maritime traffic, the inability to fully track maritime traffic caused by lack of technological instrument and limited governmental vessels to truly enforced maritime environmental protection. Indonesian maritime environmental protection could be traced back to International regulations such as the International Convention for the Pollution of Prevention of Pollution from Ships (**"MARPOL"**) of 1973, which has been through several changes, and one of them is for emission, in Annex VI that was added in 1997, in which

[7] Restatement (Second) of Torts § 520 (AM. LAW INST. 1977).

Indonesia as a signatory of this International agreement ratified through Presidential Regulation number 29 of 2012, in which Indonesia impose a regulation that would make its government have the power supervise and enforce the emission of the ship, yet this enforcement is limited as in the Indonesian government have to use the medium of surveyor and the entities that produce the emission itself as a medium to monitor the emission production from this line of economic activities. Monitoring through the medium of third-party surveyors and the entities that produce emissions in maritime activities will not be effective as it would increase the risk of data manipulation even with strict oversight to achieve compliance. The monitoring issues will be an accountability issue as it would be hard to be transparent for maritime & and shipping industries relying on third-party surveyors and the maritime & and shipping industry entities itself and would share the accountability problem to liability problem as international maritime & shipping generally would be classified as hazardous activities with the goods and the vessel itself poses a risk to the surrounding and the inability to eliminate those risk.

As aforementioned above, Indonesia is a corridor for International trade, especially shipping, considering Indonesia is the largest archipelagic state, and one of the pioneers of the concept of "archipelagic state" with Fiji, the Philippines, and Mauritius.[8] An archipelagic state is a concept born out of necessity to safeguard the sovereignty and territory integrity, with Indonesia as an example, enclosed important strait as a trade corridor such as Sunda, Sumba, Lombok, Ombai, Makassar, and Molucca as well as numerous other passages, with Malacca strait as the most famous and strategic strait, and massive marine natural resources. Indonesia's current and potential capability to capitalize on its maritime resources is one of the reasons to exercise the "blue economy". The blue economy could be defined as "...set of environmentally and socially sustainable commercial activities, products, services, and investments, dependent on and impacting coastal and marine resources."[9] The blue economy in itself will set forth new opportunities, growth, and diversity to the economies of the involved countries with established marine industries, with emerging and new activities, *inter alia*, seabed mining, marine biotechnology, or renewable energy, etc.[10] Retaining an optimistic view of the blue economy is a good sight for a better future, but has to be restrained realistically, with a blue economy means greater exploitation of marine resources, as such also in maritime and shipping industries. In the application of the blue economy, sustainability and environmental protection cannot be ignored nor pushed aside, with a changing environment and climate change, with emission as one of the main factors behind, as a blue carbon concept formulated

[8] UN Doc. A/CONF.62/C.2/L.49, 9 August I974, *UNCLOS Ill, Official Records,* vol. III, op. cit., p. 226.

[9] Whisnant, R., and A. Reyes. *Blue Economy for Business in East Asia: Towards an Integrated Understanding of Blue Economy*. Quezon City, Philippines: Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). (2015)

[10] Economist Intelligence Unit. 2015. *The Blue Economy: Growth, Opportunity and a Sustainable Ocean Economy*. Briefing Paper for the World Ocean Summit 2015. London. (2015)

from those necessities. Blue carbon in essence is not a concept to contradict nor to challenge the blue economy, but to support its development with an environmental concern in mind, with a focus on emissions produced by terrestrial or maritime activities, wherein a share of carbon absorbed or stored by the marine ecosystem to mitigate climate change, in which Marine Ecosystem globally sequestered the bulk of green carbon with more than 55%.[11] Indonesia's vast potential for a blue economy and blue carbon policy could become the bulwark of the economy of the ASEAN region, given the fact Indonesia Indonesia blue carbon ecosystem consisting of mangrove, seagrass, and tidal marsh has gained traction of recognition. Indonesia holds 17% of the blue carbon ecosystem and ranked first for hosting 22.6% of mangroves,[12] and 10% of the world's seagrass,[13] yet at the same time the number of mangrove coverage in Indonesia is decreasing at an alarming rate, with a loss of 6%, yet would contribute to 10-31% of total emission from terrestrial or marine activities.[14] It is hard to fathom the scale of Indonesia's potential for blue carbon, yet at the same time also the ability to reduce not only maritime activities but also terrestrial activities, with the Indonesia government initiative to push for a blue economy policy.

2 Inefficiency Policy in Indonesia

2.1. Indonesia's general provisions regarding shipping lane

Regulatory and policy framework for shipping and maritime activities in Indonesia is not strange or foreign, as an archipelagic country, shipping and maritime activities is one of the main concerns for Indonesia. Indonesia shipping regulation and policy could be traced back to the time of Dutch East Indies, even to this day, some of the regulations for shipping is the legacy left behind for instance Indonesia Commercial Code which is still in effect to this day with some amendments to the part of regulations.[15] Indonesia reluctance and slow development of regulations impacted the move to take the stance to apply a policy in which effective for Indonesia needs, as it would affect Indonesia even in the perspective of environmental concern, for instance, the dependencies of Indonesia shipping emission measurements as of been mentioned to be depended upon third party surveyor or the entities pertaining to shipping/maritime activities itself. Indonesia's perspective on

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[11] Nellemann C, Corcoran E, Duarte CM *et. al, Blue carbon: a Rapid Response Assessment. United Nations Environmental Programm*e. GRID-Arendal. Birkeland. (2009).

[12] C.E.Lovelock,C.M.Duarte, *Dimensions of Blue Carbon and emerging perspectives*, Biology Letters, 2019, p. 4

[13] E.P. Green, F.T. Short, World Atlas of Seagrasses, (California: University of California Press, 2003), p 3.

[14] D. Murdiyarso, *et al*., *T*The Potential of Indonesian Mangrove Forests for Global Climate Change Mitigation. Vol. 5. No. 12, Nature Climate Change (2015), p. 1091.

[15] Ram Prakash Anand, *Origin and Development Of the Law of the Sea: History of International Law Revisited*, Martinus Nijhoff Publishers, The Hague. (1983), p. 28

the shipping policy in itself could be classified as its willingness to harness the potential of its maritime resources, to transform itself to be "Poros Maritim Dunia" or World Maritime Axis.[16] The step Indonesia is taking to be the World Maritime Axis could be seen in the fisheries sector, admitting the fact Indonesia hard stance of keeping their territorial sovereignty from foreign vessels exploiting their natural resources, yet at the same is not efficient nor effective to keep the effect from those foreign vessels affecting the environment in the form of emissions to be hold accountable. Indonesia isn't the only country with such problems, nor the first country to find the treacherous manner to hold accountability to those foreign vessels regarding environmental concern, and in this case it would hold true to the neighboring countries in busy international shipping trade corridor like malacca strait, *inter alia* Malaysia, and Singapore. Indonesian policy for monitoring this busy trade corridor is a challenge for Indonesia, yet at the same time, the regulation and policy to monitor foreign vessels do exist in Indonesia through Automatic Identification System (**"AIS"**) while at the same time this system is limited only for the vessels geographic location, not for emission or the condition of the vessels.[17] The mechanism of AIS itself, as been explained before in simplified manner, is to track a vessel for its geographical location, such as the vessel identity, navigation status, rate of turn, speed over ground, position accuracy, course over ground, true heading, and time stamp with an additional information such as the vessel name, dimension of the vessels, type of positioning system, draught of ship, destination, and estimated time of arrival, and as AIS is mandated to be installed in the territory of Indonesia, as in which as a measure to exercise their policy of monitoring the maritime activities.[18]

2.2. Lack of transparency in Indonesia's public policy on emissions handling

AIS from a public policy perspective is open information for the public, but at the same time, as aforementioned above, lacks the critical information to track emissions produced by marine vessels. Emissions produced by those foreign vessels should be tracked as they affect the marine and terrestrial environment of Indonesia. Recently, Indonesia ratified regulations for emission and greenhouse gasses (**"GHGs"**) under Presidential Regulation Number 98 of 2021, in which Indonesia's efforts to comply to the Nationally Determined Contribution ("**NDC**") set upon them by themselves, though the regulations do not mention specific sector and would apply in general, and

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[16] Brotosusilo, A., Apriana, I. W. A., Satria, A. A., & Jokopitoyo, T, *Littoral and coastal management in supporting maritime security for realizing Indonesia as world maritime axis*. IOP Conference Series: Earth and Environmental Science Vol. 30, No. 1 (2016), p. 1

[17] M. Fournier, Casey Hilliard, R., Rezaee, S., & Pelot, R., *Past, Present, and Future of the Satellite-Based Automatic Identification System: Areas of Applications (2004–2016)*. WMU Journal of Maritime Affairs, *17* (2018), p. 312.

[18] Ministry of Transportation, Minister of Transportation Regulation Number 7 of 2019 concerning the Installation and Activation of Automatic Identification Systems for Ships Sailing in Indonesian Waters, Indonesian State News Number 175 of 2019, Art. 3

in a sense would be applied to shipping & maritime activities. Presidential Regulation number 98 of 2021, as referenced to Law number 16 of 2016 as the basis, would mean Indonesia has to comply with the NDC, and as such recently, Indonesia also supported the move for the decarbonisation of shipping industries as initiated by International Maritime Organization (**"IMO"**) through IMO Strategy on Reduction of GHG emissions from ships with further development of the strategy as of 2023, and supported by Indonesia government stance to respect and comply such by implementing Presidential Regulation number 29 of 2012, with further technical provision under Circular Letter of Director General of Sea Transportation Number UM.003/93/14/DJPL-18 dated October 30, 2018 concerning Limitation of Sulfur Content in Fuel and Obligation to Submit Fuel Consumption on Ships. The technical provision regulations and policy for shipping and maritime activities decarbonization itself implemented Ship Energy Efficiency Management Plan ("**SEEMP**") through the medium of Energy Efficiency Operational Indicator ("EEOI") in which comply with the format of the resolution of IMO Number MEPC.282(70), yet as been said this regulation is insufficient for real-time report, and dependent upon independent survey entities, shipping & maritime entities, and governmental entities, in return producing an output of lack of transparency.[19] One could argue, that those entities would be sufficient, as they hold the competencies and knowledge to conduct such action, yet at the same time, it would be a risk to solely put trust in such regulations and policy given it would lack checks and balances between parties in a manner of the information of inventory of emission would be a challenge to access for public, and as such the ramification would be a challenge to hold the shipping & maritime industries entities accountable within the possibility of manipulation of data.

2.2. Accountability public policy of emission in Indonesia regarding shipping lane

Lack of transparency would bring challenge to accountability to the liability of shipping & maritime activities. As aforementioned, shipping & maritime activities in general could be classified as hazardous activities, yet at the same time, most of the shipping & maritime activities going through the trade corridor of Malacca strait and any other corridors is foreign vessels. Presidential Regulation number 29 of 2012 in effect applied only to Indonesian vessels, though for foreign vessels, they would have to go Emission Control Area ("ECA"), that are under the Indonesian government, but then again it is ineffective, acknowledging the fact the large volume of shipping traffic in malacca strait. Conceptual solution for real time emission monitoring have been proposed using instrument, *inter alia* Internet of Things ("") and Unmanned Aerial Vehicle ("UAV"), for monitoring shipping & maritime activities, within the possibility such monitoring is open for public,

[19] A. Nußbaum, Schütte, J., Hao, L., Schulzrinne, H., & Alt, F,*Tremble:* Transparent *Emission Monitoring with Blockchain Endorsement*, In 2021 IEEE International Conferences on Internet of Things (iThings) and IEEE Green Computing & Communications (GreenCom) and IEEE Cyber, Physical & Social Computing (CPSCom) and IEEE Smart Data (SmartData) and IEEE Congress on Cybermatics (Cybermatics), Melbourne, Australia (2021),, p. 60

as such it would be easy to hold the shipping & maritime activities accountable for their action affecting the environment.[20] Accountability for their action would be with ease with such innovation, as such putting their actions under strict liability, as the risk of producing emission is a risk which can not be eliminated as such it would affect the environment surrounding it. Forthwith referenced to the strict liability as been defined, strict liability classified as a liability even under non-fault based activities or any wrongdoing, to the point, exercising an action under reasonable care will not eliminate the risk. In the process of classifying shipping activities liabilities, an argument arises as to classify the degree of risk inherent to shipping activities, as strict liability assured to be a liability based on activities in which considered to bring the risk of great harm, the inability to eliminate the risk, and the activities itself not considered as common activity, and in return shipping in general could be classified as common activities as shipping have been done by humanity ages ago, and the risk surrounding it have been eliminated or reduced greatly by rigid technical provision supplemented by regulation, yet at the same time, shipping activities, as the vessels itself producing vast amount of emissions contributing to climate change which in return affecting surrounding countries, and to the global emissions with the ramification of irreversible environmental damages. A legal approach of using strict liability as the *ultimum remidium* for environmental damages could spread to other human activities producing emission, but then again, shipping & maritime industries contribute greatly to the global emission, and it would be unfair, to solely blame high-intensive industries producing emissions such as shipping & maritime, and measuring harm need to be done to classify high or low intensive producing emissions industry. The notion of transparency for public at the same time could assist greatly to develop an instrument or benchmark to hold high-intensive emissions producing industries accountable for such action, while one could take the way of using responsibility-based emissions reduction obligation to hold countries, and high-intensive emissions producing industries accountable for their actions, and to reduce the risk of data manipulation, bribes, and several other actions which assist them to be free of accountability they should hold in the first place. Indonesia in this case could push for such reform in the shape of policy or regulations, to hold such industries, in this case shipping & maritime accountable, and currently, Indonesia have been stepping up for emission reduction regulations for shipping & maritime industries, for example of regulating the usage of ship fuel and it's contaminant such as sulfur oxide, while the issues of holding them for further accountability under constant real-time report under many entities for the public will still riddle Indonesia.

2.3. General blue carbon policy in Indonesia

The concept of carbon in Indonesia, in general, still does not have many provisions related to the policies that regulate it. The provision of carbon itself is still new in Indonesia, especially the concept of a blue carbon economy. Indeed, the concept of blue carbon and bio-economy will be the

[20] *Ibid*.

strengthening of Indonesia's future economy as written in the National Long-Term Development Plan (RPJPN) Year 2025-2045. In this case, the blue economy becomes a new economic source and the creation of added value in this economy will be sustainable and inclusive. It is necessary to develop a policy related to the development and sustainability of this blue economy for the future of Indonesia.

Therefore, the Government of Indonesia through the RPJPN 2025-2045 has a significant role in envisioning Indonesia as the World Maritime Axis. According to the RPJPN 2025-2045 the policy directions that are being developed are:[21]

1. Strengthening supporting ecosystems, strengthening marine resource management regulations, and blue financing.
2. Increasing the added value of the fisheries industry, trade, or tourism sectors that utilize marine resources by synergizing renewable energy, biotechnology, and bio-economy, optimal research and innovation for blue economy potential.
3. Improving maritime health, resilience, and productivity.
4. Improvement and equalization of community livelihoods in the blue economy.
5. Optimization of SLOC utilization.
6. Optimizing the sustainable use of small island resources.

This is important to do because in fact, increasing blue carbon in Indonesia must be accompanied by a synergy of increasing the national economy. Especially for Indonesia's priority marine areas such as the Riau Islands, Bangka Belitung, the Malacca Strait, and Natuna-Anambas waters.[22] With this in mind, the Government of Indonesia issued Presidential Regulation Number 98 of 2021 concerning the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gas Emissions in National Development. Mentioned in Article 8 paragraph (1) and paragraph (2) of Presidential Regulation Number 98 of 2021 that this regulation appoints and authorizes the implementation of government affairs for climate change mitigation for the marine sector to the Ministry of Maritime Affairs and Fisheries.[23] In addition, public policies regarding climate change adaptation for the marine sector will also be organized and authorized by the Ministry of Maritime Affairs and Fisheries, as state in

[21] Ministry of National Development Planning/National Development Agency, Final Draft of the National Long-Term Development Plan 2025-2045 (Jakarta: Ministry PPN/Bappenas, 2023), p. 93.

[22] *Ibid.*, p. 291.

[23] Presidential Regulation Number 98 of 2021 concerning the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gas Emissions in National Development, Art. 8 paragraph (1) and (2).

Article 32 paragraph (1) and paragraph (2) of Presidential Regulation Number 98 of 2021.[24] From these two articles, both climate change mitigation and climate change adaptation must be adjusted to the concept of Nationally Determined Contribution (**"NDC"**). Article 1 point 1 of Presidential Regulation No. 98 of 2021 states that NDC is a national commitment to address global climate change in order to achieve the goals of the Paris Agreement to the United Nations Framework Convention on Climate Change.[25]

However, we see that in the Minister of Environment and Forestry's Regulation No. 21 of 2022 on the Implementation Procedure of Carbon Economic Value, there are no technical provisions governing the implementation of blue carbon or the appropriate form of public policy for this. This is obvious because Article 8 paragraph (1) and paragraph (2) and Article 32 paragraph (1) and paragraph (2) of Presidential Regulation No. 98 of 2021 stipulate that the implementation of the blue carbon concept is organized by the Ministry of Maritime Affairs and Fisheries. Therefore, it is necessary to accelerate the preparation of public policies governing blue carbon. This is actually important to be able to have rigid provisions in decarbonization and especially to carry out the mandate of Presidential Regulation Number 98 of 2021 and the Paris Agreement to the United Nations Framework Convention on Climate Change. This is important because Indonesia has the largest blue carbon ecosystem in the world, especially like Mangroves. Indonesia's mangroves have a very large carbon stock and a very large area has an important role in climate change mitigation efforts in Indonesia. In this case, it is explained in the Presidential Regulation of the Republic of Indonesia No. 73 of 2012 concerning the National Strategy for Mangrove Ecosystem Management in Article 5 that the executor of the National Coordination Team for Mangrove Ecosystem Management is the coordination of the Minister of Environment and Forestry and the Minister of Marine Affairs and Fisheries.[26]

3 Analysis

3.1. Analysis of the concept of public policy regarding the appropriate shipping lane

Appropriate environmental shipping policy which would be beneficial for Indonesia in the long run could be taken by tackling the issues of transparency as a step to handle environmental accountability issues. Measures the Indonesia government could take within the short period of time

[24] Presidential Regulation Number 98 of 2021 concerning the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gas Emissions in National Development, Art. 8 paragraph (1) and (2).

[25] Presidential Regulation Number 98 of 2021 concerning the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gas Emissions in National Development, Art. 1 number 1.

[26] Presidential Regulation of the Republic of Indonesia No. 73 of 2012 concerning the National Strategy for Mangrove Ecosystem Management, Art. 5.

currently is implementing a strict survey, requirements, and issuance of emission certifications, and while this short term requirement could be made under additional amendment of Presidential Regulation number 29 of 2012 within the format of IMO MEPC.282(70) as been implemented by Indonesia, at the same time Indonesia could also take an additional measurement for domestic vessels under the pretext of thorough and periodic check and survey of the vessels, at the same time, Indonesia could utilize ports, and ports facilities to conduct such survey and certification of emission, with Indonesia potential for ports and ports facilities with 636 harbors, 57 terminals, and 1322 harbor location plants.[27] Indonesia then again could take further measures by signing a bilateral, or multilateral agreement for Indonesian trade corridor bordering other countries territory, such as Malaysia, Singapore, or Thailand, diplomatic ties with a mutual interest would benefit not only Indonesia, and with this the step to integrate emission monitoring system could be done, and would increase the efficiency of inventory of emissions and such integrating to the Indonesian national Emission Inventory System with a continuation to the Emissions Trading System Directive, and would easen up the burden up of one state for monitoring, reporting, and verification under its government entities, and would further decrease under a transparent policy, in which the public could hold them accountable for their actions. Further join-policy under the framework of agreement and ratified under regulations would need equal standard and format, and as of now, Indonesia has implemented international standard upon its technical provision, Indonesia, and other countries, could develop a joint technology to monitor such emission producer vessels and to inventory it, under the same database, with IOT, UAV, or Geospatial satellite as a instrument of detecting emissions from ships, and to hold the liability issues under the vessels state flag regulation, or even the shipowner country jurisdiction.

3.2. Public policy concepts that are compatible with controlling shipping line emissions that influence blue carbon policies

Public policy is important to be able to emphasize a state's view on the issues faced, especially for the community. Climate issues are a significant problem for the sustainability of Indonesian society, as written in the 2025-2045 RJPN. In our opinion, this Public Policy is not far from the basic concept that according to Hans Kelsen, law cannot be separated from politics. Therefore, the law must be present in the life of the state in all its aspects. Carl J. Friedrick defines policy as a series of actions proposed by a person, group, or government in a certain environment by showing obstacles and opportunities for implementing the proposed policy to achieve certain goals. Thomas R. Dye explains that public policy is the government's choice to act as a statement on doing or not doing something. In this case, there is a synergy between public policy and public interest that there

[27] Ministry of Transportation, Transportation Minister’s Decree No. KP 432 of 2017 regarding the National Port Master Plan, p. 4-5

is an allocation of basic community values and issues that are important to the community and must be accommodated by the government.

One of the values developed by the United Nations Development Program ("UNDP") in the implementation of re-inventing government is Transparency. Transparency must be built within the framework of the free flow of information.[28] This transparency must be built in a clear and open concept, whether it is a clear flow of information, government processes, institutional processes, or information that needs to be accessed by interested parties to be open to the public.[29] Bintoro Tjokromidjoyo revealed that transparency is important for many parties to know the policy formulation process, which as an implementation principle of Good Governance does not allow closed government management.[30] Therefore, it is necessary to improve the information system to be able to open up about the transparency of public policy formulation in this case regarding the regulation of emission handling on shipping lanes passing through Indonesia. This is because, although there is a Presidential Regulation No. 95 of 2021 that indicates that there is a need for the implementation of climate change adaptation and mitigation by the Ministry of Maritime Affairs & Fisheries, for now there has been no policy improvement regarding this matter.

As the data we obtained that 70,000 ships pass through the waters in Malacca per year, it is a form that there must be improvements regarding this matter. This is because emissions are not only released when they pass through but also when they dock. This is in line with the opinion of Nugroho D. Riant suggests that in the implementation of Good Governance, transparency must be created, where all decisions taken and their implementation require backing, namely the provisions in the laws and regulations that apply in a country.[31] Because basically according to the responsibility for the welfare of the people and protecting the people, it is carried out by elites or government officials, rather than being placed on the community itself. This is what needs to be improved to be able to overcome problems regarding emissions in Indonesia's sea transportation and communication waters. In addition to transparency, the principle of accountability must also be improved. Because in fact, the elite or government officials should be responsible to the community or to the public.[32] This is what makes the synergy and connectivity between public policy and the public interest converge. The provisions in Presidential Regulation No. 95 of 2021 that appoint the Ministry of Maritime Affairs and Fisheries to overcome matters arising from climate change from

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[28] Arifin Tahir, *Public Policy and Transparency in Local Governance*, (Jakarta: PT Pustaka Indonesia Press, 2011), p. 149

[29] *Ibid.*

[30] Bintoro Tjokromidjoyo, National Reform and Implementation Good Governance and the Realization of Civil Society, (Jakarta, 2002), p. 123.

[31] Riant Nugroho Dwijowijoto, *Public Policy, Formulation, Implementation, and Evaluation*, (Jakarta: PT Elex Media Komputindo Kelompok Gramedia).

[32] Tahir, *Public Policy and ….,* p. 170.

the marine side should be the responsibility of the ministry. This should be a responsibility that is carried out because it is ordered by the President who has authority over the administration of government and executes the law.

The mandate for the issuance of a presidential decree or regulation arises from Article 4 paragraph (1) of the 1945 Constitution of the Republic of Indonesia. In this case, it is necessary for the provisions of laws and regulations to be formed at the level of the Law to be able to regulate this issue. In our opinion, the establishment of law is important because coordination is needed between at least the Ministry of Environment and Forestry, the Coordinating Ministry for Maritime Affairs and Investment, the Ministry of Transportation, the Ministry of Trade, the Ministry of Maritime Affairs and Fisheries, and the Marine Security Agency to coordinate the handling of emissions coming out of Indonesia's shipping lane. Therefore, in our opinion, the law issued is a form of vertical legal norm dynamics, namely dynamics that are tiered from top to bottom, or from bottom to top.[33] This theory requires coordination between government agencies. With the law that was formed, Indonesia became stronger in the context of the rule of law, especially when it comes to international and environmental issues that arise from the problems that are being discussed.

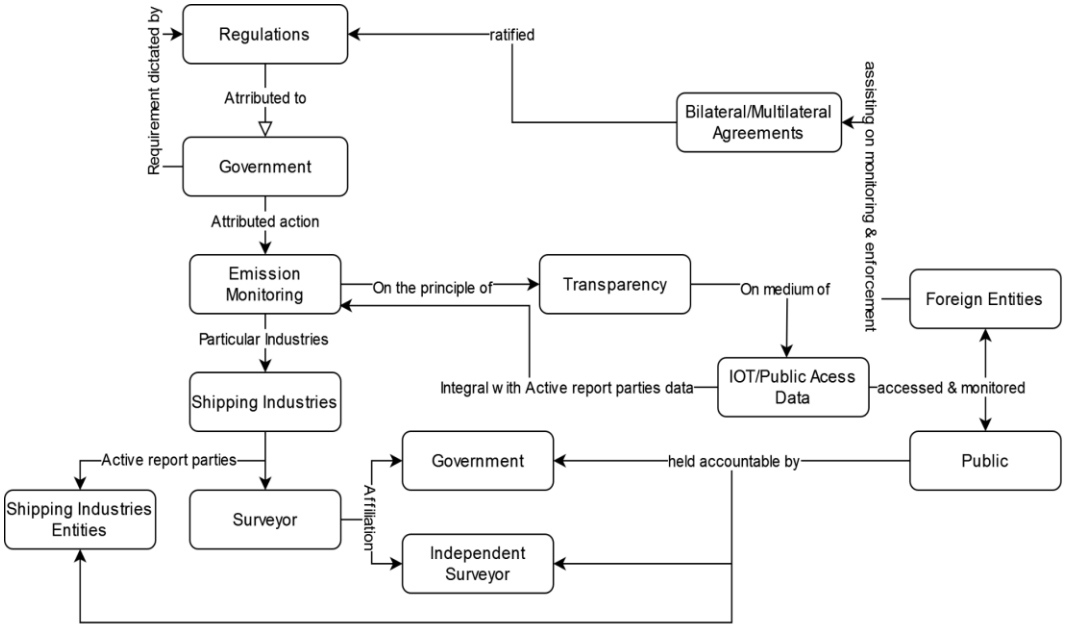

Fig. 1. Regulatory concept of blue carbon policy in Indonesia

[33] Maria Farida Indrati, *Science of Legislation Types, Functions, and Contents,* (Jakarta: Kanisius, 2020), p. 23.

4 Conclusion

Currently, Indonesia is still riddled with issues surrounding holding emitters accountable for their actions contributing to climate change, and as such to hold them liable for their actions is still a challenge that could not be solved in a single day. Those challenges do not mean it would be unsolvable, or possible to take action, as of now, Indonesia already supported IMO Strategy on Reduction of GHG as currently IMO Marine Environment Protection Committee ("**MEPC**") number 80, and currently implemented Presidential Regulation number 29 of 2012, with the further technical provision under Circular Letter of Director General of Sea Transportation Number UM.003/93/14/DJPL-18 dated October 30, 2018, concerning Limitation of Sulfur Content in Fuel and Obligation to Submit Fuel Consumption on Ships regarding maritime emission, within the format of IMO MEPC.282 (70). Indonesia's emission inventory regulation and policy already exist under Presidential Regulation No. 98 of 2021 as such is the baseline for Indonesia's emission and carbon inventory and carbon economic value, with further provision regulated by the Minister of Environment and Forestry's Regulation No. 21 of 2022 on the Implementation Procedure of Carbon Economic Value. Regulations in Indonesia at the same time is still lacking in term of classifying blue economy or shipping & and maritime activities as emitter, and as such only in a framework of obligation to reduce the emission, instead of considering its economic values, with integrating it to the emission trading system, in which Indonesia only implement recently, and the regulation for carbon or emission exchange only recently ratified as Financial Services Authority Regulation number 14 of 2023 concerning Carbon Trading through Carbon Exchanges. Indonesia's slow development and reluctance to move quickly in regulating emissions is a challenge Indonesia must adhere to, as mentioned, drafting and ratifying new regulations and policies regarding emissions for ships, and holding them under a liability as in the general practice of environmental law of utilizing strict liability for their contribution to climate change and environmental damage. At the same time, Indonesia could work in cooperation with bordering countries, under the umbrella of agreement between states, to maximize the effort to monitor emissions produced by vessels on the sea, and to jointly develop systems and technologies with real-time monitoring, as an example have been mentioned, using IoT, UAV, or Geospatial Satellites, with data exchange between countries considered as signatory under the agreement. The push for transparency in monitoring emission policy would be a great move for Indonesia to lessen the burden of monitoring such, with under the eyes of the public, accountability for the shipping and maritime entities, even to the governmental entities would be easier to do.

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