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INTERNATIONAL TRANSPORTATION OF NUCLEAR AND RADIOACTIVE MATERIALS THROUGH THE LOMBOK STRAIT AS INDONESIAN ARCHIPELAGIC SEA LANE

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Abstract

A literature review has been carried out to determine international and national legal frameworks regarding international transportation of nuclear and radioactive materials through the Lombok Strait in Indonesia. The Lombok Strait is one of the Indonesian Archipelagic Sea Lanes which has been regulated both in the national and international legal frameworks as a pathway between two oceans that passes through Indonesian waters. Transportation of goods by ship is passage of innocent as stated in Sea Law Convention. However, due to nuclear and radioactive materials are not ordinary goods, the safety and security of nuclear and radioactive materials should be ensured. The paper examines Indonesian national laws on nuclear and radioactive materials transport through Lombok Strait. Review results that apart from the carrier should comply with national and international legal frameworks, coordination between governmental agencies in Indonesia including local governments plays an important role in the innocent passage through the Lombok Strait. Finally, ensuring nuclear and radioactive materials transports are safe and secure in the context of international shipment is a necessity to ensure safety and security for workers, public and the environment

I. Introduction

Nuclear energy utilisation in the world increase every time on various fields. Nuclear energy utilisation cannot be separated from radioactive materials. Radioactive materials presence at the utilisation location has penetrated in many areas. This situation causes radioactive materials transportation inter-regions in a country and the countries also increase by public transportation modes.

Every aspects related to nuclear energy utilisation, besides the benefits as well as there is radiation hazard potential risk, so that nuclear and radioactive materials transportation should be regulated on adequate legal framework that is capable of being implemented to provide safety for workers, public and the environment. The utilisation of nuclear energy also demands a responsibility on safety and security and the vulnerability of being used for unpeaceful purposes. To prevent the misuse of nuclear energy, the international community established an international body under the auspices of the United Nations, the International Atomic Energy Agency (IAEA).

IAEA publishes safety series, including on radioactive materials transport. IAEA issued Specific Safety Requirements No. SSR-6 (Rev. 1) so that the parties involved in transporting radioactive materials process have reference in carrying out transportation in order to ensure safety of nuclear and radioactive materials transport.

Furthermore, Government Regulation No. 58 of 2015 on Radiation Safety and Security in the Transport of Radioactive Materials (GR 58/2015) has been enacted. GR 58/2015 regulates radioactive materials transportation from safety aspect to radiation hazard. Both SSR-6 and GR 58/2015 regulates safety of nuclear and radioactive materials technical aspect.

Therefore, in addition to the technical aspects of nuclear safety and radioactive materials, the transportation of these hazardous substances also needs regulation in terms of transportation traffic, both on land, sea and air. Traffic of nuclear and radioactive materials transport has been regulated in United Nations Convention on the Law of the Sea (UNCLOS). The convention ratified by States including Indonesia through Act No. 17 of 1985. Therefore, Indonesia is bound by UNCLOS, including in terms of arrangements regarding the transportation of nuclear and radioactive materials..

II. International and National Legal Frameworks

Every ships from any States has passage of innocent rights to cross State’s territorial

sea. This is regulated in Art. 17 of UNCLOS which is stated all ships' States have passage of innocent rights through State's territorial sea. There is no doubt in UNCLOS regarding this innocent passage which seems to violate the sovereignty of a State due to can just pass through a State's waters as long as it is for peaceful purposes.

However, Art. 23 para. 2 of UNCLOS concerning shipping lanes that may be traversed by ships carrying nuclear and radioactive materials stated ships of nuclear-powered and nuclear-carrier ships needed to limit their passage to sea lanes. This implementation in Indonesia is then regulated in Government Regulation No. 36 of 2002 on Rights and Obligations of Foreign Ships in Implementing Innocent Passage through Indonesian Waters (GR 36/2002).

FIG. 1. Illustration of transporting nuclear and radioactive materials by ship.

Art. 11 of GR 36/2002 regulates four sea lanes for nuclear and radioactive materials transportation passing through Indonesian waters stated foreign ships of nuclear-powered ships or foreign nuclear-carrier ships, in carrying out the Innocent Passage only to pass inter-high seas through Indonesian waters must through sea lanes that are usually passed for international shipping.

Moreover, for nuclear aspect regarding ships carrying nuclear and radioactive materials, UNCLOS also regulates in Art. 23 which is stated foreign ships of nuclear-powered and nuclear-carrier ships must show documents and take into account special precautions established for these ships by international agreements when exercising passage of innocent rights through territorial sea.

In Indonesian context, Art. 23 of UNCLOS is applied in Art. 85 of GR 58/2015 which regulates in charge party of the transportation of radioactive material submits notification request with several requirements that prove the transported nuclear and radioactive

materials. In the context of the IAEA, this provision is in line with para. 557 to 559 of SSR-6 which requires notification of competent authorities.

In addition, in charge party of the transportation of radioactive materials must have validation of the package design approval certificate as stipulated in Art. 94 of GR 58/2015. This provision is in line with para. 838 and 840 of SSR-6 which requires package design approval certificates and certificates validation.

III. Indonesia as an Archipelagic State

Indonesia as an Archipelagic State has a very strategic geographical position. The Indonesian waters, which is very wide and wider than land area, has enormous potential, including in this context shipping lanes both on a national and international scale.

Indonesia is flanked by two continents and two oceans. In this regard, Indonesia is directly connected by land and sea with several surrounding States, including by sea with Australia, the Philippines, India, Malaysia, Singapore, Timor Leste, Thailand, Vietnam and Papua New Guinea.

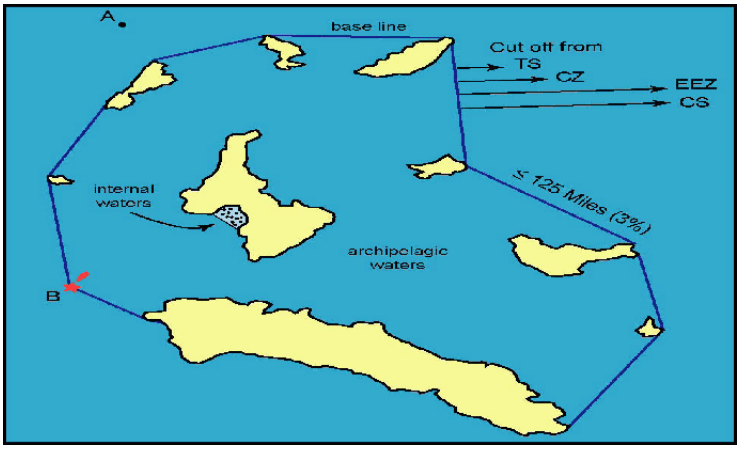

FIG. 2. Illustration of an Archipelagic State.

The existence of water on earth greatly affects human civilisation, even as a source of life, both as a means of supporting life in the form of drinking water and water transportation infrastructure for the convenience of human mobility.

The main juridical basis for the reality that Indonesia is archipelagic State, so it necessary to regulate archipelagic region specificity is contained in Art. 25A of Indonesian Constitution Indonesia is Archipelagic State characterised by an archipelago with areas which by law determines its rights and boundaries.

Another advantage is that Indonesian waters are a strategic transportation route that is passed by cargo ships from Asian and European States that will go to Southeast Asia and

Australia, or vice versa. In addition, Indonesian waters are located between oil-producing countries in the west and consuming countries in the East, and Indonesia has hundreds of offshore oil exploration and exploitation platforms. This strategic position has a major impact on the culture, social, politics and economy in Indonesia.

Archipelagic State like Indonesia as regulated in Part IV of UNCLOS has rights and obligations of utilisation of archipelagic waters including its territorial sea. Even though innocent passage is regulated in UNCLOS, it must also prioritise the safety principle with trust but verify approach.

Indonesia can build trust by verifying the documents submitted by the in charge party of the transportation of nuclear and radioactive materials. By putting these provisions into practice, it means that in addition to protecting the national security, Indonesia also ensures the safety of goods transported by in charge party of the transportation of nuclear radioactive materials even though they only pass through Indonesian waters.

Art. 46 of UNCLOS agrees that Archipelagic State is a State whose entire territory consists of at least one or more islands and includes another islands. Several another Archipelagic States besides Indonesia include The Philippines, Papua New Guinea, Fiji and The Bahamas. Twenty States purport to claim Archipelagic States: Vanuatu, Tuvalu, Trinidad & Tobago, Solomon Islands, Seychelles, Sao Tome & Principe, Saint Vincent & the Grenadines, The Philippines, Papua New Guinea, Marshall Islands, Maldives, Kiribati, Jamaica, Indonesia, Fiji, Dominican Republic, Comoros, Cape Verde, The Bahamas and Antigua & Barbuda.

FIG. 3. Papua New Guinea, one of several Archipelagic States in the world.

Due to it includes Archipelagic State's qualifications, Indonesian territorial sea is also referred to as Indonesian archipelagic waters. In this case, ships carrying nuclear and

radioactive materials has passage of innocent rights when crossing Indonesian archipelagic waters based on Art. 52 para. 1 of UNCLOS.

However, Art. 19 of UNCLOS defines innocent passage if it does not disturb peace, order or coastal State's security. If known a voyage that crosses Indonesian archipelagic waters is not for peaceful purposes, Indonesia can suspend in specified areas of Indonesian archipelagic waters foreign ships' passage of innocent if its crucial for security protection. This provision is regulated in Art. 52 para. 2 of UNCLOS.

The provisions on passage of innocent rights in UNCLOS prove that in addition to having the freedom to pass, foreign ships must also respect the sovereignty of a State. Due to keyword that is the main point in this voyage is security, so when a State feels there is a security threat to its sovereignty, that State has the right to defend itself.

This is something important due to the sovereignty of the State is above all else. This also confirms national and international law relationship. International law such as international treaties, for example, only applies to a State if ratifies it into the State's national regulations.

IV. Lombok Strait as an Indonesian Archipelagic Sea Lane

Refer to Art. 11 of GR 36/2002, in this regard foreign ships carrying nuclear and radioactive materials in carrying out the innocent passage only to pass inter-high seas through Indonesian waters must through sea lanes that are usually passed for international shipping. Therefore, Indonesia has an archipelagic sea lane.

Archipelagic sea lanes are lanes of sea that are passed by foreign aircraft over these lanes or ships pass through these lanes, to make flights and shipping in commonly way, only for direct or transit, unobstructed over or passage through archipelagic waters and adjoining territorial seas inter-high seas through Indonesian waters. The provisions for determination of Indonesian archipelagic sea lanes are regulated in Art. 53 of UNCLOS.

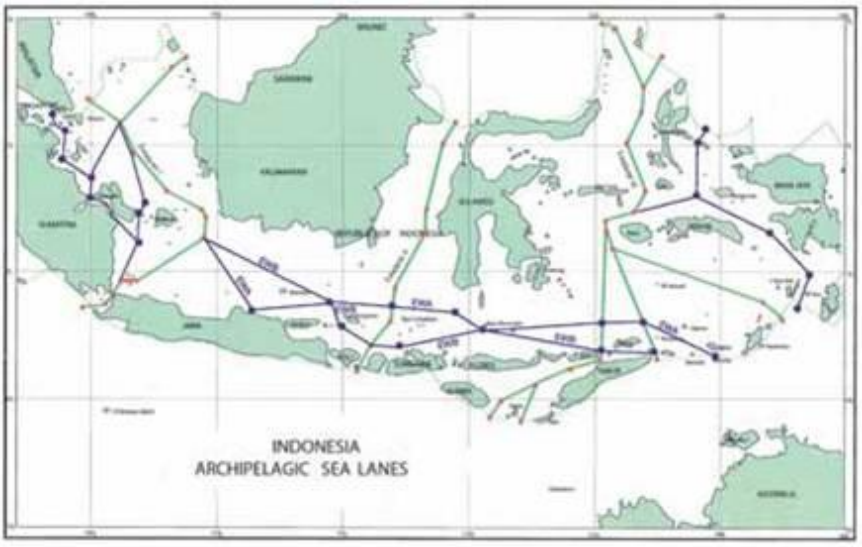

FIG. 4. Illustration of Indonesian archipelagic sea lanes.

Indonesian archipelagic sea lanes (IASL) which have been decided as the right to exercise archipelagic sea lane passage based on UNCLOS are flight and shipping lanes that can be utilised by foreign aircraft over the sea or ships pass through to make peaceful flights and sailings in commonly way. The determination of IASL is intended so that international flights and shipping can be carried out directly, continuously and possible quickly and as well as not hindered by Indonesian airspace and territorial waters. IASL is designed to be a channel through two high seas around Indonesia. Therefore, all foreign aircrafts and ships wishing to pass south or north must pass through IASL.

Indonesian archipelagic sea lanes become shipping lanes for the world economy that are vulnerable to crimes at sea, such as piracy against trading ships and other ships that are economically charged. With determination of the IASL, there are consequences that must be carried out by Indonesia Government to ensure safety of shipping and flights in determined IASL. Although known there are four IASL, basically there are three main IASL. A third branching path allows this pathway to be thought of as one, two or three subpaths.

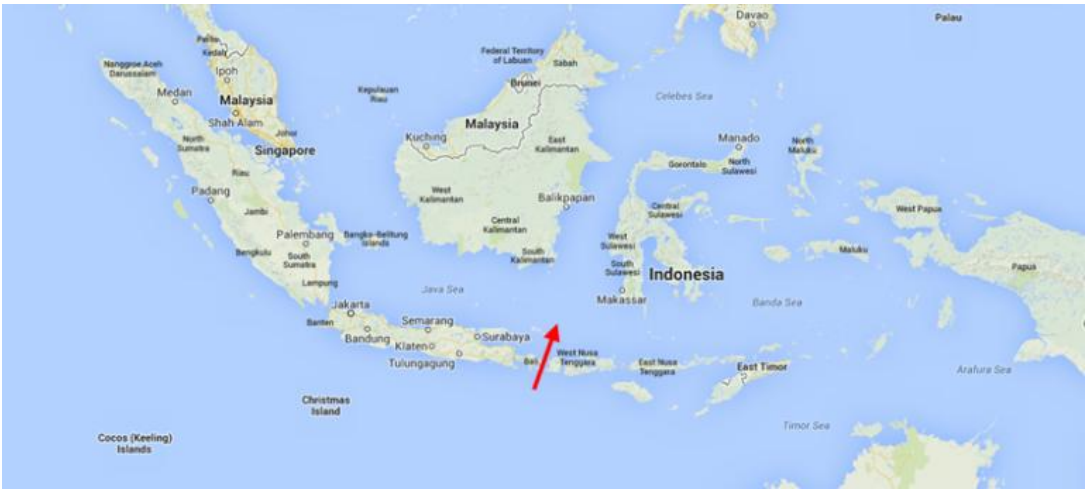

FIG. 5. Illustration of Lombok Strait in the second Indonesian archipelagic sea lane route.

Lombok Strait is in the second IASL route which is used for and vice-versa shipping from Indian Ocean in south of Indonesia to Pacific Ocean in north of Indonesia pass through Flores Sea, Makassar Strait and Celebes Sea. Each of IASL has own risks and threats. The potential threat on the second Indonesian archipelagic sea lanes route comes from the impact of the release of Sipadan and Ligitan Islands, such as illegal fishing and another natural resources. In addition, there is the threat of smuggling of illegal goods and the possibility of new territorial claims.

IASL existence makes rights and obligations applicable to foreign ships when passing through IASL as Indonesian legal territory to fulfill agreed requirements. Foreign ships carrying out passage of innocent rights through IASL must pass quickly possible in commonly way, only for direct, continuous, fast and unobstructed transit. In addition, the foreign ships, during its passage, must not beyond 25 nautical miles of IASL, it means the foreign ships may not allowed to sail closer to coast less than 10% of shortest inter-islands distance around IASL.

Furthermore, foreign ships must not give any kind of action that contains threats or behavior related to acts of violence to Indonesian sovereignty, or another way that approaches or tends to violate principles of international law in Charter of United Nations.

Meanwhile, foreign military warships, while on IASL passage, may not carry out training for war or training in using all kinds of weapons as well as broadcast illegally or disturb system of telecommunication and direct communicate with unauthorised subject in Indonesian territory.

However, there are certain exceptions that can be made by foreign ships if they are in

unforeseen circumstances or an accident, so that foreign ships passing through passage of innocent rights may lean in Indonesian territory. These exceptions are only allowed if there are circumstances beyond the capabilities of the foreign ships.

The possibility of an accident is what can result in a dangerous situation around the accident location. For example, when a ship accident occurs which results in radioactive release in the Lombok Strait, will not something detrimental happen at least for the environment in the Lombok Strait? Based on the principles of international law, liability in the event of a nuclear accident is absolute liability. This means that if a nuclear accident occurs, the operator is absolutely responsible, while the victim or third party is exempt from responsibility.

Taking into account that Bali is one of the provinces directly adjacent to the Lombok Strait and also considering the safety and security aspects considering that Bali is main tourism area in Indonesia, what is the role of local governments in Bali in dealing with this possibility? Coordination with related agencies, especially central government agencies, is absolutely necessary in this regard, including complying with all regulations regarding the response to radiation accidents.

V. Nuclear and Radioactive Materials Shipment

Shipment through Indonesian waters have an important role in advancing and facilitating domestic and foreign trade due to shipping services can facilitate the flow of goods from production sites to consumers so that consumer needs can be met. At this time, the shipping services through Indonesian waters has been carried out very often with one indicator being the number of industrial companies that always use shipping services through Indonesian waters, both domestic and foreign shipment that passes through Indonesian waters.

Shipment through Indonesian waters plays an important role in the lives of Indonesian people. The importance of transportation through Indonesian waters for Indonesian people is due to several factors, including the geographical conditions of Indonesia, which consists of many islands and waters consisting of most of the sea and rivers that allow transportation to be carried out by land, water and air to reach all regions of Indonesia.

Transportation plays an important role in development, both economic and non-economic development. Economic development focuses on increasing income and community welfare through economic growth with the important role of transportation for

economic development including increasing national income, developing national industry, and creating and maintaining employment opportunities for the community.

In addition, not much different from economic development, there is also non-economic development such as social, cultural and political, some of which are for the benefit of international relations and increasing national defense and security which leads to improving the overall quality of life. In line with the purpose of transportation to move goods from the place of origin to the destination with the aim of achieving and increasing benefits and efficiency, shipping goods through Indonesian waters creates benefits and efficiency due to the shipment route does not need to go through wider and more distant waters.

For example, if there is a shipment of goods by sea from Perth in Australia to Tokyo in Japan, the carrier does not need to take a long route through the southern part of Australia and the Pacific Ocean in eastern Papua New Guinea, but rather through the western part of Australia to Indonesian waters towards the South China Sea before arriving in Japan.

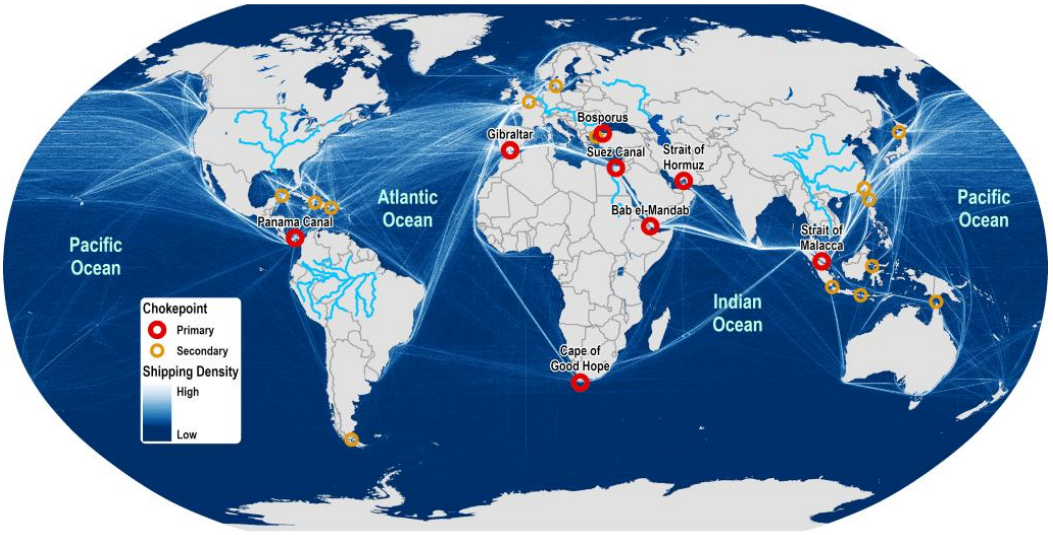

FIG. 6. Domains of Maritime Circulation.

The route for transportation of nuclear and radioactive materials is no different from another transportation routes. The only difference is the level of safety and security that must be met to ensure that nuclear and radioactive materials sent meet certain safety and security standards so that they will not pose a radiation hazard during transportation.

In nuclear and radioactive materials transportation with innocent passage through IASL, there are several shipments provisions that require courier notification with Indonesian Nuclear Energy Regulatory Agency (BAPETEN), including: Type B(U)

packages containing radioactive materials with activity more than 3000A1 or 3000A2 or 1000 TBq.

This provision is provided in Art. 84 of GR 58/2015 which is in line with para. 558 of SSR-6. As for issuance of the notification, there are arrangements regarding requirements, including description of radioactive materials and packages being transported.

Moreover, there are provisions regarding package design approval certificates and certificates validation, as regulated in Art. 94 of GR 58/2015, including: Type B(M) packages. This is in line with para. 838-840 of SSR-6. As confirmation, the types of radioactive materials regulated in GR 58/2015 include fissile material which is defined as a material containing any of the fissile nuclides: plutonium-241, plutonium-239, uranium-235 and/or uranium-233 more than total 0.25 gram as in Art. 1 para. 8 of GR 58/2015 and in line with para. 222 of SSR-6.

FIG. 7. The example of Type B(U) packages containing radioactive materials .

The obligation to have a package design approval certificate and validation of the package design approval certificate for carriers of nuclear and radioactive materials that will pass through Indonesian waters is in accordance with national legislations and international standards. Validation of a certificate issued by the State of origin is a licensing or approval activity that requires an evaluation of the truth of the submitted certificate. This is a form of recognition from the supervisory body that it is true that the package with the design approval certificate can enter Indonesian territory due to it is in accordance with international standards.

VI. Conclusion

The provisions on the right of innocent passage in UNCLOS prove that in addition to having the freedom to sail, foreign ships must also respect the honor of a country. Due to

the key word that is the main point in this voyage is security, if when a country feels that there is a security threat to its security, then the country has the right to defend itself. This is an important thing due to sovereignty of the State is above all else. This also confirms the relationship between national law and international law. International law such as international agreements, for example, only applies to a country if it ratifies it into the State's national regulations.

Implementation of the transportation of nuclear and radioactive materials through the archipelagic waters based on UNCLOS and the Indonesian national legislations cannot be separated from harmony of national and international law. In this regard, UNCLOS is in line with Indonesian national legislations and SSR-6. By the alignment of international and national legal frameworks on transportation of nuclear and radioactive materials through archipelagic waters based on UNCLOS, Indonesian national legislations and SSR-6, hopefully that the transportation process by foreign ships can actually be carried out in an innocent passage.

Finally, in the context of responding to possible accidents in the IASL including Lombok Strait, local government role in Bali is crucial in responding to these unexpected and unwanted events. Coordination with central government agencies is key in this context to ensure safety and security for workers, public and the environment.

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