

필리핀 RORO 운송 현황과 향후 발전에 대한 조사 연구

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A Study on Current Situation and Future Development of RoRo Routes in the Philippines

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Abstract

Philippines as one of the developing countries in Asia which is composed of more than 7000 islands. Air, Water and Land transportation are the means of travel in the country, however, transportation of goods and services between islands takes place through RoRo ships. There are about 154 RoRo routes connecting the islands in the Philippines and since its establishment, the incomes of the municipalities near the ports have increased by 7%. It is because of the increase of tourist, decrease of cost of transportation and travel time. In order to improve some of the routes in the Philippines, the researcher would like to suggest that the shipping companies should consider to upgrade some vessels. That is to have a vessel with a high-capacity storage for vehicles and goods so that mass transportation made. Another is that the ports need to be upgraded as well.

Key words: 154 RORO Routes, Philippines, seaport, traveler, transportation

▷ 논문접수: 2018. 01. 13. ▷ 심사완료: 2018. 03. 19. ▷ 게재확정: 2018. 03. 28.

This research is a part of the project titled "SMART-Navigation project," funded by the Ministry of Oceans and Fisheries.

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I. Introduction

Dating back to the ancient civilization where transportation of goods, services and people were carried by horses and wooden ships, transportation of today has changed significantly. From Containerships to Ferries and Cruise Ships, travelling became much easier. It now plays an important role in our lives. From local delivery to intercontinental shipment, shipping became the norm.

Philippines, a country located in the Western Pacific Ocean, which consists of more than 7,000 islands that are divided under three main geographical divisions from north to south: Luzon, Vizayas and Mindanao. Land transportation is the main way of travelling in the Philippines, however, some places can only be accessed through sea transport. Currently there are 154 RORO routes in the Philippines, connecting Alabat, Quezon to Atimonan, Quezon, from Bacolod City to Iloilo City to Guimaras, from Batangas City to Calapan, Oriental Mindoro, from Cebu City to Cagayan de Oro City, from Manila to Coron to Guyo (Palawan) to name a few. In 2003, Philippines established the Nautical Highway System, which is an integrated sets of roads and ports which connect the three main major regions. The 919 Kilometer SRNH(Strong Republic Nautical Highway) is composed of three major routes. First is the Western Nautical Highway linking Manila and Dipolog connecting to the Central Nautical Highway in Cebu City. The Central Nautical Highway then links Pilar,

Sorsogon and Balingoan. The last of the three major routes is the Eastern Nautical Highway, which is a link between the province of Biliran and Surigao City, connected to the Central Nautical Highway via Cataingan.

According to the report from the Asian Development Bank the roll-on, roll-off (RORO) system has allowed transportation costs to decline by as much as 10% to 60% since the system was put in place in 2003. Furthermore the report also presented the findings on the initial impact of the RORO system in the country and it showed that the simple policy reforms in the area of sea transport can have a positive impact on the lives of millions of poor who are still living in isolation in Southeast Asia.

We can say that since the establishment of the Philippine Nautical Highway System, seamless transportation between inter-island became possible. It also provided a good effect not only in the neighboring municipalities as well as in the whole country.

II. Description of Major 10

out of 154 RORO Routes

Philippines, which is composed of many small islands, can only be accessed through RORO ships. The travel period between islands are different, it depends on which shipping company the commuter will take. There are various companies that operate on the routes, mostly are privately owned and their operation includes an is-

land tour and transportation of goods

The selection of the routes was based on the highest number amount of RORO traffic that came from the Philippine Ports Authority. One of the highest RORO traffic is located in the Batangas Port which primarily serves the Calabarzon Region of the Philippines. Batangas port serves as a cargo and passenger terminal. Following the Batangas Port is Ozamis Port, which has a total of 323,060 RORO traffic. The highest contributor in this port is the Mukas, Kolambungan, Lanao Del Norte - Ozamis City Route, which is managed by the Daima Shipping Company. They have seven vessels, which serves as a passenger's carry and cargo goods transportation.

Below is the list of routes with high RORO traffic.

Batangas City - Abra de Ilog, Occidental Mindoro Route

Abra de Ilog was formerly a small settlement founded by Spanish religious missionaries some-time in the early part of the 17th century. According to folk history, its former name was Abre de Ilog. The name was derived from the Spanish verb abrir (to open) and the Tagalog noun ilog (river). Later on, the name evolved into its present name: Abra de Ilog, a Chabacano-like terminology which can be loosely translated as bucana ng ilog, or "opening of the river." This can be attributed to the numerous rivers and creeks that traverses strategic areas of the municipality.

The Batangas RORO has a total of 328,869 RORO Traffic, while the Abra de Ilog RORO has a total of 63,021 RORO Traffic and the travel time from the port of Batangas to Abra de Ilog is about 2,5 hours.

Batangas City - Calapan, Oriental Mindoro Route

Calapan was formerly a small village before the establishment of the first Religious District in Baco. The District convent was transferred to Calapan in 1733 and began its jurisdiction over the Northern Mindoro Ecclesiastical Area. In the early 18th century, the town only occupied a strip of land stretching from Ibaba to Ilaya in a cross-shape facing the present church and cut off by the river. Later on, succeeding barrios were founded.

There is a total of 250,582 RORO Traffic from Calapan RORO. The travel time from Batangas City to Calapan, Oriental Mindoro is only 45 minutes.

Benoni, Mahinog, Camiguin - Balingoan, Misamis Oriental Route

Mahinog, officially the Municipality of Mahinog, is a 5th class municipality in the province of Camiguin, Philippines. According to the 2015 census, it has a population of 14,038 people. It is bounded in the north by the town of Mambajao, on the south by the municipality of Guinsiliban, on the east by Bohol Sea and on the west by Mt. Timpoong.

Formerly part of Talisayan, it gained independence on March 1, 1952. According to the local legend, it derived its name from the word "baling ni Juan" (John's Fishing Net), which later on became simply as "Balingoan".

There is a total of 44,669 RORO Traffic in Benoni and the travel time between Benoni to Balingoan, Misamis Oriental is 1 hour.

Dumaguete - Dapitan Route

Dumaguete City, also known as the City of Gentle people, is more than just a travel hub to the surrounding tourist attractions and scuba dive destinations. Dumaguete is the capital of Negros Oriental.

Dapitan, also known as the Shrine City of the Philippines, is a city in the province of Zamboanga del Norte, located on the island of Mindanao, which is the second largest island in the Philippines.

The travel time between Dumaguete to Dapitan depends on which shipping company the passenger will take. Some may take 3 hours while others may take about 4.5 hours. There is a total of 45,851 RORO traffic in Dumaguete and 43,343 in Dapitan.

Dumanggaz, Iloilo - Bacolod City Route

Dumangas, officially the Municipality of Dumangas, is a 1st class municipality in the province of Iloilo, Philippines. According to the 2015 census, it has a population of 69,108

people. Dumangas is located north-east of Iloilo City on the island of Panay, east of the province of Iloilo. Surrounded by the towns of Barotac Nuevo in the north, Pototan in the west, Zarraga in the south and the waters and islands of Guimaras and Negros Occidental in the east.

Bacolod is the capital city of the province of Negros Occidental in the Philippines. It is known as the City of Smiles because of its MassKara Festival, a Mardi Gras-like festival and a spectacularly vivid mix of dance, color and music. Bacolod is also known as the Land of Sweet People, and for its culinary heritage, including its inasal (a kind of roast chicken on skewers) and sweet dessert treats.

There is a total of 141,167 RORO traffic in Dumanggaz, The travel between Dumanggaz to Bacolod City depends on the shipping company. The usual travel time is about 1.5 hours to 2.5 hours.

Mukas, Kolambungan, Lanao Del Norte - Ozamis City Route

The name "Kolambungan" was taken from a word "kolambog", a kind of tree which grew abundantly in the area. Some present day barangays were also before called Migcamiguang and Maribojoc named also from trees abundantly found in the area.

Ozamiz, officially the City of Ozamiz, (Cebuano: Dakbayan sa Ozamiz, Filipino: Lungsod ng Ozamiz; Spanish: Ciudad de Ozamiz), or simply referred to as Ozamiz City, is

a 3rd class city in the province of Misamis Occidental, Philippines.

The travel time between Mukas, Kolambungan, Lanao Del Norte to Ozamis City is 1 hour and 9 min. There is a total of 321,478 RORO traffic in Mukas, Kolambungan, Lanao Del Norte.

Lipata, Surigao - San Ricardo, Southern Leyte Route

The primitive name of this town was "Inulinan ", the stern of rear part of a boat as it is located at the extreme southern part of Panaon Island that resembles a boat. It was established in 1865 with Pintuyan as the Poblacion. San Ricardo replaced Inulilan after the name of the first Capitancillo.

The travel time between Lipata to San Ricardo is one hour and there is a total of 37,999 traffic in the Lipata RORO

Matnog Sorsogon - Allen, Northern Samar

Matnog is a municipality in Bicolandia, located in the southernmost part of the region. It is best known as a major hub for ferries bound for destinations in the Southern Philippines such as Samar, but there is so much more about to Matnog than being just a functional, commercial seaport!

The area of present-day Allen was originally populated by natives of Malay stock from the western and central portions of the island of Samar, particularly Catbalogan and Calbayog.

Successive migrations to Allen from other islands that are near Allen were characterized by several waves.

There is a total of 163,875 RORO traffic in Matnog and the travel time between Matnog and Allen is approximately 2 hours.

Roxas, Oriental Mindoro - Caticlan, Malay, Aklan Route

Roxas started as a small barrio of Mansalay called Tikling by the banks of the Tikling River and settled by migrants from Panay, Romblon and Batangas. It was later named Paclasan (from palasan, a species of palm growing abundantly on marshy surroundings).

Caticlan is located at the Northern tip of Panay Island, first Barangay of Malay from Nabas, is bounded on the North by Barangay Union, Nabas; on the South by Barangay Sambiriyay, Malay; on the West by the Island of Boracay, the world famous tourist destination. The name Caticlan was derived from Capaclan, a local name for a specie of banana. The Spaniards interpreted the similar sound as Caticlan. Another version is from the name CATHAN - an instrument used to catch birds and wild chickens.

There is a total of 55,152 RORO traffic in Roxas and the travel time between Roxas and Caticlan is 4 hours.

Cebu City - Tubigon Bohol Route

Tubigon is a coastal town with a coastline of

14 kilometers and is located in the north-western part of the province. Tubigon is 54 km to the north of Tagbilaran. Being much closer to Cebu, Tubigon makes a good alternative port of entrance to Bohol. Several ferries cross the Cebu straight every day, including several fast craft and a RORO ferry, in case you want to bring a car.

Cebu is one of the most developed provinces in the Philippines, with Cebu City as the main center of commerce, trade, education and industry in the Visayas. In a decade it has transformed into a global hub for shipping, furniture-making, tourism, business processing services, and heavy industry.

There is a total of 38,492 RORO traffic in Tubigon and the travel time from Tubigon to Cebu is 1.5 hours.

RORO transportation had a significant effect in the country, especially in the transportation of goods between islands. On the study “The impacts of Roll-On / Roll-off Transportation System in the Philippines” the Ro-Ro program of the government has increased the household income by about 7% in municipalities near the RORO ports due to the reduced cost of inter-island shipping and travel time.

The routes that have been selected are mostly located in the ports where there is a high traffic for passenger cargo. Some of them will take an hour to arrive while others may take longer. Still, since its formation, RORO already contributed a great impact in the improvement of the country.

III. Analysis of Critical Routes in the Philippines

Philippines as one of the developing countries in Asia, still have its own shortcoming, particularly in the sea transport sector. Currently there is a total of 39,362,926 Passenger traffic and 3,052,405 RORO traffic in the Philippines. It only shows that there is a high volume of transportation that exists in the sea transport sector.

The reasons for the selection of the routes are as follows: distance, passenger traffic, and cargo traffic. Distance refers to how far is the location of point A to point B. The distance between the islands plays an important role in the transportation because it affects how many voyages the ship can make within a day. The more trip a vessel can make can result to a bigger revenue for the company.

Passenger traffic is the total number of people who embark and disembark using the RORO ship. It includes both foreign and national residents.

Lastly is the RORO traffic, it is the number of inward and outward done by the ship on its designated routes. Table 1 shows the current total number of RORO Traffic in the Philippines.

Table 1 RORO Traffic in the Philippines

	Total
RORO Traffic	4,487,359
Inward	2,240,353
Outward	2,247,006

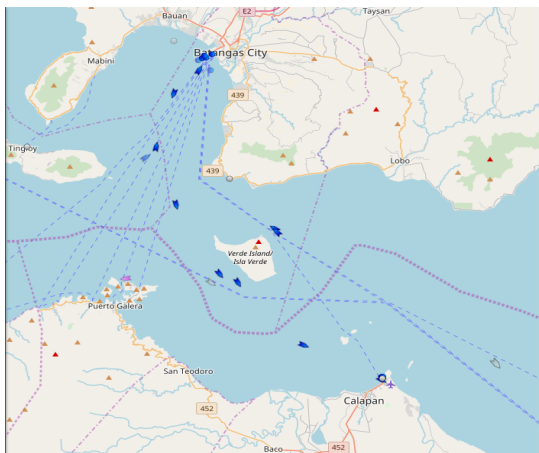
Source: PPA(Philippines Port Authority) 2017

The routes that have been selected presents a high number of traffic in terms of RORO service in the Philippines. This only shows that these routes have a significant effect in the inter-island trade in the country. The three routes selected by the researcher to be analyzed are the following: Batangas City - Calapan Or. Mindoro Route, Mukas, Kolambungan, Lanao Del Norte - Ozamis City Route and Matnog Sorsogon - Allen, Northern Samar Route.

Batangas City - Calapan Or. Mindoro Route

Batangas, officially known as the Province of Batangas (Filipino: Lalawigan ng Batangas) is a province in the Philippines located in the Calabarzon region in Luzon. There is a total of 2,612,135 passengers that embark and disembark using RORO in Batangas Port. There are 5 shipping companies that operate on this route and they are Archipelago Phil.

Fig 1 Batangas City – Calapan Or. Mindoro Route



Source: Silent Gardens 2017

Ferries Inc., Besta Shipping Lines, Inc., Asian Marine Transport Corp., Montenegro Shipping Co. Inc. and Starlite Ferry Corporation. All of the shipping companies mentioned operate on both passenger and cargo carry.

Table 2 Batangas RORO and Passenger Traffic

Year	Total	
2017	Passenger	3,396,536
	RoRo	328,869
	Cargo	438,066
2016	Passenger	4,423,182
	RoRo	568,608
	Cargo	449,759
2015	Passenger	6,346,303
	RoRo	515,730
	Cargo	2,374,980

Source: PPA (2015~2017)

Table 2 shows the total number of both RORO and Passenger Traffic in Batangas Port from 2015 to 2017. There is a decrease of number in both Passenger and RORO Traffic in the Batangas Port.

Calapan, officially the City of Calapan, (Filipino: Lungsod ng Calapan), or referred simply as Calapan City is a 3rd class city in the province of Oriental Mindoro, Philippines. According to the 2015 census, it has a population of 133,893 people. The city serves as the gateway to the Oriental Mindoro province with the implementation of the Strong Republic Nautical Highway (SRNH) an integrated ferry project of then President Gloria Macapagal Arroyo that extends further to the southern part

of the Philippines. The Calapan City Seaport is the largest and busiest seaport on Mindoro Island, which is just 45 minutes away by ferry boats and roll-on/roll-off (RORO) ships to-and-fro Batangas City International Seaport.

The distance between Batangas to Calapan is 77.3km and it will take 45 minutes of travel time. According to the report by the Philippine Ports Authority, Batangas RORO have the highest RORO traffic in the Philippines. The reason for this is that Batangas Port is the alternate port to the Manila port. It is also the second biggest port in the Philippines in terms of revenue just behind the Port of Manila.

Table 3 Calapan RORO and Passenger Traffic

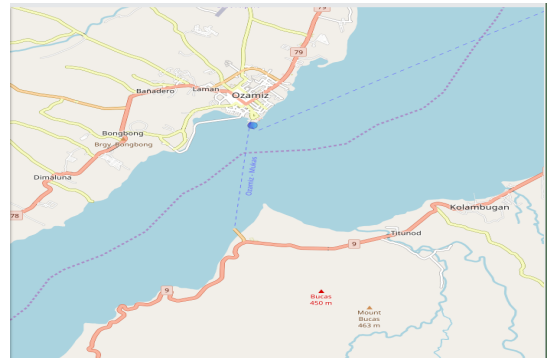
Year	Total	
2017	Passenger	2,336,703
	RoRo	250,582
	Cargo	8
2016	Passenger	3,028,750
	RoRo	445,605
	Cargo	79
2015	Passenger	4,543,658
	RoRo	396,740
	Cargo	30,601

Source: PPA (2015~2017)

Table 3 shows the total number of both RORO and Passenger Traffic in Calapan Port from 2015 to 2017. There is a decrease of number in both Passenger and RORO Traffic in the Calapan Port.

Mukas, Kolambungan, Lanao Del Norte - Ozamis City Route

Fig 2 Mukas, Kolambungan, Lanao Del Norte - Ozamis Route



Source: Silent Gardens 2017

The name “Kolambungan” was taken from a word “kolambog”, a kind of tree which grew abundantly in the area. Kolambungan, officially the Municipality of Kolambungan, is a 4th class municipality in the province of Lanao del Norte, Philippines. According to the 2015 census, it has a population of 27,005 people

Table 4 Mukas, Kolambungan RORO and Passenger Traffic

Year	Total	
2017	Passenger	2,464,851
	RoRo	321,478
	Cargo	N/A
2016	Passenger	2,806,500
	RoRo	568,608
	Cargo	N/A
2015	Passenger	N/A
	RoRo	614,788
	Cargo	N/A

Source: PPA (2015~2017)

Table 4 shows the total number of both RORO and Passenger Traffic in Mukas Port from 2015 to 2017. There is a decrease of number in both Passenger and RORO Traffic in the Mukas Port.

Before Ozamiz was created, it was then a part of a town called Misamis. The development of the old Spanish town, Misamis, was all because of the presence of the Spanish garrison stationed at the stone fort named Nuestra Señora dela Concepcion del Triunfo which was constructed about 18th century in so that the piratical activities will be controlled, which was originating in the nearby Lanao area. In 1850, the town of Misamis became the capital of the District of Misamis. After the Second World War, Misamis became a chartered city by virtue of Republic Act 321 on July 16, 1948. RA 321 also renamed Misamis to Ozamiz after a WW-II hero José Ozámiz who hailed from the province of Misamis Occidental and who at one time also served as its governor.

The distance between Mukas, Kolambungan, Lanao Del Norte to Ozamis City is 21,5km and it will take 1 hour and 9 mins travel time. Daima shipping which have seven vessels that all serves as a passenger/cargo carry is the only one who currently navigates on this route, the reason for this is that they own the Mukas Port.

Table 5 Ozamiz RORO and Passenger Traffic

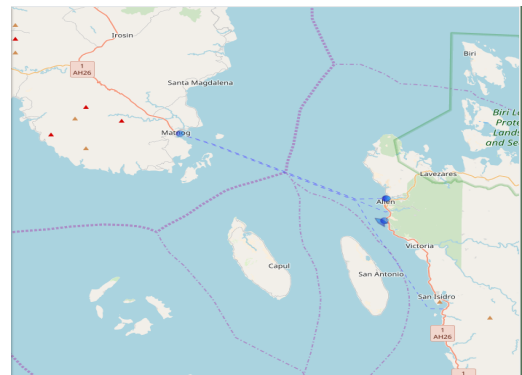
Year	Total	
2017	Passenger	337,633
	RoRo	191
	Cargo	559,072
2016	Passenger	457,803
	RoRo	310
	Cargo	640,454
2015	Passenger	614,614
	RoRo	394
	Cargo	831,055

Source: PPA (2015~2017)

Table 5 shows the total number of both RORO and Passenger Traffic in Ozamis Port from 2015 to 2017. There is a decrease of number in both Passenger and RORO Traffic in the Ozamis Port.

Matnog Sorsogon – Allen, Northern Samar

Fig 3 Matnog Sorsogon – Allen, Northern Samar Route



Source: Silent Gardens 2017

Matnog, officially the Municipality of Matnog, is a 3rd class municipality in the province of Sorsogon, Philippines. According to the 2015 census, it has a population of 41,101 people.

Local elders say that the name Matnog comes from the word "matonog" (very audible) - that describes to the loud sound of the waves. The native people of Matnog are the Agta, Tabangon, and Cimaron Tribe.

Table 6 Matnog RORO and Passenger Traffic

Year	Total	
2017	Passenger	2,053,997
	RoRo	163,875
	Cargo	0
2016	Passenger	2,579,304
	RoRo	283,528
	Cargo	0
2015	Passenger	2,420,083
	RoRo	232,334
	Cargo	147

Source: PPA (2015~2017)

Table 6 shows the total number of both RORO and Passenger Traffic in Matnog Port from 2015 to 2017. There is a decrease of number in both Passenger and RORO Traffic in the Matnog Port.

Allen, officially the Municipality of Allen, is a 5th class municipality in the province of Northern Samar, Philippines. According to the 2015 census, it has a population of 25,469 people. It is located in the north-western tip of the province bordering the municipality of Victoria to the south, the municipality of Lavezares to the east, and the strategic San Bernardino Strait both to the north and west. Allen is known for being an important port for inter-island transport, specifically between the is-

land of Samar and big island of Luzon. Before the Spanish colonization of the Philippines, the original Malayan name of the town was Minapa-a. During the Spanish colonization period, the name of the town was changed to La Granja. The name Allen was given by the Americans in honor of the American General Henry Tureman Allen, the military governor of the Visayas after the victory of the Americans over the Spaniards in the Spanish-American War.

The distance between Matnog, Sorsogon to Allen, Northern Samar is 62km. Matnog, Sorsogon is one of the busiest seaports in the Philippines, it serves as a bridge for the Southern Philippines. While the Allen Port serves as a connection for Eastern Vizayas to Luzon.

There are 27 typhoons that entered the country this 2017 which affected the sea transport sector. Which resulted in the decrease of the passenger and RORO traffic. Another factor for the decrease in both Passenger and RORO traffic is because of the Marina Circular No. 2017-04. The circular, which requires, all domestic shipping companies, operators, charterers, ship agents, private/public corporation, partnership association, that passenger ships to be imported are not more than 20 years of age and should be not less 500gt.

Table 7 Comparison between Airplane and RORO

Mode	Details		
Air plane		2016	2017
	Passenger	23,430,995	24,814,372
	Cargo	267,656,626	278,509,25
RoRo		2016	2017
	Passenger	1,353,140	72,051,94
	Cargo	94,364,460	102,533,512

Source: PPA, CAB (2015~2017)

Table 7 indicates the total number of comparison between airplane and RORO in Philippines from 2016 to 2017. Airplane is about 20 times multiples carrying out both passenger and cargo.

IV. Improvements and Suggestions in the Critical Routes

In order to improve the routes mentioned, the researcher would like to recommend the following: First, the local government should get involved for the improvement of the ports used by the ships. As stated by the report of Philippine Ports Authority, for example, is the Batangas Port which has a total of 6,346,303 (2015) passenger traffic and 2,374,980 (2015) annual cargo tonnage. According to the report, this 2017, there are about 500 vehicles were spotted outside the port falling in line for the roll-on/roll-off (RORO) vessels last holy week in the Philippines. Port improvement includes expansion of the port so that it can accommodate a greater number of both passenger and cargo traffic.

On the paper “The Economic Impacts of Port Investments” (Rodrigue, Schulman, 2017) by expanding the market areas of firms, ports increase competition, resulting in lower prices for the consumers of the port traffic. Port competitiveness will enable foreign firms to better access a national economy and thus compete with national firms, with some sectors being put out of business.

Based from “Ports and Regional economic development” (Ferarri, 2011), there is a positive influence of port throughput on local development and also the impact on employment is positive and higher on tertiary activities than industrial ones.

“Review on the Role of Ports in the Development of a Nation” (Dwarakish, Salim, 2015), ports constitute an important economic activity in coastal areas. The higher the throughput of goods and passenger’s year-on-year, the more infrastructure, provisions and associated services are required. These will bring varying degrees of benefits to the economy and to the country. Ports are also important for the support of economic activities in the hinterland since they act as a crucial connection between sea and land transport. As a supplier of jobs, ports do not only serve an economic but also a social function.

Development of ports has a significant impact not only on the country, but also to the ship-

ping company operation. Once the ports have been expanded, higher volume of passenger and container cargo will be accommodated, resulting in port competitiveness and less port congestion.

Next is the removal of old vessels which can affect the safety of transport of citizens. According to Marina (Maritime Industry Authority) Memorandum Circular No.39 “vessels with ages beyond thirty (30) years shall be scrapped / sold to foreign buyers or replaced.” However, in the case of the Philippines, there are some ships with vessel age more than 35 years old which can affect the safety of passengers.

Based from “Statistical analysis of ship accidents and review of safety level” (Eliopoulou, Papanikolaou, Voulgarellis, 2016) they said that there is not always a connection that an older ship suffers more accidents than a younger one, sometimes even younger ships exhibit more accidents. However, it is also clear that an old ship, especially over 20 years of age is more prone to total loss accidents. Also from their research, Ro-Ro Passenger ship exhibit higher number of fatalities and accidents.

IV. Conclusion

This paper studies the effects of RORO transportation in the Philippines and its current state in the country. RORO vessels which have been in used in the country since 1970, has become more effective since the establishment of

Philippine Nautical Highway System, which promotes intermodal transportation. Because of this, there's a positive effect in the municipalities near in the port terminal. However, there are still some ways in which the sea transport sector in the Philippines can be improved. One of which is the increase of the ports being used by the shipping companies. An example would be the Batangas Port, which is the second largest port, next to the Manila Port. The seaport covers about 150 hectares, however, due to the increase of import and transport of goods, congestion in the port can be seen. Increasing the port size would also help the port to be more competitive to other ports around the world, it will also help the income of the country. Next is the vessel age used by the shipping companies. Some shipping companies use vessels which are more than 30 years of age. However, according to MARINA's memorandum circular, ships with 30 years of age or more shall be sold, scrapped or scrapped. But still there are some shipping companies that make use of their vessel even its age is over the requirement. Sea transport in the Philippines still has its own limitations, but as long as the government becomes more aware to its problems, there is a certainty that interisland transportation will be much improved in the near future.

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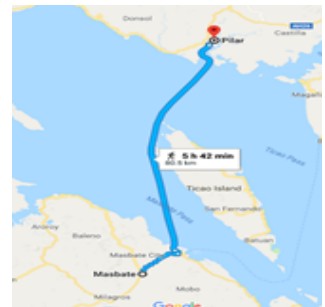
Appendix A



Alabat, Quezon - Atimonan,
Quezon Batangas City - Abra de Ilog,
Masbate City Route



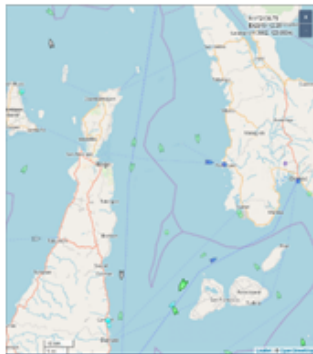
Pilar, Sorsogon
Route



Occidental Route



Cebu City - Bato, Leyte Route



Bogo, Cebu - Polompon, Leyte Route



Cebu City -Catbalogan, Samar Route

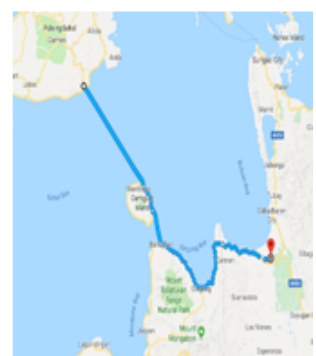
Vizayas



Benoni, Mahinog, Camiguin - Balingoan,
Misamis Oriental Route



Mukas, Kolambugan, Lanao del Norte -
Ozamiz Route



Jagna, Bohol - Nasipit,
Agusan del Norte Route

Appendix B (comparison of major 10 RORO routes)

Route	Passenger	Cargo	Route			
Batangas City - Abra de Ilog, Occidental Mindoro Route	5,214,381	438,066	Travel Time	Distance	Fare	Shipping Company
			2.5 hrs	25 mile	260 PHP	Montenegro Shipping Lines
Batangas City - Calapan, Oriental Mindoro Route	7,693,922	438,074	Travel Time	Distance	Fare	Shipping Company
			45 mins	N/A	260 PHP	FastCat
Benoni, Mahinog, Camiguin - Balingoan, Misamis Oriental Route	1,351,448	7,794	Travel Time	Distance	Fare	Shipping Company
			1 hr	N/A	130 PHP	N/A
Dumaguete - Dapitan Route	1,972,374	284,831	Travel Time	Distance	Fare	Shipping Company
			4 hrs	41 miles.	400 PHP	Ocean Jet
Dumanggas, Iloilo - Bacolod City Route	1,439,105	19	Travel Time	Distance	Fare	Shipping Company
			2 hrs	16 miles	200 PHP	SuperCat
Mukas, Kolambungan, Lanao Del Norte - Ozamis City Route	444,901	559,70	Travel Time	Distance	Fare	Shipping Company
			N/A	N/A	N/A	N/A
Lipata, Surigao - San Ricardo, Southern Leyte Route	588,823	N/A	Travel Time	Distance	Fare	Shipping Company
			1 hr	N/A	180 PHP	Montenegro Shipping Lines
Matnog	2,600,181	N/A				

Sorsogon - Allen, Northern Samar			Travel Time	Distance	Fare	Shipping Company
			1 hrs	8 miles	120 PHP	Santa Clara Shipping
Roxas, Oriental Mindoro - Caticlan, Malay, Aklan Route	1,308,640	73,091	Travel Time	Distance	Fare	Shipping Company
			4 hrs	120 miles	3000 PHP	Montenegro Shipping Lines
Cebu City - Tubigon Bohol Route	700,440	91,092	Travel Time	Distance	Fare	Shipping Company
			1 - 2 hrs	N/A	300 PHP	Weesam Express

필리핀 RORO 운송 현황과 향후 발전에 대한 조사 연구

김명재 · 윤대근

국문요약

필리핀은 7000 개 이상의 섬으로 이루어진 아시아 개발 도상국 중 하나이다. 항공, 수로 및 육상 운송은 국내 내륙 여행 및 교통 수단이지만, 이들 7000여개가 넘는 섬들 사이의 사람, 상품 및 서비스 운송은 거의 대부분 RORO 선박을 통한 해송을 통해 이루어지고 있다. 현재 이러한 필리핀 섬들을 연결하는 전체 154 개의 RORO 노선이 구축되어 운항중에 있으며, 해당하는 항구 근처의 지방 자치 단체의 소득은 대략적으로 7 % 증가하는 것으로 나타났다. 그것은 관광객 수, 운송 비용 및 여행 시간의 증가 때문으로서 향후 지속적으로 증가할 것으로 분석되었다. 필리핀의 일부 주요노선을 개선하기 위해 본 연구에서는 필리핀 정부 (항만청), 지방정부, 항만 및 선박 회사가 지리적특성, 안전항로, 승하선, 항로보조시설 등 필요한 모든 사항들을 분석 및 제시하였으며 개선해야할 정책을 제안하였다. 향후 본 연구는 필리핀 전역에 해당하는 연구로 확대할 예정이며 이는 필리핀 섬들의 안전하고 효율적인 운송으로 이어질것으로 판단된다.

주제어: 154 로로 루트, 필리핀, 항만, 여행자, 교통운송

