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Unmanned Maritime Vehicles in Indonesia for Cargo Shipping

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ABSTRACT

Through technological developments, Indonesia has launched an Unmanned Marine Vehicle during a test. Definitions of Unmanned Marine Vehicles in the eye of the international law community is a controversial topic with an unending discussion. There are uncertainties where safety measures of malfunction and misuse of military purposes may hinder progress and economic potential when not treated correctly. To accommodate the technological developments, changes in norms and regulations regarding definition of a ship must be done to give medium for technological developments and provide legal certainty towards Unmanned Marine Vehicles in Indonesia that deliver cargo. This development is a cornerstone for commercial enterprises to gain capabilities and efficiency in delivering their goods with the latest technology which creates an urgency to allow for its existence in Indonesia.

Keywords: Technological Developments, Unmanned Marine Vehicle, Definition of a Ship, Cargo

INTISARI

Melalui perkembangan teknologi, Indonesia sudah mulai meluncurkan kapal tanpa awak dalam sebuah tes. Definisi kapal tanpa awak di mata hukum internasional adalah topik kontroversial yang tidak kunjung selesai. Masih terdapat ketidakpastian dimana keamanan dari aspek malfungsi dan penyalahgunaan militer bisa mengurangi kemajuan serta potensi ekonomi apabila tidak diterapkan dengan benar. Demi mengakomodir perkembangan teknologi, perubahan normatif dan regulasi berkaitan mengenai definisi kapal harus diadakan untuk memberikan wadah sarana bagi perkembangan teknologi dan menjamin kepastian hukum bagi kapal tanpa awak di Indonesia yang melakukan pengiriman kargo. Perkembangan ini merupakan titik utama untuk bisnis komersial agar mendapatkan kapabilitas dan efisiensi dalam pengiriman objek menggunakan teknologi terbaru yang menciptakan sebuah urgensi agar ada pengembangan terhadap eksistensinya di Indonesia.

Kata kunci: Perkembangan Teknologi, Kapal Tanpa Awak, Definisi Kapal, Kargo

INTRODUCTION

Considering all the regulations implemented on shipping in Indonesia, Indonesia has defined and put a hefty amount of rules to govern the cruising of ships. The definition of a ship will play an effect on the application of new model types of ships, especially autonomous ones. As the Institute of Technology of Sepuluh November Surabaya has launched an autonomous boat with a name of ITS Autonomous Boat or so called *I-Boat* per 29 November 2020[1], this opens up a new pathway for Indonesia to develop and start using Unmanned Maritime Vehicles (hereinafter referred as "*UMV*") as it constitutes as a breakthrough in logistics[2] that helps Indonesia to expand the capability of the Indonesian national fleet and logistical capabilities in the Maritime Industry. As of now Indonesia holds the rank of 46th in logistical prowess[3] and owns a price for logistic that constitutes 24% of Indonesia's gross domestic product[4]. As a comparison, other countries that are more developed owns only 8%-12% of their gross domestic product attributed towards logistics since they are more efficient[5]. One solution provided is with the use of UMV mentioned above so long as it can be utilized correctly which creates an urgency since automation will leave more efficiency in the industry. In light of this development, it becomes a mandatory obligation for the Indonesian government to start developing new legal frameworks to allow for such technologies to be implemented nationwide as Indonesia holds a very large portion of its territory on the ocean.

However, an implementation by law towards the definition of UMV in Indonesia becomes a gray area that has not been specifically contemplated in existing statutes whereby this topic is still considered as "vague" and controversial by the international maritime community. Even if UMV present an economic opportunity for all nations, it is not without any drawbacks as it acts as a double edged sword considering the danger presented in the form of approvals given for the UMV to roam the seas whereby safety and security issues come firsthand to protect countries from attacks of other states who then are harder to be connected and thus, sanctioned. Risks of torpedo shots or even nuclear weapons arise if it is given permission to operate between the territorial sea of a nation. Hope still presents itself in the form of UMV that carry cargo. A determination of Indonesia's and the international maritime law community's stance needs to be established as well

[1] Rudy R. Ramli, 'ITS Luncurkan Kapal Tanpa Awak, Menhub: Saatnya RI Kuasai Teknologi Maritim.' (*Kompas.com*, 29 September 2020) <https://money.kompas.com/read/2020/09/29/132513126/its-luncurkan-kapal-tanpa-awak-menhub-saatnya-ri-kuasai-teknologi-maritim> accessed on 12 January 2022.
[2] Ibid.
[3] "International LPI Global Rankings 2018", (*World Bank*, 2018), <https://lpi.worldbank.org/international/global>, accessed on 14 January 2022.
[4] Liana Threestayanti, "Contoh Penerapan Artificial Intelligence di Bidang Logistik", (*Info Komputer*, 14 June 2021), <https://infokomputer.grid.id/read/122740199/contoh-penerapan-artificial-intelligence-di-bidang-logistik> accessed on 12 January 2022.
[5] Ibid.

as the opposing argument for non-allowance of its permit to sail and the best solution looking forward.

As of today, Indonesia has yet to provide specific regulations to manage UMVs as many laws do require a captain to overlook the ship during its course and approvals by bureaucracies as provided in Law no. 17 year 2008 on Cruising (hereinafter called "*Shipping Law*") and Regulation of Ministry of Transportation no. 82 year 2014 on procedures for issuing sailing certificates (hereinafter called "Regulation of Ministry of Transportation no. 82 year 2014). In this journal, the writer will focus on the aspects of a definition of UMV for cargo shipping in Indonesia that is likely to be implemented as an amendment or added regulations for the foreseeable future. No exact definition of a UMV has come to exist in Indonesia and finding a good baseline to incorporate UMVs will subsequently lead to a clearer understanding of how regulations shall be implemented. An assessment of risk from safety departments will suffice for UMV and the author will present the most logical path for implementation. Pursuant to a huge development in technology, added regulations are certainly needed in paving success to technological mastery in Indonesia's maritime industry that gives a breakthrough in the form of UMV that carry cargo as Indonesia will eventually need new economic enterprises to compete with the international market for cargo delivery. Without change, a loss of income will happen as Indonesia will be unable to participate and compete in this activity.

The limitations of this paper is to purely discuss on a UMV that is intended for cargo shipping and without any military capabilities since it may raise safety issues especially from UMVs that are sailing from international waters to Indonesia where military purposes might come into play from other state actors that harms Indonesian waters. The author will apply a lens to push the use of UMVs that has no capabilities to spy, attack and harm the UMV's environment on its application for future regulations in Indonesia. This way, the government can be more assured for safetiness in ships coming in internationally and from domestic waters.

METHODS

This paper addresses three main issues. The author aims to establish Indonesia's view to the definition of a UMV used for cargo shipping (**i**); International maritime community's view to the definition of a UMV used for cargo shipping (**ii**); and how Indonesia can come aboard to implement it for As Indonesia lacks any regulation for UMV used for cargo shipping (**iii**). As Indonesia lacks any regulation for UMV, the author will establish an argument to induct aspects of UMV definition from the international maritime law community to Indonesia. The author will also present the reason on why allowing UMV to sail is considered as a horrifying idea while giving a proposed solution to minimize risk and maximize application. After analyzing both issues, the author will provide solutions for amendments within our regulations to accommodate UMV's application and permit to sail in Indonesian waters.

Normative methods are used for this research as there will be no statistics provided in the paper but only through judicial comparison in which the author tries to answer the possibility and urgency for Indonesia to provide legal accommodations for UMV by comparing it with the international maritime law community's viewpoint. Hence, a juridical normative method for research is deemed necessary since the author is determined to obtain legal knowledge between laws by studying statutory regulations. The source for writing this article is contained in primary, secondary and tertiary legal materials. This article is written through the method of online research, reading books and journals by viewing the statutes and explanations contained in both Indonesia's and the international maritime law community's laws regarding ships and UMV.

QUESTIONS

1. What is the stance for the definition of UMVs used for cargo shipping?
2. What kind of implementations can be made towards the permit for UMV that carry cargo in Indonesian law?

RESULTS AND DISCUSSION

To encumber such developments is contrary to the spirit of entrepreneurship in which Indonesia has yet to decide upon any stance regarding the future of UMVs' application in Indonesian territory. However, this major issue has to be appropriately addressed whereby gray areas in statutes and conservative mindsets clinging on to the past precedents need to be changed. A reference deemed as international standard will be analyzed to fit into the narrative to provide benchmarks for lawmakers to pursue and accommodate change of perceptions towards UMVs.

1. Definition of a Cargo Ship in Indonesia

Speaking of regulations, there needs to be an analysis of the statutes and laws conducted in Indonesia. A ship is divided into several categories which are passenger vessel, general cargo vessel, container vessel, log carrier, and oil carrying vessels/tanker[6]. They are divided into several categories to serve a general purpose of understanding the objectives of the ship's design and action. The difference between the objectives of a ship will hence subject them to different rules.

The first regulations that state a definition of a ship are contained in article 309 and 310 of the Indonesian Commercial Code (*Kitab Undang-Undang Hukum Dagang / KUHD*). Pursuant to article 309 Indonesian Commercial Code, a ship is all vessels, with any name and from any type of body that heeds to a ship[7]. The objective aspect is also described in article 500 of the Indonesian Civil Code (*Kitab Undang-Undang Hukum Perdata / KUHPer*) where a unit of objects that are

[6] Muchtarudin Siregar, *Beberapa Masalah Ekonomi dan Manajemen Transportasi* (Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia 2012), 5.
[7] Indonesian Commercial Code, Article 309.

intentionally used as a part of a ship will be considered as a whole with the ship[8]. If the tool itself is of a substantial nature and is mandatory in helping the ship operate, then it cannot be determined as a different entity. Furthermore, article 310 of the Indonesian Commercial Code states that a sea ship is any type of ship/vessel that is used in sailing across the ocean[9]. An added aspect of identification is also stated in article 314 which declares that a ship must be at least 20 cubic meters and has to be registered through an appropriate process pursuant to the existing law[10].

According to R. Soekardono who is citing Vollmar, the criteria of a ship is that the object must stay afloat, with their own strength or moved by other means of force across the water[11]. Law no. 17 year 2008 on Shipping (hereinafter called "*Shipping Law*") is the primary source of law that regulates all of the shipping industry in Indonesia. The definition of a ship that is submitted in article 1(36) of the Shipping Law is[12]:

"*Ship is a waterborne vessel with any shapes and types that is moved with wind power, mechanical power, other sources of energy, pulled or halted, including transportations that have dynamical support, underwater transportations, with its floats and floating buildings that do not move from a position*."

The explanation sufficed in the Shipping Law of article 4 paragraph (B) and 4 paragraph (C) stated that the definition of a ship in article 1 paragraph (36) will apply to all types of ship powered by a certain type of energy either of foreign origin or Indonesian ships sailing in other countries. Hence, all ships that can be moved by wind power, ships that can be moved with mechanical power, to ships that have a dynamic support (jetfoil, hydrofoil, hovercraft) will be included as a ship.

To comprehend the definition of a ship that carries cargo, we also have to delve into the definition of cargo. According to Sudjatmiko, cargo is every type of item, goods and merchandise that is handed over towards a carrier[13]. Analyzing it through the nature of the object, there are several types of cargo such as[14]:

a. Wet cargos which are cargos in the form of liquids contained in drums or cans that may leak.
b. Dry cargos which are cargos that will not leak but easily degradable or depreciate.
c. Dirty cargos are cargos that create a dusty environment and always leave debris that affect qualities of other cargos without any chance of leakage.

[8] Indonesian Commercial Code, article 500.
[9] Indonesian Commercial Code, article 310.
[10] Indonesian Commercial Code, article 314.
[11] R. Soekardono, *Hukum Dagang Indonesia, Jilid II Bagian Ke-2* (Rajawali 1994), p. 10.
[12] Shipping Law, article 1(36).
[13] Sudjatmiko, F.D.C, *Pokok-Pokok Pelayaran Niaga / F.D.C Sudjatmiko* (Brhatara 1995), 64.
[14] BP3IP, *Jenis-Jenis Muatan (Type of Cargoes)* (Penanganan Muatan), ch. 2

d. Odorful cargos which are cargos with a stench or odor that may ruin the quality of other cargos if loaded to a ship with other cargos without a proper containment method.
e. Clean cargos which are cargos that will be damaged if they are in contact with dirty loads.
f. Sensitive cargos which are cargos that will be damaged if they are put in the vicinity of odorful loads.
g. Valuable cargos which are loads put in a special container or area as they have a high economic value.
h. Dangerous cargos which are loads that may threaten the existence of the ship with its passengers as the cargo is vulnerable to explode or is flammable.

As almost every item or goods do fit in these categories, every item that is brought over as a load in a ship can be considered as cargo. The seaworthiness of the cargo is determined in Regulation of Ministry of Transportation no. 53 year 2018 on Procedure on Issuance of a Permit of Sail (hereinafter "Regulation of Ministry of Transportation no. 53 year 2014"). All types of cargos that are carried by the ship are already considered to be cargo which constitutes every ship that conducts a carrying of loads as a sea ship that carries cargo.

Moreover, other definitions of actions shall also be considered when assessing UMVs for the carriage of cargos over waters. Article 1 paragraph (4) of the Shipping Law gives a definition of carriage over waters as an action of carriage / transporting passengers and / or items using a ship. Article 9 paragraph (7) subparagraph (B) of the Shipping Law also states that the ministry takes considerations in determining whether the crewing of the ship is done by Indonesians. Even if the word "crew" exists in that statute, it does not leave the legal framework to say that UMVs will be allowed to operate without crew on board as there is yet to be a mention of whether the ship must have a crew on board since the ministry will take into account circumstances involved in the crewing of the ship. Since UMVs are technically considered as ships per the definition of ships in Indonesia, this in turn does not exclude UMVs as a mode of transportation available for shipping of cargos. Perhaps a change of definition to accommodate a better and more specific interpretation for a UMV as a ship may suffice considering the relevance of the situation is very plausible in Indonesia to seek and accommodate progress of technology in the form of an autonomous boat without any man aboard. As of now, it gives a gray area as no specific definition to accommodate it has been given but still does not exclude it's existence through the statute's definition.

2. UMVs' Recognition in the International Maritime Community

Ships that do not have a crew on board are named as an "Unmanned Ship" or UMV. A problematic aspect that arises is if there is any approval by the international maritime law community towards the application of a UMV as a ship[15] due to the possibilities of non recognition from other states as a permitted vessel for sail. Even if previous treaties such as United Nations Convention on the Law of the Sea (hereinafter referred as "*UNCLOS*"), International Convention for the Prevention

[15] Restatement (3D) Foreign Relations Law of the United States [1987], § 102, cmt. D.

of Pollution from Ships (hereinafter referred as "MARPOL"), and the International Convention for the Safety of Life at Sea (hereinafter referred as "SOLAS") have not mentioned any possibility of a UMV, the development of technologies have certainly impacted the mindset and urgency that must be dealt with as a form of evolution in "international custom"[16]. If a majority of countries that exists does approve the existence of UMV as a ship, the custom itself may slowly apply itself as a regulatory framework for other countries to follow and accept the existence of a UMV as a ship. This will then give an incentive for new treaties and legal opinions from scholars to show an approval towards a UMV's usage[17]. However, presently, we need to see the current stance first through what has been deemed as usual as a "ship", internationally.

A basic definition must be constituted which can be analyzed and taken by several aspects such as the context and purpose of the UMV with the capabilities of the UMV itself. There are several types of ships that are aimed as commercial ships however some possess the power to shoot small torpedoes[18]. The acceptance of a UMV as a ship gives it the right for innocent passage and creates an urgency if the UMV involved owns a "military prowess" even if its purpose is for commercial uses. Commercial UMVs nowadays which are purposed for deep sea mining have some capabilities of shooting missiles[19] and this does not close the door for future developments in other commercially purposed ships, including shipping cargos to have some weapon of deterrence for harm or other subsequent issues that may arise. This may create a gray area on which UMV should and should not be considered as a "ship" due to the military prowess that it holds.

On the military end, UNCLOS article 29 has stated that a warship must have military personnels on board[20]. Moreover, article 3 and 4 of the Hague Convention relating to the Conversion of Merchant Ships into Warships of 1907 states that there must be a captain and crew of military status on board of a warship[21] which leaves the status of UMV that carries cargo out of the discussion. Hardships will appear as it is hard to determine on which country will be responsible

[16] John B. Houck, 'Restatement of the Foreign Relations Law of the United States (Revised): Issues and Resolutions' [1986] TIL Vol. 20 no. 4, 1366
[17] Cornell Law School LII / Legal Information Institute. 2022. *Customary International Law*. <https://www.law.cornell.edu/wex/customary_international_law#:~:text=Customary%20international%20law%20can%20be,and%20(2)%20opinio%20juris>, accessed 13 May 2022.
[18]'SeaFox | ATLAS ELEKTRONIK', (*Atlas Elektronik*), <https://www.atlas-elektronik.com/solutions/mine-warfare-systems/seafoxr.html>, accessed 12 January 2021.
David Hambling, ''Awesome' New Submarine-Launched Drone Guides Torpedo Attacks From Unprecedented Range', (*Forbes.com*, 10 December 2020), <https://www.forbes.com/sites/davidhambling/2020/12/10/us-navys-new-submarine-launched-drone-guides-torpedo-attacks-from-unprecedented-range/?sh=2efe9b55f196> , Accessed 25 August 2021.
[19] ibid.
[20] UNCLOS, article 29.
[21] Hague Convention relating to the Conversion of Merchant Ships into Warships [1907], article 3, 4.

for an attack or damage caused by a UMV if a country purposefully leaves any flags on the ship or personnel when deciding to engage in combat with other countries. This action also opens up pathways for belligerent states to operate and harm its political enemies and other nations upon entering for "innocent passage" nor a "disguised ship" to exercise belligerent rights like a warship[22]. As article 31 of the Vienna Convention on the Law of Treaties (hereinafter referred as "*VCLT*") urges an interpretation with good faith[23], through the interpretation of the articles referred and the risks that appear, it leaves the status of the UMV out of the discussion.

UNCLOS needs to be assessed and identified since UNCLOS is a form of delegation by all nations to set aside their differences and come to a conclusion in a set of rules that govern the definition of "ships", international sailing and give the right of passage for ships[24]. This needs to be done in order to assess the "common intentions" and agreement between nations on what kind of things are approved as an international custom. UNCLOS did not provide a specification on the definition of a "ship" as a whole whereas it only provided guidelines on obligations and rights of a ship[25]. This provides issues from an absence of ship crew which creates an urgency from technical limitations and an ambiguity of definitions from every nation of a "ship". To understand the article through a legal perspective, we have to seek article 31 of the VCLT where it states that "a treaty shall be interpreted in good faith"[26]. This way of interpretation gives an in-depth connotation where every aspect that leads to the creation and signing of the treaty must be seeked in interpreting the meaning of a clause in a treaty.

Several things come into consideration, historical aspects that can be viewed in the preparation of the Geneva Convention on the Law of the Sea of 1958 did not identified the definition of a ship as they did not agree on barges that are pushed manually[27]. UNCLOS article 94(4)(c), 94(5), 210(6), and 211(2) did use "applicable international rules and standards", "internationally agreed rules, standards, and recommended practices and procedures", "generally accepted international rules and standards", "generally accepted international regulations", "applicable international instruments", "generally accepted international regulations, procedures and practices"[28]. These

[22] Andrew Noris, '*Legal Issues Relating to Unmanned Maritime Systems Monograph*', (U.S. Naval War College 2013), 31-33, 57
[23] VCLT, article 31.
[24] Yosehifumi Tanaka, '*Navigational Rights and Freedoms*' in Donald Rothwell, Alex Oude Elferink, Karen Scott, and Tim Stephens (eds), *The Oxford Handbook of The Law of the Sea* (Oxford University Press, 2015), 536
[25] Craig H. Allen, "Determining the Legal Status of Unmanned Maritime Vehicles: Formalism VS Functionalism," (September 4, 2018) SSRN Electronic Journal, <https://ssrn.com/abstract=3244172>, accessed 13 January 2022, 22-24.
[26] VCLT, article 31.
[27] United Nations General Assembly, *Subsequent agreements and subsequent practice in relation to the interpretation of treaties: Text of the draft conclusions adopted by the Drafting Committee on second reading*, (International Law Commision, Doc. A/CN.4/L.907, 2018).
[28] UNCLOS, article 94(4)(c), 94(5), 210(6), and 211(2).

words put an emphasis that UNCLOS adopts several definitions through other international conventions and practices like International Maritime Organization (hereinafter referred as "*IMO*") conventions such as the MARPOL, SOLAS, etc[29] which did not contemplate a definition that rules out a UMV as a ship. Furthermore, in accordance with the Hague-Visby Rules, a "ship" is all vessels that carry items or goods which puts an emphasis on differentiating a warship from a commercial ship. This does not put a harm upon the status of a UMV that carries cargo from being classified as a "ship" as long as it comes from a commercially private party or a non affiliate of the military. Hence, looking at the future possibilities, the definition of a ship may change as obligations of a new convention that is going to be adopted be abided in which may develop into an international customary law that forces other countries to recognize the status of UMVs that has no military prowess and purely of cargo shipping[30].

The amendment for changes in a clause's interpretation follows the progression of time given a justification to accommodate for relevant problems that appear as time moves on[31]. ICJ in Costa Rica v. Nicaragua on navigational rights also stated the meaning of interpretation of a treaty signed by countries for an extended period of time must put forth a new definition in the relevancy of time[32]. Pursuant to a very wide range of definitions hence the creator and signee must have considered the progression of time that leads for a new capability to transform. As UNCLOS is a convention applicable for an indefinite period of time, the definition of a "ship" will change to accommodate new technologies emerging. Hence, by the development of new types of ships such as UMV will not exclude them as a non-ship.

Issues still do appear in UNCLOS as article 17 dictates for a right of passage where every ship shall be given the right to cross a sea territory of a nation as long as it crosses with only the intent of passage[33]. As a das sollen, a UMV can cross the trajectory only if used for commercial purpose without any exploitation towards the environment of the country's sea territory. However, article 94(4)(B) gives an obligation for a ship to own a captain and ship crew on board to operate the ship with qualifications. Urgency arises if a UMV is deemed as seaworthy without any captain or ship crews on board pursuant to article 94(4)(C).

Article 95(5) UNCLOS states that every country must abide by regulations, procedure, and practice that exists in the international community which gives the legal framework to account for common practice that is occurring in the international community. Article 293(1) gives an

[29] Anna Mihneva-Natova, *The Relationship Between United Nations Convention on the Law of the Sea and the IMO Conventions* (The United Nations and The Nippon Foundation of Japan Fellow 2005), 33.
[30] Cornell Law School LII / Legal Information Institute, Loc. Cit.
[31] Eirik Bjorge, *The Evolutionary Interpretation of Treaties* (Oxford University Press, 2014), 59.
[32] Manfred Elsig and Joost Pauwelyn, 'The Politics of Treaty Interpretation: Variations and Explanations Across International Tribunals' (October 2011) SSRN Electronic Journal, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1938618>, 11.
[33] UNCLOS, article 17.

exclusion for application towards international customary laws that contradicts UNCLOS. This puts an emphasis on the need for an international customary law regarding the status of UMV even if there has been a trajectory towards the livelihood of that law.

IMO gives a guideline on determining the status of UMV that delivers cargo in the document "*Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS): Work Conducted by the CMI International Working Group on Unmanned Ships*[34]*"* (hereinafter referred as "*RSE*"), and also accepting the status of UMV that carries cargo as a ship from a survey organized by Comité Maritime International[35] which accepted a degree 4 automation / ships that are fully autonomous to be fully considered as "ships" that carry oil in bulk as cargo. Furthermore, the glossary of the RSE specifically article 3.3 also defined Maritime Autonomous Surface Ships / MASS as "ships". As the IMO has a membership of 174 countries, these documents may act as a ground base of recognition that contributes to the development of international customary law on the subject matter.

These concepts are in favor of the development of time which has new technologies and will change the concept of a ship into a different meaning than previously stated. Through this data and actions committed for the status of UMV that deliver cargo as ship, the existence of UMV that delivers cargo as a ship cannot be denied however it still owns an uncertainty of law from the lack of affirmation by existing international customary laws. As these instruments may act as soft laws, an uncertainty will appear in upholding the status of UMV that carries cargo even if these instruments cannot just be set aside in favor of the latter. Chances of development that cements the status of UMV that carries cargo as a "ship" is very plausible theoretically.

Through article 95(5) UNCLOS, article 31 VCLT, and ICJ in Navigational Rights, a new conclusion can be made in accordance with the progression of time and other relevant factors that arise. UNCLOS that is in use for an indefinite of time also creates the legal framework for amendments on article 94(4)(B) UNCLOS which can be adapted with the principle of good faith. Then, pursuant to the agreement of countries in documents from Comité Maritime International and the RSE, the input of data and actions give a conclusion on countries' agreement for MASS and fully autonomous UMV that carries oil in bulk to be determined as a "ship" as it fits the criteria of a "ship". Through the progression of time, this term can be accepted by the international maritime law community when defining a "ship" towards UMV that carries cargo. As long as the flag of state is in accordance with article 94(2)(A), then they will be given a right of passage since they only traverse the sea with peace without any violations to the security of the country. Banning weapons of huge collateral damage, inputting guidelines on radar systems with a good AI to avoid other ships, securing its loads with the best materials and containers, and effective designs that

[34] International Maritime Organization, "Outcome of the Regulatory Scoping Exercise for the use of Maritime Autonomous Surface Ships (MASS)," (IMO, June 3, 2021).
[35] Comite Maritime International, "CMI Consolidated Analysis of IMO LEG as Summarized in IMO Document LEG 107/8" (Maritime Law for MASS, 2020).

prevent environmental harm is certainly plausible and increase the effectiveness of the international maritime law community in accepting the status of UMV that carries cargo as a "ship".

3. Implementations that can be Provided for Indonesia

Through the discussion in part 2 of the research result in this paper, the international maritime law community has grounds to raise the status of a UMV into a "ship". By considering UMV specifically ones that carry oil in bulk as cargo, Indonesia can track some parts of the status determined by the international maritime law community for its own application for UMV to be considered as "ships" if they are seaworthy for a further development in Indonesia's maritime law industry. As ICJ stated that old provisions must be interpreted with an evolutionary mindset to accommodate for new progressions incurred[36], this legal precedent can provide the basis framework for developing new laws and cement the status of UMV as a "ship" in Indonesian waters. As long as the ship does not have any capability to harm its surroundings, they can and should be considered as a "ship" provided the economic benefits that may develop. Though Indonesia is a party of the UNCLOS, the status of the UMV itself is sort of a "gray" one but when we analyze it through what can be implemented through the materials established.

As Denmark has stated its needs to develop a fleet of ships composed of UMV through the IMO in the 98-th committee report on 13 June of 2017, an urgency has risen in Indonesia to review the stance of UMV as a "ship" even if public officials denied the proposition citing the importance of eye contact and communication during a ship's sailing[37]. It is very understandable for throughout history captains and ships crews need coordination in navigating a ship through the sea. However, that opinion will not suffice in light of new technological developments and emerging mindsets that is needed in raising Indonesia's economic prowess in the international field especially if Indonesia has started launching its own UMV[38]. The legality provided by existing Indonesian law on the status of a commercial UMV that carries cargo to be considered as a ship is deemed significant for economic purposes. Since the status of UMV is still vague in Indonesia, this will reduce the potential of a huge economic development in Indonesia's maritime cargo industry. The argumentation is given through international customary law and an urgency for a legal declaration of status to open new ways for economic developments in Indonesia's maritime cargo industry. Though Indonesia is a party of the UNCLOS, the status of the UMV itself is sort of a "gray" one but when we analyze it through what can be implemented through the materials established, Indonesia can see forward on what should be implemented as the regulations provided as of now are not sufficient to permit UMV that carries cargo to set sail in Indonesia. However, a UMV's

[36] *M/V Saiga No 2 (St Vincent & Grenadines v Guinea)* (ITLOS)
[37] M. Ambari, 'Indonesia Setuju Ada Armada Kapal Tanpa Awak, Tapi …' (*Mongabay Environmental News*, 27 June 2017) <https://www.mongabay.co.id/2017/06/27/indonesia-setuju-ada-armada-kapal-tanpa-awak-tapi/> accesed on 14 Januari 2022.
[38] Rudy R. Ramli, Loc. Cit.

status as a "ship" is not excluded in Indonesian regulation which provides a starting point for the Indonesian government to amend or create *lex speciali* regulations to allow for UMV that carries cargo to start sailing in Indonesia.

By looking at the capabilities and purpose of a ship , a UMV that does not carry weapons or tools that potentially harms its surroundings should be considered as a ship. When assessing risks, safety issues from UMV that carries weapons or tools that potentially harms its surrounding can be excluded and not be given a permit to sail into Indonesian water or to not be registered in Indonesia. Furthermore, there needs to be an assessment of their environmental impact and navigational security for them to be considered as a "ship" just to provide the best playing field for the maritime industry to move forward without doing considerable damage to its surrounding. However, the significant issue that needs to be addressed is UMV that carries cargo where the subject a quo can increase Indonesia's economy and pave a better sea transportation. UMV that carries cargo may be designed with a lack of weapons or tools that endanger its environment and with only the intent to carry cargo across the sea.

In this regard, a standardization procedure shall be accounted to conform to safety measures needed to further Indonesia's agenda. The government through its ministerial accords has to discuss what ranges of certification is needed for the Indonesian National Standard (*Standar Nasional Indonesia*). Through this, the government shall also try to keep track of the UMVs since it may perhaps contradict what economic activity it was supposed to be conducting. A safety net or safeguard to redeem the potential for any risk for terrorist organizations in modifying and using the original UMVs to fire torpedoes or other assortment of weapons which endangers public safety. This is similar to the concerns mentioned prior in part 2 of the discussion. This may be countered by the government monitoring all UMVs created and imported heavily to select UMVs with only the capability of carrying cargo without weaponization potentials.

As a form of change, there needs to be a development for new regulations for a ship's certification for its seaworthiness. Seaworthy certification is the baseline for a ship's ability to sail safely and becomes the evidence that a ship is seaworthy. Article 117(2) Shipping Law gives certain conditions to be obliged in determining the seaworthiness of a ship such as safety requirements, pollution prevention, crewing of the ship, ship's loading line and its loading, legal status of the ship, safety management and pollution prevention management from the ship, and security management[39]. The certificate is published by the ministry pursuant to article 126 Shipping Law where the ministry will conclude if the ship satisfies all safety requirements when sailing and all of the ship's specification[40].

New issues rise since the ministry or civil servants usually conduct evaluations for ships to sail. A demonstration on the capabilities of a UMV done by Indonesians should give a new perspective

[39] Shipping Law, article 117(2).
[40] Shipping Law, article 126.

on the ministry upon giving an approval for the ship's certificate. With a checkable automated system, tech experts and mechanical experts can be pulled in to assist in checking the specification of UMV that carries cargo which will ease UMV on earning their ship's seaworthiness certificate. It must be taken into consideration that the ministry conducts a good assessment specially on the capability of a ship that carries risks of destruction to minimize the potential loss incurred in Indonesia's waters.

To be able to sail, a ship must earn the permit to sail. UMV that carries cargo can provide a solution to this problem even if there is no captain on board because to earn the permit to sail, a ship needs a master sailing declaration pursuant to article 8(2)(A) Regulation of Ministry of Transportation no. 82 year 2014[41]. If the requirements are met, then the permit to sail will be given pursuant to article 8(2)(B) Regulation of Ministry of Transportation no. 82 year 2014[42]. Another issue is the permit to sail is given by a harbormaster. Harbormaster is the instance that represents the ministry in giving the approval to sail. A harbormaster must check the documents that have been submitted and give a decision from their analysis to determine the approval for the ship to sail or not to sail[43]. Article 9 Regulation of Ministry of Transportation no. 82 year 2014 is relevant as the acceptance for the ship's permit to sail will give the power for a harbormaster to conduct an analysis towards the ship. Will they understand the specifications of a ship that is technologically advanced and has softwares an board with such progressive technology and allow for a UMV to set sail? The old doctrine where a ship without captain and ship crews is automatically unseaworthy only through looking at the mechanical aspects shall be scrapped in favor of a new calculation by looking at an automated system that is relatively new.

New regulations will be tough to publish considering the occurrence of a malfunction in software makes the government reluctant in publishing new rules to accommodate for this breakthrough. Furthermore, the amount possible in software creation may lead to inhibiting the harbormaster's analysis in publishing the permit to sail. Moreover, softwares that have connections to an internet or communication system will be prone to cybersecurity threats such as hacking which paves more risks. The best and easiest solution is through a workshop in a UMV's specification, adding a tech specialist on software assessment and implementing a good firewall that complies to international standards. If the UMV is given the permit to sail, the chance of an injury happening will be minimal if the software provided is advanced. Harbormaster may earn a new point of view provided by tech specialists and give approval after looking at new advancements in Indonesia's maritime industry.

Moreover, article 343 of Indonesia's Commercial Code states that a ship's captain cannot force a ship to sail if the ship is deemed unseaworthy by looking at the qualification of the ship's crewing and safety measurements[44]. Thus, a standardization or specific assessment for the qualifications of

[41] Regulation of Ministry of Transportation no. 82 year 2014, article 8(2)(A).
[42] Regulation of Ministry of Transportation no. 82 year 2014, article 8(2)(B).
[43] Regulation of Ministry of Transportation no. 82 year 2014, article 9.
[44] Indonesian Commercial Code, article 343.

the UMV needs to be finalized beforehand. The issue in the developing maritime industry becomes a new point where a UMV may be very advanced which can be configured to a trajectory with a software of artificial intelligence that can analyze conditions of wave, wind, and sonar to determine the result of action taken for the safety of the UMV. If Indonesia insists on a captain's analysis to determine a set course of actions for the ship, the ability to act through a computer or phone is a possible scenario. Through camera installations on the ship, a captain can view in real time the conditions on board and across the ship.

The sailing of a UMV that carries cargo becomes void of law if the scenario above is conducted by the captain and has the ability to observe the UMV's capability to sail and owning the power to control the ship's course of actions. So long as the UMV is seaworthy, it should be deemed as safe after looking at the provided regulations in the country. The nature of Indonesia's Commercial Code as a *lex generalis* gives room to add new statutes as a *lex specialis* to further cement the status of UMV to be able to operate without a captain on board. Hence, UMV shall recruit a captain to view the condition surrounding the ship virtually. This will be mandatory for administrative issues presented through the requirements for the permit to sail. There are yet any regulations in Indonesia that allows UMV to set sail without a captain.

This issue can be solved through a regulation that mandates the ship's captain to conduct their due diligence and check the ship with its software. Basically, a ship's captain has the obligation to deny sailing an unseaworthy ship according to article 138(2) Shipping Law[45]. They will be at fault and held liable for accidents resulting from the ship pursuant to article 249 Shipping Law[46]. Hence, in theory, the obligation to appear on board can be averted if the captain can control the ship through a long-distance mechanism on a device that the captain can access. The captain can take initiative to change the autonomic system and override it into a manual control. Change of course as well as maneuvers are possible as long as the captain is in close quarters with a laptop / computer and phone where they will have an obligation to keep track of actions on board and across the UMV through wind detectors, sonar, and camera equipment.

CONCLUSION

Even if there is a huge grey area, the application of UMV that carries cargo as a ship in Indonesia with the permit to sail is deemed to be of such importance therefore creating a very plausible future scenario for reform. Even if in Indonesia the definition of UMV that carries cargo can be considered as a "ship", there are yet to be any regulations that allow it to earn a permit to sail. The international maritime law community has raised this issue and there are several consensus upon the legal status of UMV that carries cargo which is urgent for Indonesia to adopt in order to be at a "level playing field". Without a capability to destroy, the UMV will be an addition to economic sources available for Indonesians.

[45] Shipping Law, article 138(2).
[46] Shipping Law, article 249.

Meek sacrifices must be made when comparing the abundance of potential resources to be hauled. For the sake of progress, a relevancy in new statutes must be established. Firstly, a standardization seems imminent for quality control and guard UMVs from misuse. This allows the government to track or at least monitor circumstances surrounding UMVs. Several changes specifically in a captain's obligation, ministry's assessment and harbormaster's assessment should be reviewed to give a framework for this development to happen. Then, by implementing new Regulation of Ministry of Transportation or law to facilitate this development in order to compete with other nations where as long as the UMV abides to the requirements of being considered as a "ship", a supervision by a captain on the ship needs to be addressed and let UMV that carries cargo start sailing in Indonesian waters. Implementing other technologies to give the captain a "supervision" of the ship seems very plausible. Moreover, the ministry must seek special attention on the aspect of a UMV's safety and security to prevent damaging Indonesia's waters and give opportunity for this invention to be a breakthrough in cargo delivery.

BIBLIOGRAPHY

Primary Sources

Cases

M/V Saiga No 2 (St Vincent & Grenadines v Guinea) (ITLOS)

Legislation

Shipping Law (Law No. 17 Year 2008 about Cruising) [2008]

Hague Convention relating to the Conversion of Merchant Ships into Warships [1907]

Indonesian Commercial Code (Kitab Undang-Undang Hukum Dagang / KUHD)

Regulation of Ministry of Transportation no. 82 year 2014 about Procedure on Publishing the Permit to Sail

Restatement (3D) Foreign Relations Law of the United States 1987

United Nations Convention on the Law of the Sea [1982]

Vienna Convention on the Law of Treaties [1969]

Secondary Sources

Books

Andrew Noris, '*Legal Issues Relating to Unmanned Maritime Systems Monograph*', (U.S. Naval War College 2013)

Anna Mihneva-Natova, *The Relationship Between United Nations Convention on the Law of the Sea and the IMO Conventions* (The United Nations and The Nippon Foundation of Japan Fellow 2005)

Eirik Bjorge, *The Evolutionary Interpretation of Treatis* (Oxford University Press, 2014)

Muchtarudin Siregar, *Beberapa Masalah Ekonomi dan Manajemen Transportasi* (Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia 2012)

R. Soekardono, *Hukum Dagang Indonesia, Jilid II Bagian Ke-2* (Rajawali 1994)

Sudjatmiko, F.D.C, *Pokok-Pokok Pelayaran Niaga / F.D.C Sudjatmiko* (Brhatara 1995)

Contributions to edited books

Yosehifumi Tanaka, '*Navigational Rights and Freedoms*' in Donald Rothwell, Alex Oude Elferink, Karen Scott, and Tim Stephens (eds), *The Oxford Handbook of The Law of the Sea* (Oxford University Press, 2015)

Journal articles

John B. Houck, 'Restatement of the Foreign Relations Law of the United States (Revised): Issues and Resolutions' [1986] TIL Vol. 20 no. 4

Manfred Elsig and Joost Pauwelyn, 'The Politics of Treaty Interpretation: Variations and Explanations Across International Tribunals' (October 2011) SSRN Electronic Journal, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1938618>

Online journals

Craig H. Allen, "Determining the Legal Status of Unmanned Maritime Vehicles: Formalism VS Functionalism," (September 4, 2018) SSRN Electronic Journal, <https://ssrn.com/abstract=3244172>, accessed 13 January 2022

Command papers and Law Commission reports

BP3IP, *Jenis-Jenis Muatan (Type of Cargoes)* (Penanganan Muatan), ch. 2

Comite Maritime International, "CMI Consolidated Analysis of IMO LEG as Summarized in IMO Document LEG 107/8" (Maritime Law for MASS, 2020)

International Maritime Organization, "Outcome of the Regulatory Scoping Exercise for the use of Maritime Autonomous Surface Ships (MASS)," (IMO, June 3, 2021)

United Nations General Assembly, *Subsequent agreements and subsequent practice in relation to the interpretation of treaties: Text of the draft conclusions adopted by the Drafting Committee on second reading*, (International Law Commision, Doc. A/CN.4/L.907, 2018)

Websites and blogs

"*Customary International Law*" (Cornell Law School LII / Legal Information Institute, 2022) <https://www.law.cornell.edu/wex/customary_international_law#:~:text=Customary%20international%20law%20can%20be,and%20(2)%20opinio%20juris>, Accessed 13 May 2022

David Hambling, ''Awesome' New Submarine-Launched Drone Guides Torpedo Attacks From Unprecedented Range', (*Forbes.com*, 10 December 2020), <https://www.forbes.com/sites/davidhambling/2020/12/10/us-navys-new-submarine-launched-drone-guides-torpedo-attacks-from-unprecedented-range/?sh=2efe9b55f196> , Accessed 25 August 2021

"International LPI Global Rankings 2018", (*World Bank*, 2018), <https://lpi.worldbank.org/international/global>, accessed on 14 January 2022

M. Ambari, 'Indonesia Setuju Ada Armada Kapal Tanpa Awak, Tapi …' (*Mongabay Environmental News*, 27 June 2017) <https://www.mongabay.co.id/2017/06/27/indonesia-setuju-ada-armada-kapal-tanpa-awak-tapi/> accesed on 14 Januari 2022

Liana Threestayanti, "Contoh Penerapan Artificial Intelligence di Bidang Logistik", (*Info Komputer*, 14 June 2021), <https://infokomputer.grid.id/read/122740199/contoh-penerapan-artificial-intelligence-di-bidang-logistik> accessed on 12 January 2022

Rudy R. Ramli, 'ITS Luncurkan Kapal Tanpa Awak, Menhub: Saatnya RI Kuasai Teknologi Maritim.' (*Kompas.com*, 29 September 2020) <https://money.kompas.com/read/2020/09/29/132513126/its-luncurkan-kapal-tanpa-awak-menhub-saatnya-ri-kuasai-teknologi-maritim> accessed on 12 January 2022

'SeaFox | ATLAS ELEKTRONIK', (*Atlas Elektronik*), <https://www.atlas-elektronik.com/solutions/mine-warfare-systems/seafoxr.html>, accessed 12 January 2021