

Logistics system as an effort of integration in the Mandalika Special Economic Zone and its surroundings

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Abstract. Indonesia as one of the maritime countries with its territory in the form of an archipelago. A SEZ with an integrated logistics system is very influential on the value of tourism, especially marine tourism. The creation of logistics activities in the Mandalika SEZ as a tourism area formed from the export and import of products as a form of tourism promotion will attract many domestic and foreign tourists. The importance of a logistics system for both people and goods can support the investment system in the area of Mandalika SEZ. The logistics system can provide agglomeration of facilities and infrastructure to support tourist activities in terms of cargo distribution both locally and globally. Mandalika SEZ requires an integrated logistics system to improve national competitiveness in the form of physical system support such as commodity availability and city/regional infrastructure as well as non-physical infrastructure such as service providers and regulation in order to be sustainable. The logistics system also plays a strategic role in synchronizing and harmonizing progress between economies and between regions in order to avoid an imbalance with the surrounding area. This study aims to find out the performance of the existing logistics systems in the Mandalika area and its surrounding areas in order to formulate policies to integrate the logistics systems within and outside the region. This research used content analysis methodology.

1. Introduction

The logistics system has a strategic role in synchronizing and harmonizing progress between economic sectors and between regions to realize inclusive economic growth and create a bastion of sovereignty and national economic authority and security [1]. Logistics is the process of anticipating customer needs and wants; acquiring the capital, materials, people, technologies, and information necessary to meet those needs; optimizing the goods or service-producing network to fulfill customer requests; and utilizing the network to fulfill customer requests in a timely way. The main actors of tourism logistics are transportation and tourism agents and suppliers. The actualization of a logistic system depends on the available infrastructure and transportation network to shift goods. The Mandalika Special Economic Zone is one of the districts of Central Lombok and is prominent in tourism spots and resorts, fisheries, and transportation surrounding the area. Thus, it requires a proper logistics to distribute people and goods effectively and efficiently.

The integrated logistics system named Special Economic Zone is very influential on the value of Indonesian investment as a maritime country. The Special Economic Zone has a function and economic criterium as tourism development area. The development of logistics activities in the Mandalika SEZ as a tourism area is formed from the activities of exporting and importing products in the form of tourism promotion which will attract many domestic and foreign tourists. The purpose of the Special Economic Zone is to accelerate regional development and trigger new economic growth.

The Mandalika Special Economic Zone is prepared to become a center of Meetings, Incentives, Conventions, and Events (MICE) on an international scale. A logistics system for people or goods can be achieved through the investment system in the Mandalika Special Economic Zone, and it can provide agglomeration of facilities and infrastructure to support tourist activities in terms of cargo distribution both locally and globally. In other words, the Mandalika Special Economic Zone must provide a cargo



port to fulfill trading needs and services such for hotels, bars, restaurants, crafts (souvenirs), shopping centers, and other support facilities. This logistics system also has a strategic role in synchronizing and harmonizing the economic development within the region to prevent the disparities phenomena. This also increases the Competitiveness Index of the Mandalika Special Economic Zone. Mandalika SEZ requires an integrated logistics system to improve national competitiveness in the form of physical system support such as commodity availability and city/regional infrastructure as well as non-physical infrastructure such as service providers and regulations in order to be sustainable.

The objective of this study is to find out the performance of the existing logistics systems in the Mandalika area and its surroundings in order to formulate policies to integrate the logistics systems both within and outside the region. The performance of the logistics system is studied based on the Logistics Performance Index (LPI), and policy strategies.

2. Methodology

This research is conducted to gain in-depth knowledge about the performance of the logistics system in the Mandalika Special Economic Zone and its surroundings. The research uses a qualitative approach to content analysis to get in-depth data, i.e., data that contains meaning [2] of a social phenomenon [3]. The Logistics Performance Index (LPI) approach is used in the data analysis to find out the performance of the logistic system within and around the SEZ.

2.1 Method of Data Collection

This study uses primary and secondary data. Primary data collection is done through field observation in SEZ Mandalika. Meanwhile, the secondary data collection is done through literature study and data collection from related institutions.

2.2 Method of Data Analysis

The data analysis in this study is conducted through content analysis to understand and interpret data of the field conditions in Mandalika SEZ. The result of the content analysis and then compared with the field conditions of Mandalika SEZ. The data analysis method used is Logistics Performance Index (LPI). The information to be extracted from the Logistics Performance Index consists of six indicators that are divided into two categories. Table 1 below shows the Logistics Performance Index:

Table 1. Logistics Performance Index (LPI) [4]

| No | Category | Indicator |
|----|----------|---|
| 1 | Area | Efficiency of the clearance process Quality of trade and transport-related infrastructure Ease of arranging competitively priced shipments |
| 2 | Process | Competence and quality of logistics services Ability to track and trace consignments Timeliness of shipments in reaching the destination within the scheduled or expected delivery time |

3. Mandalika Special Economic Zone

Mandalika SEZ consists of several zones, i.e., export processing, logistics, industry, technology development, tourism, and energy. This, the Special Economic Zone needs to build any other facilities and houses for workers. Meanwhile, micro, small, and medium scale businesses need to be provided a location to support the activity in Mandalika SEZ. The Special Economic Zone is prepared as a new geo-economic prominent and geo-strategic area to support industrial activity, export, import, high economic value activities, and international competitiveness [5]. The Mandalika Special Economic Zone is needed to accelerate the economic development in West Nusa Tenggara and support national economic development. Figure 1 shows the potential distribution area of Mandalika SEZ.

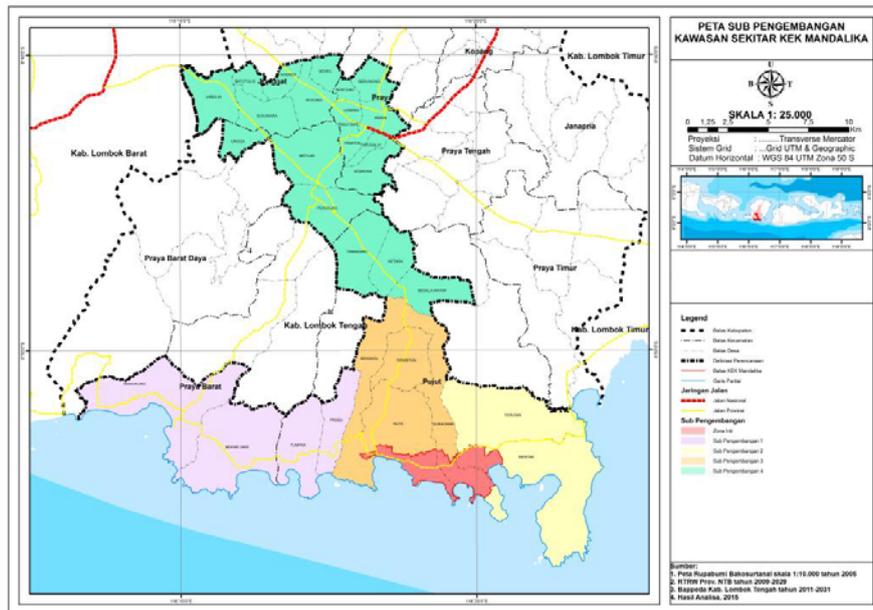


Figure 1. Potential distribution area of the special economic zone

The potential distribution area surrounding Mandalika SEZ is divided into several sub-area developments. The core area is located in Mandalika SEZ, which has many sea tourism sites like beaches, and promontory in SP-1, which is focused on supporting local economic development. The development process will involve local resources by encouraging cultivated economic productivity. The tourism development concept in SP-1 requires basic facilities by providing accommodation (hotels, resorts, guest houses), restaurants, and bars surrounding the site. SP-2 is the development area that is focused on fishery based on local resources. The development process will increase complementary facilities such as cold storage to keep fish and lobster. SP-3 focuses on local economic activity based on tourism and cultural sites with local engagement.

Accelerating the economic development (export and import) requires logistic principles in tourism management. The main principle of the logistics system is to tourist activities effective and to increase benefits on the micro scale. However, the higher tourism principle of scale is to utilize natural resources and local people surrounding Mandalika SEZ to be sustainable.

The sustainability of tourism relates to the functional logistic structure of tourism and includes traditional aspects, like logistics, and manufacturing. The purpose of the logistics system is to facilitate the product flow to the production area and tourism consumption. This requires the important step to identify the consumer flow in Mandalika SEZ and its surrounding area so that all potential in Mandalika SEZ will be integrated into the logistics system to efficiently use time and money in supporting restaurants, homestays, and hotels in Mandalika SEZ. In the next five years, homestays, restaurants, cafeteria, and retail areas are planned in the western zone which can absorb up to 5.000 local employees^[3]. West Nusa Tenggara has Islamic local values and is well-known as a global halal destination for tourism. Mandalika SEZ will implement Islamic local values and become a Muslim-friendly zone. Surakarta village, Jonggat district offers cultural tourism. This village attracts many tourists domestically and from overseas as a songket village. In Mandalika SEZ, this village contributed in human resources; every woman in this village is capable of creating songkets.

In developing tourism activity, the development of the area will gradually cause a demand for hotels, guest houses, restaurants, and other facilities which requires a supply of commodity production in agriculture (paddy fields). Based on observations, there are several districts could support Mandalika Special Economic Zone especially in food security, i.e., Praya district, particularly West Praya, East

Praya, and Central Praya, which has a large horticulture area, fisheries, lobster, and seagrass. The water supply can be obtained from Rinjani Mountain, Batuaja, and the Penge Dam in West Praya.

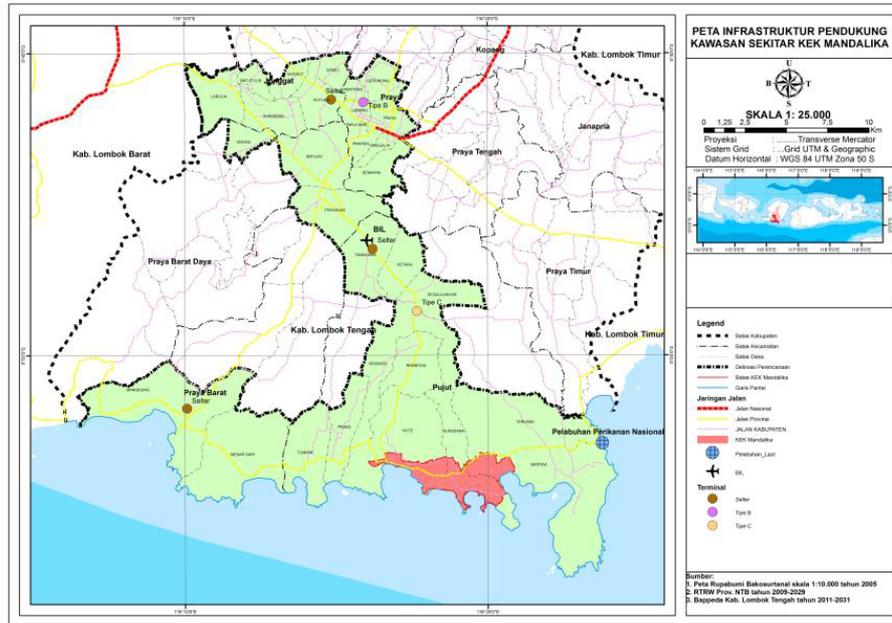


Figure 2. Distribution of supporting infrastructure around Mandalika Special Economic Zone

To serve the tourism activities in Central Lombok Regency, the International Airport Lombok (BIL) is already available. This airport already serves foreign countries and is located in Pujut Sub-district. In addition, there is a Type B Terminal in Praya District, a Type C Terminal in Pujut District, and Type C Terminals in East Praya Sub-district. Moreover, there are also supporting shelters located in Jonggat Sub-district, Pujut Sub-district (near BIL), West Praya Sub-district, Southwest Praya Sub-district, and Janapria District.

4. Logistics system

Mandalika Special Economic Zone was developed for marine tourism and religious tourism in Central Lombok Regency. Its location adjacent to the island of Bali is one of the geographic advantages that can promote the Mandalika Special Economic Zone to domestic and international tourists. Figure 3 below explains the flow of tourists in the tourism logistics system. This travel activity forms the logistics flow of tourism activities of travel agencies and tour operators.

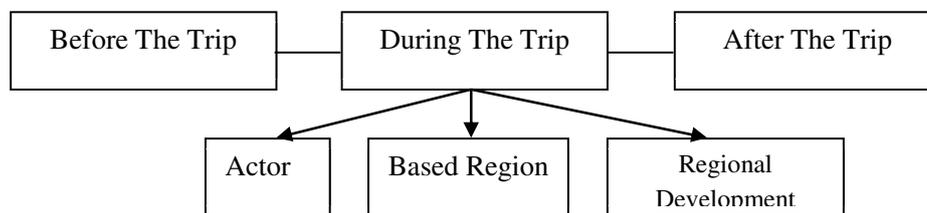


Figure 3. Tourist flows in tourism logistics

The SISLOGNAS blueprint as a system that supports supply chain management consists of six important aspects, i.e., commodities; transportation infrastructure; technology and communication; logistics HR; logistic regulation; and national logistic institution. The main discussion is about the availability of transportation infrastructure and regulatory support in the field of logistics in the Mandalika Special Economic Zone. Tourism activities cannot be separated from the provision of logistics systems; it is necessary to develop a good logistics system in order to provide supply and demand for goods to meet the needs of actors (lodging and restaurant service providers) in the Mandalika Special Economic Zone, the support of the surrounding area, and the encouragement of regional development. Thus, it takes a strategic formula how to meet the needs of these service providers by utilizing the potential around Mandalika Special Economic Zone in the form of natural and human resources to improve the economic growth of the region.

For supporting the movement, there is a provincial road network that connects between districts. Tourism area cannot be separated from the logistics system. To offer a complete holiday experience the aspect of cargo movement must be available. The support of the tourism logistics system for the Mandalika Special Economic Zone is divided into several levels. i.e., local, micro, meso, and macro. The regional structure of tourism logistics reflects its six levels of regional (geospatial) systems:

1. Local level (tour logistics);
2. Micro-level (tour operator logistics);
3. Mesoscale-level (tourist and resort zones and tourist district logistics);
4. Macro-level (national tourism industry logistics);
5. Mega-level (global macro-regions logistics);
6. Meta-level (global tourism logistics) [6].

With the system of tourism activity, a demand for lodging services and restaurants will emerge around the tourist sites, thus, this requires the supply and of distribution of main of agricultural commodities and products such as rice. Based on the observations, there are several sub-districts that can support service activities in the Mandalika Special Economic Zone in providing food resources in Praya Sub-district, partly in Praya Barat Daya, West Praya Barat, Praya Timur and Central Praya, which has land use of food crops and horticulture and support from the fisheries, lobster, and seaweed sectors. The need for clean water sources can be fulfilled using spring water from Mount Rinjani, the Batuja Dam and the Penge Dam in Praya Barat Daya Sub-district.

To develop an area of international-level maritime tourism, a macro logistics system planning is needed, which includes the optimization of local, micro, meso and macro logistic services. In the Mandalika Special Economic Zone several restaurants, hotels, and resorts are planned to be built. To meet the needs of these services activities requires support from the area around Mandalika Special Economic Zone.

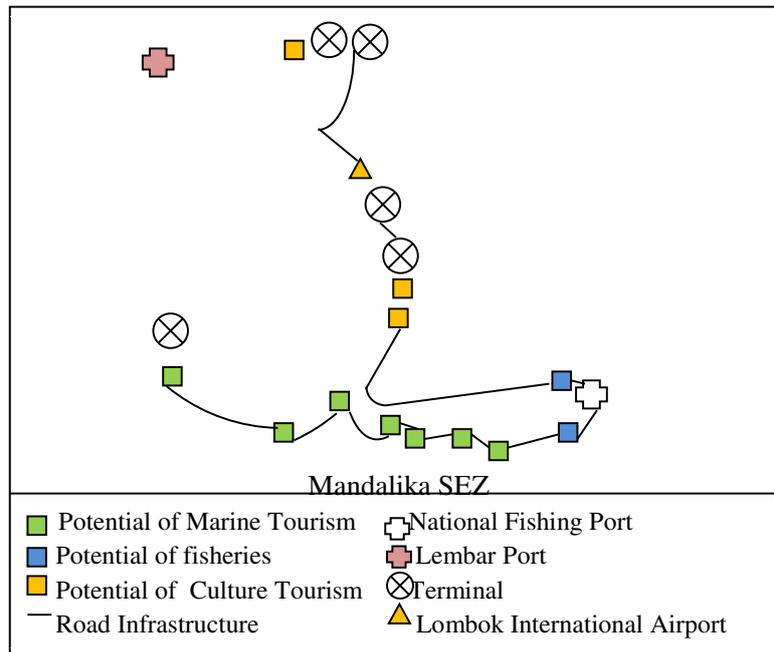


Figure 4. Infrastructure and transportation support in Mandalika SEZ

Figure 4 explains the infrastructure and transportation availability to support the distribution of logistics in tourism activities within the Mandalika Special Economic Zone. The infrastructure and transportation support that is available for tourist travel is through land, sea and air transportation. In the city of Mataram, the Port of Lembar-Gili Mas can serve tourists from and to SEZ Mandalika. In addition, land transportation services are also available; road transportation uses the provincial and district road network as a liaison between the port and the International Airport of Lombok to SEZ Mandalika.

The distribution of major commodities for the Mandalika Special Economic Zone from the surrounding areas requires a good logistics system that is related to production costs (availability of manpower and production areas); warehousing costs and strategic warehouse location; commodity quality; and the availability of various modes of transportation including cost and time. Central Lombok Regency supports the tourism logistics system in the Mandalika Special Economic Zone, in accordance with Central Lombok Regency Spatial Plan by providing the infrastructure system and transportation of the National Fishery Port located east of Mertak Village, Pujut Sub-district. The provision of cargo movement at the port is an important tool in the storage of major commodities supporting services activities in the Mandalika Special Economic Zone; it requires a flexible efficient and well-organized supply chain. A good logistics system will have an impact on the economic growth and investment of Mandalika SEZ both from within and outside the region. Economic growth cannot be separated from the quality support of the surrounding communities related to the use of human resources. The efforts in improving the quality of human resources in the Mandalika Special Economic Zone is done by building vocational high schools around the region. The improved skills in the community are needed to optimize services for local and international tourists in the Mandalika SEZ. The emergence of multiplier effects will impact various sectors including logistic services.

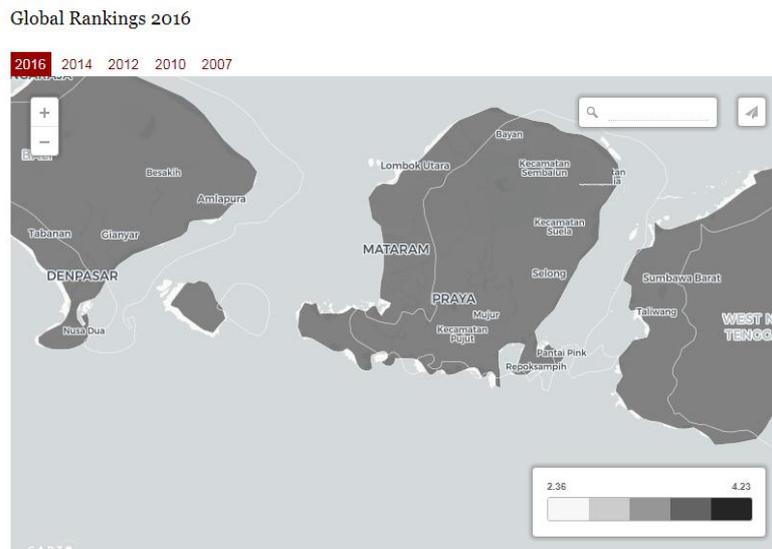


Figure 5. International Logistic Performance Index [4]

The World Bank has developed the Logistic Performance Index (LPI) measurement based on six indicators and grouped into two categories

Table 2. Logistics Performance Index on Mandalika Special Economic Zone

| No | Category | Indicator | Result |
|----|----------|-------------------------------------|---|
| 1 | Area | Efficiency of the clearance process | The efficiency and ease of customs provided by the Indonesia Tourism Development Corporation (ITDC) in Mandalika Special Economic Zone is also offered to investors in the Mandalika Special Economic Zone with a good service system. Law No. 39 of 2009 on Special Economic Zone, explained the ease given to investors to invest in Special Economic Zones (SEZ), namely: (a) The import of goods is granted facilities in the form of suspension of import duty, excise duty as long as the goods are raw materials or auxiliary materials production, no levy of Value Added Tax (VAT), Sales Tax on Luxury Goods and Import PPh. (b) The requirement of taxable goods from elsewhere within the Special Economic Zone may be granted a facility not subject to VAT and Sales Tax on Luxury Goods under the provisions of laws and regulations; (c) The transfer of taxable goods from the Special Economic Zone to other places within the customs area to the extent not addressed to the party receiving the facilities of VAT is subject to VAT or VAT and Sales Tax on Luxury Goods in accordance with the provisions of the law; (d) Reduction of Land and Building Tax in accordance with the provisions of the Laws and Regulations; (e) Any taxpayer conducting business in the Special Economic Zone shall be given incentives in the form of exemption or relief of local taxes and regional levies in accordance with the provisions of laws and regulations; and (f) to be granted ease and relief in the business licensing, business, industrial, trading, port and immigration sectors for foreigners of business and security facilities. |

| No | Category | Indicator | Result |
|----|----------|--|--|
| | | Quality of trade and transport-related infrastructure | <p>The Mandalika Special Economic Zone is supported by infrastructure and transportation over land, sea, and air. Infrastructure and land transportation is supported by the condition that most of the main roads that are traversed are in excellent condition. The main roads, especially those connecting districts, are the primary arterial roads that have the status of National Road and Provincial Road. The main roads connecting these districts include the main infrastructure in Central Lombok Regency. The land surrounding Mandalika Special Economic Zone is dominated by watermelon plantations and corn and empty land along the road to Mandalika Special Economic Zone.</p> <p>Infrastructure and sea transportation is supported by ports. Sheet Port - Gili Mas supports sea transportation from and to Mandalika. Gili Mas port will be used as one of the tourist entrances to the Special Economic Zone (SEZ) Mandalika, in Central Lombok Regency, West Nusa Tenggara. The development of Gili Mas Port as an expansion of Lembar Port aims to facilitate overseas vessels with a large capacity that bring tourists to Lombok.</p> <p>In addition, there is also an air infrastructure support, namely the availability of Lombok International Airport (BIL).</p> |
| | | Ease of arranging competitively priced shipments | <p>The shipping of goods to and from SEZ Mandalika is now easy because of the availability of logistics services in Mandalika area. The shipping price from and to Mandalika SEZ is still quite expensive because the distance is quite far and the quantity transported is still small, so the cost is still high for the delivery of goods or cargo.</p> |
| 2 | Process | Competence and quality of logistics services | <p>In the Mandalika Special Economic Zone and surrounding areas services are available such as logistic delivery service from and to Mandalika offered by PT Mandalika Gress, PT Wahana Prestasi Logistik, and Lombok Anugerah. This will help service activities in the Mandalika Special Economic Zone and surrounding areas as there will be 18 investors who will build hotels in Mandalika Special Economic Zone</p> |
| | | Ability to track and trace consignments | <p>The Inaportnet online application system into the field of marine transportation facilitates tracking shippings by online logistics transporters. The Inaportnet application helps in the form of data and information about tracking and tracing of logistic goods. Lembar Port has been registered in the Ministry of Transportation's online system along with 43 other ports for easy searching of data due to centralized ship master data and easy monitoring of ship activities. However, tracking and tracing efforts have not reached the Inaportnet application stage.</p> |
| | | Timeliness of shipments in reaching the destination within the | <p>The timeliness of delivery in achieving the objectives within the scheduled or expected delivery time for logistics services from and to Mandalika is good as evidenced by the existence of Standard Operating Services (SOS) in the providers of freight services available in Mandalika and its surroundings.</p> |

| No | Category | Indicator | Result |
|----|----------|-------------------------------------|--------|
| | | scheduled or expected delivery time | |

Several indicators such as the efficiency of clearance processes and the quality of infrastructure related to transportation and have the best performance among the four other LPI indicators. The following strategies can be formulated to improve the logistics performance index in the Mandalika SEZ and surrounding areas.

Table 3. Logistics Performance Index on Mandalika Special Economic Zone

| No | Category | Indicator | Strategy |
|----|----------|---|--|
| 1 | Area | Efficiency of the clearance process | The implementation of the clearance process has been supported by the policy of the ITDC for investors, so it is expected that the utility to support the quality of facilities and infrastructure of service activities will be increased to attract investors in Mandalika SEZ. |
| | | Quality of trade and transport-related infrastructure | The infrastructure related to trade and transportation around the Mandalika Special Economic Zone must be integrated in order to support the competitiveness of international trade between land, sea, and air infrastructure. Currently, the transportation from the Port of Lembur - Gili Mas to the SEZ Mandalika is not as well such as the connecting road network from the Port to SEZ. Thus, this requires the access roads to shorten the time and reduce the cost incurred by tourists and/or logistic delivery from and towards SEZ Mandalika. |
| | | Ease of arranging competitively priced shipments | The ease of arranging competitively priced shipments is related to improving the quality of infrastructure. Integrated infrastructure will facilitate the delivery of goods so that the costs incurred are small. Currently, infrastructure that can support logistic delivery activities to support SEZ is by land and air transportation. Shipping by land transportation is supported by the Lombok International Airport (BIL). Improving the available road network infrastructure relates to support facilities such as lighting around the roads from and to the airport needs to be improved so that the delivery of goods can be smooth and goods can be delivered in a good condition. Improvement of this indicator can support the logistics aspect of tourism activity in the area of SEZ Mandalika and its surroundings. |
| 2 | Process | Competence and quality of logistics services | The logistics services in Mandalika are not competitive because of the limited availability of cargo transportation through sea transportation for long distances and over land for short distances. Some of the average logistics services are the delivery from and to the provincial capital of Mataram City. The strategy that can be developed is to provide a logistics delivery route from and to Mandalika SEZ. |
| | | Ability to track and trace consignments | The tracking and tracing consignments require support of data and information on vessels and transport logistics. This data and information can be acquired easily through the online applications of the Ministry of Transportation, especially Sea |

Transportation (Hubla).

This effort is the implementation of the policy of the Minister of Transportation Regulation No. PM 157 Year 2015 on the Application of Inaportnet For Service Ships and Goods at the Port. Inaportnet is a single electronic internet-based information service system to integrate standard port information systems in serving vessels and goods from all related institutions or stakeholders at the port (including the Port Enterprise Service system). It is expected that Lembar Port can be registered in the Inaportnet tracking application like other registered ports such as the ports of Belawan, Palembang, Teluk Bayur, Panjang, Pontianak, Banjarmasin, Balikpapan, Tanjung Priok, Tanjung Emas, Tanjung Perak, Makassar, Bitung, Ambon, Banten, Gresik, and Sorong.

| | |
|--|---|
| Timeliness of shipments in reaching the destination within the scheduled or expected delivery time | The timeliness of shipments in reaching destinations within the scheduled or expected delivery time can be increased by improving Standard Operational Procedure (SOP) of logistic service companies respectively related to receiving points, transportation and delivery control processes and handover of goods. The process of submitting and handover of this item is related to logistic carrier information; the time (date and time) goods arrived at the warehouse; the time (date and time) goods start unloading; the time (date and time) goods are unloaded; the details of goods received (item name/item code/quantity/volume/weight); condition of the goods received and the warehouse officer receiving the goods. This activity should be transparent and accountable so that the quality of on-time scheduled delivery can run well in Mandalika SEZ. |
|--|---|

5. Results

The result of content analysis about the performance of the logistic system in Mandalika SEZ based on six indicators from the Logistics Performance Index (LPI) is explained in Table 4.

Table 4. Results of the Logistic Performance Index in Mandalika SEZ

| No | Indicator | Logistics Performance Index |
|----|--|-----------------------------|
| 1. | Efficiency of the clearance process | Good |
| 2. | Quality of trade and transport-related infrastructure | Good |
| 3. | Ease of arranging competitively priced shipments | Not good |
| 4. | Competence and quality of logistics services | Not good |
| 5. | Ability to track and trace consignments | Not good |
| 6. | Timeliness of shipments in reaching the destination within the scheduled or expected delivery time | Not good |

This assessment is based on the conformity of indicators with existing field conditions in the SEZ Mandalika and supported by policy review.

6. Conclusion

Mandalika Special Economic Zone was developed as a tourism development economic concept. It needs a logistics system to integrate the Mandalika Special Economic Zone and its surroundings. The study found the following conclusions.

1. The performance of the existing logistics system in Mandalika and its surrounding areas in general still requires physical and non-physical improvement and policies in order to integrate the logistics systems inside and outside the region.
2. Based on the "area" indicators of the Logistics Performance Index (LPI), the efficiency of the clearance process and quality of trade and transport related infrastructure is already good in SEZ Mandalika.
3. The availability of logistics services in West Nusa Tenggara Province only serves from Lombok Island only to Mataram City, so the cost of sending logistics to SEZ Mandalika is high because the cost incurred if converted in units of distance traveled is increased.

7. Recommendations

The recommendations for further study of logistics system as an effort of integration in the Mandalika special economic zone and its surroundings are as follows:

1. In the short term, the process of cargo logistics in Mandalika through land transportation and facilities can still be controlled but if the demand increases, the logistic supply to the Mandalika Special Economic Zone will be insufficient by land route. Thus, demand must be fulfilled by the areas surrounding the Mandalika Special Economic Zone by sea and air.
2. It is necessary to improve the quality of infrastructure and sea transportation in the Mandalika Special Economic Zone.
3. Central and local government support can optimize the logistics system in Mandalika Special Economic Zone.

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