

## Conference Paper

# Analysis of Sea Transportation Development In Sulawesi to Support the Sea Toll

**Hartanto**

Publication and Information Division of Transportation Ministry of Indonesia (PPI)

**Abstract**

Transportation is essentially a derived demand which has a continuous character and knows no boundaries. In this regard, transportation is basically the lifeblood of the nation and state, where at the initial stage, the role of transportation is as a “the promoting sector”, that is, transportation infrastructure and facilities are provided before the development of other sectors, while at the next stage the role of transportation concerns “the servicing sector”. The types and means of transportation vary according to requirements. There are 3 types of transportation in the world, namely land transportation, water transportation, and air transportation. Among the types of transportation, sea transportation provides a very large contribution to the national and regional economy as mandated in Act No. 17 of 2008. It is therefore a key strategic point for national development. It should also be noted that the contribution of sea transportation is becoming increasingly important because the costs incurred are lower than that the cost of land and air transportation. In addition, sea transportation has other advantages, namely ships can pass through fields that cannot be reached by two-wheeled vehicles or air ships. The main target of maritime highway development according to the Ministry of National Development Planning is the realization of Indonesia as an archipelagic country that is independent, advanced, strong, and based on national interests.

**Keywords:** Equipment; Sea; Transportation.

Corresponding Author:

Hartanto

hartantosatya@gmail.com

Published: 12 January 2021

Publishing services provided by  
Knowledge E

© Hartanto. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the IWPOSPA Conference Committee.

## 1. Introduction

Transportation is essentially a derived demand which has a continuous nature and knows no boundaries, so that it cannot be cut off on the basis of a certain administrative area. In this regard, transportation is basically the lifeblood of the nation and state, where at the initial stage, the role of transportation is as a “the promoting sector”, that is, transportation infrastructure and facilities are provided before the development of other sectors, while at the next stage the role of transportation is as “the servicing sector” which looks more real when routine activities have been carried out so that it needs to be served with appropriate transportation services (Rahardjo, Adisasmita. (2010). *Dasar-Dasar Ekonomi Transportasi*. p.12).

 OPEN ACCESS

Ships as a means of sea transportation are very important means of supporting the movement of goods or people from one place to another by sea. This can smooth the flow of goods and support development development for underdeveloped areas, so it is necessary to realize the importance of marine services as a means of transportation in supporting mobility. (Abdul Kadir, Muhammad. (1991). *Hukum Pengangkutan Darat, Laut, dan Udara*. Bandung. p.4) The concept of a sea highway is not a toll road over the sea like the one in Bali, but the sea highway carried out by President Jokowi refers to the condition of Indonesia's territory, two-thirds of which are sea and so far have been neglected.

By realizing the sea highway concept, large ships will continue to sail from the west to the east, making it easier for goods, services and people to be transported throughout Indonesia. In its implementation, the sea highway is supported by large ships passing all over Indonesian waters. Large ports in Indonesia will be supported by small ships whose task is to reach areas that are not touched by large ships (Putra, Adris A & Susanti Djalante. (2011). *Pengembangan Infrastruktur Pelabuhan Dalam Mendukung Pembangunan Yang Berkelanjutan*. *Jurnal Ilmiah Media Engineering*, Volume 6, Nomor 1.)

The concept of a sea highway is indeed suitable for Indonesia, where most of its territory is water and has 17,500 large and small islands. However, realizing the concept of a sea highway is not only about building ports, but also must be accompanied by improvements to the national marine transportation system as a whole (Gultom, Elfrida. (2009). *Hukum Pengangkutan Laut*. Jakarta: Literata Lintas Media. p. 23). The need to develop a sea highway as inter-island connectivity in Indonesia is still in the process of being developed. Various obstacles that go hand in hand with the development of the sea highway, in this case, are important to analyze because they are very useful to determine the feasibility of developing the sea highway (Prihartono, Bambang. (2015). *Pengembangan Tol Laut dalam RPJMN 2015 – 2019 dan Implementasi 2015*. Badan Perencanaan Pembangunan Nasional. Republik Indonesia).

Based on the information previously discussed. concerning the Sea Highway, it aims to develop a maritime economy, namely to make the sea the basis for production and marketing connectivity between regions / islands in Indonesia and the region, so as to reduce price disparities that occur by reducing transportation and logistics costs which are currently high. (Syarif, A. Yun & Y. Gen, M. (2002). "Study on Multi-Stage Logistic Chain Network: A Spanning Tree-based Genetic Algorithm Approach". *ScienceDirect Computers & Industrial Engineering* Vol.43, Hal.299-314) The formulation of the problem that will be discussed is how the development of sea transportation

routes in the Sulawesi region to support the sea highway. (Kementerian PPN/Bappenas. (2015). Laporan Implementasi Konsep Tol Laut 2015 Direktorat Transportasi. Lembaran Sekretariat Negara. Republik Indonesia)

In accordance with the formulation of the problems mentioned above, the research objectives to be achieved are, the influence of the development of sea transportation in the Sulawesi region to support sea tolls.

The results of this study are that we can find out that the maritime highway program planned by the government is very important because it can develop the maritime economy, namely making the sea the basis for production and marketing connectivity between regions / islands in Indonesia and regionally, so as to reduce price disparities that occur by pressing transportation and logistics costs are currently high.

The scope of this research is: Keeping in mind that this research is an analysis of the development of sea transportation routes in the Sulawesi region to support the sea highway, the boundaries of the research area are about how the development of sea transportation routes in the Sulawesi region to support sea tolls, such as the condition of ships, ports, Shipyards, and others. (Kompas. (2011). Mengubah Wawasan, Membangun Kelautan. Ed. 8 Pebruary 2011, Jakarta)

## 1.1. Influence of Transportation in Life

The impact caused by transportation means, in its development, there are positive and negative impacts for humans. Following are the positive and negative impacts of transportation equipment on the environment:

### 1. Positive Impact:

(a) For rural communities, means of transportation will be very important to connect them to other cities or regions in meeting all their needs. The distance between villages and cities that are far away will be an obstacle to rural growth. Without a means of transportation, everything will be very difficult.

(b) Save time, on trips to places that are far away.

### 2. Negative Impact:

(a) Reduction of productive agricultural land because it is used to accommodate the need for transportation services such as terminals, airstrips or vehicle parking.

- (b) High levels of Pulotan due to emissions (release) from motor vehicle fumes. This becomes a serious threat if left unchecked, not only for the environment we live in, this can further reduce the level of public health by contracting respiratory diseases due to air pollution.

## 1.2. Supporting Factors for the Sea Highway

There are 5 Supporting Factors for the Sea Highway, according to Deputy Minister of Transportation Bambang Susantono, to develop the idea of a sea highway, including:

1. First, of course we have to build modern ports that can serve ships according to the needs of the national local economy;
2. Second, build a system, so that all processes can be transparent, accountable and efficient;
3. The third is that the ship will be adjusted;
4. The fourth is developing multi-mode, such as access to ports;
5. The fifth is institutions and resources must also follow.

## 2. Research Methods

### 2.1. Types of research

The type of research to be carried out is descriptive research, because in this study the researcher focuses on the problem of the development of marine transportation routes in the Sulawesi region in supporting the maritime highway program carried out by the government, while the definition of the type of descriptive research is to focus on actual problems as was at the time of the research. Through descriptive research, researchers try to describe events and incidents that are the center of attention without giving special treatment to these events.

The variable under study can be single (one variable) can also be more and one variable.

### 2.2. Types and Sources of Data

1. Types of Data Types of data consist of:

- (a) Descriptive data is focusing attention on actual problems as they were when the research was taking place. Through descriptive research, the researcher tries to describe the events and incidents that are the center of attention without giving special treatment to these events. The variable under study can be single (one variable) can also be more and one variable.
- (b) Qualitative Data is data about research that is descriptive and tends to use analysis. Process and meaning (subject perspective) are emphasized more in qualitative research. The theoretical basis is used as a guide so that the research focus is in accordance with the facts in the field. In addition, this theoretical basis is also useful for providing an overview of the research background and as material for discussion of research results.

## 2. Data Sources

Secondary data is data obtained in the form of written information, documentation and reports on the development of sea transportation routes in the Sulawesi region to support the Sea Highway as well as from books related to the issues to be discussed.

### 2.3. Method of collecting data

To obtain the data required in this study, data collection was carried out through library research and field research.

1. Literature Research This research is conducted by examining library materials such as books containing theories, scientific papers and other materials relevant to the research.
2. Field Research This research was conducted directly on the object of research. The method used is observation, observation itself means making direct observations of the actual conditions at the research location.

### 2.4. Method of Analysis

Data The analysis method used is qualitative analysis, meaning that the process and meaning (subject perspective) are emphasized in qualitative research. The theoretical basis is used as a guide so that the research focus is in accordance with the facts in the field. In addition, it is also useful to provide an overview of the research background and as material for discussion of research results.

### 3. Result and discussion

The perspective of the mainland has made us alienated and under-utilized the strengths and advantages of the sea. In fact, shifting this perspective allows us to see Indonesia as one unit, not just separate islands. This understanding led to the idea of a sea highway, to reaffirm Indonesia as a maritime nation. (Adisasmita & Sakti Adji. (2011). *Perencanaan Pembangunan Transportasi*. Yogyakarta: Graha Ilmu. p.11)

The target of maritime highway development according to the Ministry of National Development Planning is the realization of Indonesia as an archipelagic country that is independent, advanced, strong, and based on national interests, which is marked by:

1. The development of a network of facilities and infrastructure as the glue for all the islands and islands of Indonesia.
2. Increasing and strengthening Human Resources (HR) in the marine sector who are supported by the development of science and technology.
3. Establishment of the territory of the unitary state of the Republic of Indonesia, assets and matters related to the framework of national defense.
4. Development of an integrated marine economy by optimizing the sustainable use of marine resources.
5. Reducing the impact of coastal disasters and marine pollution. The coastal communities and small islands are still poor and have not been much touched by basic services and basic needs as well as economic opportunities. Currently, Indonesia is planning on the concept of a sea highway. The sea highway is a sea transportation route from Sumatra to Papua bypassing all major ports in Indonesia. The sea route is able to be an alternative amid the high transportation load that has been relying on land routes and railways, for example in the case of reducing the burden on the North Coast (Pantura) route (Kramadibrata, Soedjono. (1985). *Perencanaan Pelabuhan*. Bandung: Ganeca Exact. p.9). Due to the large number of transactions in the sea area, there are route patterns that can be passed for logistics distribution. Therefore, an analysis is needed to determine the optimal pattern according to the required criteria.

In the maritime highway development plan, the Ministry of Bappenas and the Ministry of Transportation together with Pelindo established 24 strategic ports to realize the Sea Highway concept consisting of 5 hub ports (2 international hubs and 3 national hubs) and 19 feeder ports. The port of Sorong is planned as a common future.

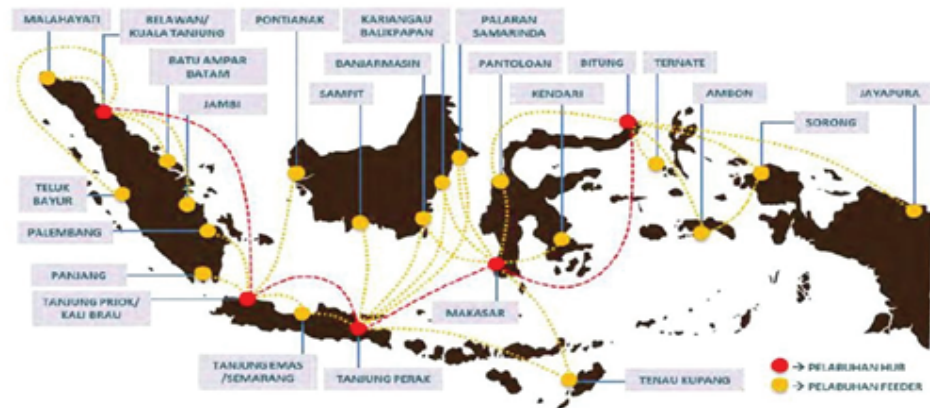


Figure 1

Development of the potential of the interland area to increase the potential of its cargo. The 24 strategic ports can be seen in the following figure: In addition, the marine highway development plan also requires support in its realization. Based on the 2015-2019 RPJMN, it is stated that many actors are involved in the construction of sea tolls in Indonesia. These actors include Pelindo, KPS, BP Batam, PT TLMI, and PT Samudera Indonesia. These actors have different roles in the construction of sea tolls in Indonesia. There are those who play a role in construction (dredging), ship procurement, and so on. Furthermore, funding for marine highway development also requires a lot of funds.

Then the 24 sea highway supporting ports divided into 5 hub ports and 19 feeder ports have different funding needs. The 5 Hub ports are Belawan / Kuala Tanjung ports, Tanjung Priok / Kali Baru ports, Tanjung Perak ports, Makassar ports and Bitung ports. Furthermore, 19 feeder ports include Malahati Port, Batu Ampar Batam, Teluk Bayur, Jambi, Palembang, Panjang, Tanjung Emas Semarang, Pontianak, Sampit, Banjarmasin, Kariangau Balikpapan, Palaran Samarinda, Pantoloan, Kendari, Tenau Kupang, Ternate, Ambon, Sorong, and the Port of Jayapura (Ministry of National Development Planning, 2014)

Each Hub port and feeder port has different characteristics. Where the funding for each port is very diverse and has different collaborations with private parties that take part in the construction of sea tolls in Indonesia. More clearly, the following are some of the funding needs of several ports which will be explained through descriptive analysis as follows:

There are several estimates for the funding of hub ports, namely Belawan Port, Kuala Tanjung Port and Tanjung Perak Port. At the port of Belawan, which is located in Medan City, North Sumatra Province has a fund allocation of Rp. 6 trillion, sourced from foreign

investors and SOEs amounting to USD 87.5 million with funds that are directly managed as executors, namely the Ministry of Transportation and Pelindo I.

At Kuala Tanjung Port, located in Batu Bara City, North Sumatra Province, it has a fund allocation of Rp. 6 trillion, sourced from domestic investors BUMN, KPS (BP Batam) with funds that are directly managed as executors, namely the Ministry of Transportation and Pelindo I.

At the Port of Tanjung Perak, located in the Surabaya location, East Java Province has a fund allocation of Rp. 8.563 Trillion, the source of which comes from BUMN & PT AKR Cooperation with funds that are directly managed as executors, namely the Ministry of Transportation and Pelindo III. In contrast to the estimation of hub port funding, the feeder port funding for sea highway support consists of Malahayati Port, Ampar Port, Teluk Bayur Port, Pantoloan Port, Kendari Port, Tenau Port, Kupang, Ternate Port, Jayapura Port, Ambon Port, and Sorong Port.

In order to improve the performance of ports, the government needs to take concrete steps as soon as possible in terms of resolving the problems faced by Indonesian ports. There are several ways that can be used as alternatives to solve this problem. But first, we have to determine the priority of the current port development. Of all the problems mentioned above, the most important problem to be resolved first is to improve existing facilities at the port. The first step is to revitalize the main ports in Indonesia. At least, the government must seriously develop 10 main ports such as Belawan, Tanjung Priok, Tanjung Mas, Tanjung Perak, Bitung, Pontianak, Pangkalan Bun, Panjang, and several ports which are strategically positioned. With a pool depth of only 13.5 meters, Tanjung Priok Port can only accommodate small-medium vessels. Generally, these vessels are feeder vessels from ports in Singapore, Malaysia and Hong Kong. So far, 80-90% of Indonesia's export-import activities have to go through ports in other countries.

The port problem in Indonesia is a complex one. It takes seriousness from each of the existing stakeholders to improve port performance. In addition, it requires precise measurement of each strategy that is implemented. So that the large capital used to build the port can be accounted for later. The government of course plays an important role in this. The government must act as a supervisor who regularly monitors the implementation of all the strategies that have been agreed and implemented. Because in general, even though they are very well formulated, each strategy becomes chaotic when implemented. This is of course due to a lack of coordination. It is hoped that the government can carry out this role well, not even make it worse.

According to the Ministry of Bappenas, (2014) in the maritime highway book states that logistics distribution in the front area (international hub port) will be connected to



the inner region through national hub ports (collecting ports) which are then forwarded to the feeder port (feeder port) and forwarded to the sub-port. -feeder and / or people's port. In accordance with the concept of the front area and the inner region, the vessels serving international cargo / logistics movements will be different from the vessels that serve domestic cargo movements.

#### 4. Conclusion

The realization of the Sea Highway Builder in the Sulawesi region will fulfill the government's objectives in an effort to facilitate inter-island connectivity while at the same time increasing the volume of inter-island exchanges and transactions of goods to be balanced with big cities in Indonesia. In proportion to that, the impact of the implementation of marine highway development will have an impact on Indonesia's trade balance, which will rob the community and fishermen's management space on the coast.

#### References

- [1] Abdul Kadir, M. (1991). *Hukum Pengangkutan Darat, Laut, dan Udara*. Bandung: Citra Aditya Bakti
- [2] Adisasmita, M. and Adji, S. (2011). *Perencanaan Pembangunan Transportasi*. Yogyakarta: Graha Ilmu.
- [3] Gultom, E. (2009). *Hukum Pengangkutan Laut*. Jakarta: Literata Lintas Media.
- [4] Kementerian PPN/Bappenas. (2015). *Laporan Implementasi Konsep Tol Laut 2015 Direktorat Transportasi*. Lembaran Sekretariat Negara. Republik Indonesia.
- [5] Kompas. (2011). *Mengubah Wawasan, Membangun Kelautan*. Jakarta: Kompas.
- [6] Kramadibrata, S. (1985). *Perencanaan Pelabuhan*. Bandung: Ganeca Exact.
- [7] Prihartono, B. (2015). *Pengembangan Tol Laut dalam RPJMN 2015 – 2019 dan Implementasi 2015* Badan Perencanaan Pembangunan Nasional. Republik Indonesia.
- [8] Putra, A. A. and Djalante, S. (2011). Pengembangan Infrastruktur Pelabuhan Dalam Mendukung Pembangunan Yang Berkelanjutan. *Jurnal Ilmiah Media Engineering*, vol. 6, issue 1, p.434-443
- [9] Rahardjo, A. (2010). *Dasar-Dasar Ekonomi Transportasi*. Jogjakarta : Graha Ilmu.
- [10] Syarif, A. Y. and Gen, M. Y. (2002). Study on Multi- Stage Logistic Chain Network: A Spanning Tree-based Genetic Algorithm Approach. *ScienceDirect Computers & Industrial Engineering*, vol. 43, pp. 299-314.