

# Government Strategies in the Water Transport Sector: A Closer Look at Philippine Ports

*Kris A. Francisco and Valerie L. Lim*



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## **Abstract**

The water transport sector plays a huge role in an economy of an archipelagic country such as the Philippines as most of its domestic and international goods are being transferred via water. Having good quality and efficient port system is important to ensure the smooth transfer of products and services within the economy. However, the government has underinvested in transport infrastructure for several years, which resulted to low quality of port infrastructure. This study analyzed the state and performance of the Philippine ports through domestic and international lenses by utilizing previous studies and comparative statistics on ASEAN countries. Results show that despite having more international ports than ASEAN neighbors, our container and cargo throughput as well as international passenger traffic is relatively low. This can be attributed to the low quality of our ports and low level of shipping connectivity. Review of previous studies also unveiled that the current institutional setup in the water transport sector leads to inefficiencies in port operations.

**Keywords:** water transport sector, transport policy, seaports

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# Government Strategies in the Water Transport Sector: A Closer Look at Philippine Ports

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## 1. Introduction

Transport infrastructure is one of the key elements in achieving a balanced growth within an economy. It facilitates economic development and convergence, eases economic disparities, and fosters territorial cohesion (Bottasso et al. 2014). It also accelerates the integration of a country into the world market through international trade and helps improve a country's global competitiveness (Aqmarina and Achjar 2017). An efficient transport system is thus, important to ensure the smooth transfer of products from one economy to another; especially since modern trade involve manufacturing activities that are simultaneously carried out in several locations (Zhang et al. 2014). To an archipelagic country such as the Philippines, the water transport sector specifically takes on a much larger role given its heavy reliance on port services to move its products within and outside the country. Recent data suggests that almost all domestic commodities (99.9 percent) are being traded through water (Philippine Statistic Authority 2021<sup>1</sup>). Therefore, the performance of the water transport sector heavily impacts the performance of the whole economy.

Seaports are the main infrastructure in the water transport sector, and they are regarded as economic catalysts in areas where they are located as well as in peripheral areas near the port. In the literature, the contribution of ports to economic growth and regional development has been well-established. Sea transfer generally offers the cheapest way of transportation in terms of fuel consumption and investment (Berköz and Tekba 1999). In comparison, railway transportation requires double the energy consumption, while road transportation requires ten times the energy consumption of sea travel (Dwarakish and Salim 2015). According to Fujita and Mori (1996), ports serve as the most convenient location for import and export activities. Industries exporting their goods and importing raw materials often choose to locate near major ports around the world because of cost considerations (Dwarakish and Salim 2015). For many manufacturing and agriculture-related industries, seaports are vital because they act as assembly points and linkage to other transport systems such as road or railway transport (Cong et al. 2020). This practically points out the ports' substantial role in maintaining supply chains that extends from production to distribution of commodities (Aqmarina and Achjar 2017). A study (Cong et al. 2020) particularly noted the port throughput's significant impact on a country's gross domestic product and its strong positive relationship with secondary industries. Secondary industries thrive near seaports because they are primary consumers of raw materials (Liu et al. 2019). Ports not only act as enabler of trade, but also offer value-added activities as port infrastructure boosts domestic employment and facilitates innovation, research, and development (Merk 2013). Seaport development and operation provides direct economic output by creating employment opportunities and increasing tax collection (Cong et al. 2020). Dwarakish and Salim (2015) described ports as having both economic and social role because

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<sup>1</sup> <https://psa.gov.ph/content/highlights-domestic-trade-statistics-philippines-third-quarter-2021-preliminary> accessed on December 2, 2021

of the jobs and opportunities they provide to the community. Interestingly, Clark et al. (2004) observed that seaports cause greater regional impacts on the hinterland or the area near the port.

Despite the extensive work explaining the value of transport infrastructure to an economy, infrastructure investment has not been a priority in the Philippines for many years. For instance, the allocation for public infrastructure from 1993 to 2010 was only less than 2 percent of GDP. It slightly increased to 3 percent during the period of 2011 to 2016; but both figures are well below the World Bank's recommendation for developing countries of 4.5 percent of GDP. Consequently, years of underinvestment in public infrastructure has been detrimental to the quality of the country's transport infrastructure. In fact, the World Economic Forum's quality of ports ranking for 2017-2018 shows that Philippine ports are perceived to have lower quality when compared with the ports of Singapore, Malaysia, Thailand, Indonesia, and Vietnam. Given that seaports are the main infrastructure in the water transport sector, understanding how they are utilized, managed, and operated is a fundamental step towards improving the performance of the sector. In this study, we aim to look at the performance of Philippine ports through domestic and international lenses. We make use of previous studies, related statistics on domestic infrastructure utilization and comparative statistics on ASEAN countries to come up with up-to-date findings on the Philippine water transport sector with special focus on port infrastructure. We examine the performance of our ports compared with neighboring countries in ASEAN and review government strategies and policies regarding water transport infrastructure to draw some useful insights. At large, the goal of this study is to contribute to the body of knowledge on Philippine ports and water transport sector as well as serve as a useful reference to policymakers in identifying the gaps, issues, and challenges related to the sector.

## **2. Literature review**

### ***Port performance, efficiency, competition, and issues faced by ports***

Studies on port performance, port efficiency and port competitiveness are common in the literature. The quest to achieve elevated level of efficiency and competitiveness has always sparked interest in researchers since good performing ports equate to greater economic contribution. According to the study of Rajasekar and Malabika (2014) there are several variables that impact port performance; these are operating expenses, operating surplus, rate of return, number of employees, turnaround time, idle time, berth occupancy rate and cargo equipment. A port's competitiveness is largely influenced by its comparative advantage in terms of infrastructure, products, and services (Heaver 1995). Competitive ports usually have large market share because they are often chosen over other ports (Merk 2013). Determinants of port competitiveness can be categorized into hard and soft components (De Martino and Morvillo 2008). Hard components are comprised of geographical location, infrastructure, equipment, and logistics platform while soft components are comprised of services, ICT, safety, and security.

Port efficiency, on the other hand, directly impacts handling and freight costs, making import and export activities either more or less expensive. Sánchez et al. (2003) found that less efficient ports tend to impose higher handling cost (Clark et al. 2004) while more efficient ports charge lower freight cost after controlling for other variables such as type of product, liner services availability, distance, insurance cost. The value of port efficiency is highlighted in a

study which found that a 25-percent improvement in one factor affecting port efficiency leads to around 2 percent decrease in total maritime transport cost (Sánchez et al. 2003). Parola et al. (2016) noted that the overall operational efficiency of a port or its ability to utilize its resources to provide good service is key to attracting regular users. Liner shipping companies, for instance, chooses to stop over more efficient ports because the loading and unloading rates of these ports complements the speed of movement of the liner company (Talley 2006). Inter-modal links to other transport systems are also important elements in port choice behavior (Kim 2014) since these facilitate easier local and regional deliveries (Walter and Poist 2003).

Competitiveness and efficiency, however, becomes more complex when dealing with ports. As Parola et al. (2016) argued, these topics are multidimensional and multifaceted because ports involve many factors, drivers, and stakeholders. Take for example the issue of competition. While economic theory suggests that competition drives prices of commodities and services down, competition does not always lead to lower prices in the case of ports. Helling and Poister (2000) pointed out that since assets remain fixed for port operators, they are limited in the way they respond to competition. Shipping lines, in contrast, have relatively greater market power because of their ability to influence different ports to compete on rates and services. Generally, price competition benefits the society because it leads to service improvements and reduced prices of port services (Goss 1998). It also diversifies options for transportation, making an economy less susceptible to shocks to a specific type of transport system. However, price competition equates to lower revenues for ports. It likewise leads to great uncertainty not only to individual ports but also for the government or entity that subsidizes it (Helling and Poister 2000). Another thing to note is that competition does not ensure efficiency, especially since most ports are publicly subsidized. If the subsidy is not enough to cover the total investment needed to operate ports, some part of the cost will eventually be passed on to consumers. Hence, although service competition could encourage port expansion, it could also place ports in dire financial position especially if they are unable to raise their prices to augment the expansion cost. The U.S. Maritime Administration (1998) as cited by Helling and Poister (2000), surmised that the common philosophy that “ports promote regional economic development and employment” along with the resulting intense competition among ports often results to overcapacity and inefficiency. De Oliveira and Cariou (2015) similarly noted that greater regional port competition leads to port inefficiency.

Investing in the expansion or upgrading of existing port infrastructure is a complicated decision to make. Aside from budget restrictions, this requires a holistic approach that needs to consider port connectivity network and productivity improvement strategies (Lagoudis et al. 2014). Helling and Poister (2000) discussed that even if the ports engage in a relatively conservative expansion plan, they are exposed to the risk of being left in debt with factors such as changing market, technology and changing political situation. The risk however, is that if ports are not upgraded, they become vulnerable to obsolescence and may eventually become too inefficient to operate (Dwarakish and Salim 2015). A balancing act is therefore, crucial. Another issue is the involvement of government and private sector in port expansion. While this is deemed necessary due to the high capital requirement, this also complicates the process further because it can result to excess port capacity. Boschken (1998) referred to the experience of the Pacific and Atlantic coasts wherein upgraded ports ended up becoming uncompetitive and grossly underused because the ports did not achieve the critical mass of load centers. Many Chinese ports similarly suffered the same fate of overcapacity after years of expansion (Dan et al. 2018,



as cited in Cong et al. 2020). Helling (1997) explained that economic development does not directly stem from direct public investment in ports. Rather, ports will be able to induce economic development if it is capable of influencing the ability of nearby areas to create and retain income and employment.

### 3. State of water transport infrastructure in the Philippines

#### *Role of water transport sector*

Water is heavily utilized as the primary mode of transfer for domestic products in the Philippines, which is expected given the country's archipelagic structure. As shown in Table 1, 99 percent of domestic trade, both based on quantity and value, was transferred via water in 2019. The rest was transferred via air. Table 2 exhibits that high-value commodities that were greatly traded between island economies were machinery and transport equipment, food and live animals as well as manufactured goods.

**Table 1. Domestic trade by mode of transfer, 2019**

|                    | Quantity          | Value              |
|--------------------|-------------------|--------------------|
| <b>Philippines</b> | <b>25,890,077</b> | <b>834,717,767</b> |
| <b>Water</b>       | <b>25,859,005</b> | <b>833,474,631</b> |
| <i>in percent</i>  | <i>99.9</i>       | <i>99.9</i>        |
| <b>Air</b>         | <b>31,072</b>     | <b>1,243,136</b>   |
| <i>in percent</i>  | <i>0.1</i>        | <i>0.1</i>         |

Source: Philippine Statistics Authority

Note: Quantity in tons. Value in thousand pesos.

**Table 2. Domestic Trade by Water per Commodity Classification**

|   | 2019              |                    |
|---|-------------------|--------------------|
|   | Quantity          | Value              |
| <b>Philippines</b>                                | <b>25,890,077</b> | <b>834,717,767</b> |
| <b>Water</b>                                      | <b>25,859,005</b> | <b>833,474,631</b> |
| <i>in percent</i>                                 | <i>99.9</i>       | <i>99.9</i>        |
| Food and live animals                             | 6,176,703         | 183,901,217        |
| Beverages and tobacco                             | 595,498           | 38,784,771         |
| Crude materials, inedible, except fuels           | 1,496,367         | 14,450,151         |
| Mineral fuels, lubricants and related materials   | 3,948,213         | 50,995,821         |
| Animal and vegetable oils, fats and waxes         | 127,952           | 5,553,942          |
| Chemical and related products, N.E.C.             | 1,640,789         | 57,760,027         |
| Manufactured goods classified chiefly by material | 5,495,413         | 121,305,555        |
| Machinery and transport equipment                 | 2,532,143         | 269,962,929        |
| Miscellaneous manufactured articles               | 945,419           | 42,345,687         |

|                                     |           |            |
|-------------------------------------|-----------|------------|
| Commodities and transactions N.E.C. | 2,900,508 | 48,414,531 |
|-------------------------------------|-----------|------------|

Source: Philippine Statistics Authority

Note: Quantity in tons. Value in thousand pesos.

There are certain regions in the country where water trade activities are higher compared to others. These include Central Visayas, Northern Mindanao, National Capital Region and Central Luzon. Table 3 suggests that the primary means of distributing food, beverages, and heavy equipment and materials to and from Luzon, Visayas and Mindanao is through water transfer.

**Table 3. Quantity and Value of Domestic Trade by Water per Region, 2019**

| Region                           | Quantity (in tons) | Value (in thousand pesos) |
|----------------------------------|--------------------|---------------------------|
| <b>Philippines</b>               | <b>25,890,077</b>  | <b>834,717,767</b>        |
| <b>Trade in water (domestic)</b> | <b>25,859,005</b>  | <b>833,474,631</b>        |
| <i>NCR</i>                       | 4,218,017          | 267,463,381               |
| <i>CAR</i>                       | -                  | -                         |
| <i>I - Ilocos Region</i>         | -                  | -                         |
| <i>II - Cagayan Valley</i>       | -                  | -                         |
| <i>III - Central Luzon</i>       | 3,847,506          | 35,863,443                |
| <i>IVA - CALABARZON</i>          | 4,581              | 130,510                   |
| <i>MIMAROPA</i>                  | 873,271            | 13,703,908                |
| <i>V - Bicol Region</i>          | 2,679,990          | 36,018,286                |
| <i>VI - Western Visayas</i>      | 2,037,834          | 91,708,289                |
| <i>VII - Central Visayas</i>     | 4,731,151          | 149,150,235               |
| <i>VIII - Eastern Visayas</i>    | 1,283,915          | 112,535,073               |
| <i>IX - Zamboanga Peninsula</i>  | 212,547            | 12,168,021                |
| <i>X - Northern Mindanao</i>     | 4,506,204          | 61,875,020                |
| <i>XI - Davao Region</i>         | 405,760            | 15,234,093                |
| <i>XII - SOCCSKSARGEN</i>        | 253,841            | 10,137,824                |
| <i>CARAGA</i>                    | 678,220            | 23,321,545                |
| <i>ARMM</i>                      | 126,168            | 4,165,004                 |

Source: Philippine Statistics Authority

Note: “-” means no transaction for CAR and Regions I and II

In terms of trade balance (Table 4), the National Capital Region (NCR) appears to be mainly a sender of goods, with trade outflow surpassing trade inflow through water by 26 percent. Eastern Visayas, Central Luzon and Bicol regions are also senders of domestic goods via water. The rest of the regions meanwhile, are importers, with Central Visayas, Caraga and Western Visayas as the top three regions based on import value.

**Table 4. Flow of domestic trade by water, 2019 (per region)**

|                                 | <b>Outflow</b>            | <b>Inflow</b>      | <b>Balance</b> |
|---------------------------------|---------------------------|--------------------|----------------|
|                                 | (Value in thousand pesos) |                    |                |
| <b>TOTAL</b>                    | <b>833,474,631</b>        | <b>833,474,631</b> | <b>0</b>       |
| <i>NCR</i>                      | 267,463,381               | 68,272,418         | 199,190,963    |
| <i>CAR</i>                      | -                         | -                  | -              |
| <i>I - Ilocos Region</i>        | -                         | 2,878,697          | (2,878,697)    |
| <i>II - Cagayan Valley</i>      | -                         | 22,528             | (22,528)       |
| <i>III - Central Luzon</i>      | 35,863,443                | 7,542,232          | 28,321,211     |
| <i>IVA - CALABARZON</i>         | 130,510                   | 22,116,035         | (21,985,525)   |
| <i>MIMAROPA</i>                 | 13,703,908                | 24,787,081         | (11,083,173)   |
| <i>V - Bicol Region</i>         | 36,018,286                | 10,240,956         | 25,777,330     |
| <i>VI - Western Visayas</i>     | 91,708,289                | 117,918,957        | (26,210,668)   |
| <i>VII - Central Visayas</i>    | 149,150,235               | 175,704,010        | (26,553,775)   |
| <i>VIII - Eastern Visayas</i>   | 112,535,073               | 75,251,728         | 37,283,345     |
| <i>IX - Zamboanga Peninsula</i> | 12,168,021                | 39,027,404         | (26,859,383)   |
| <i>X - Northern Mindanao</i>    | 61,875,020                | 97,706,174         | (35,831,154)   |
| <i>XI - Davao Region</i>        | 15,234,093                | 38,581,457         | (23,347,364)   |
| <i>XII - SOCCSKSARGEN</i>       | 10,137,824                | 15,455,812         | (5,317,988)    |
| <i>CARAGA</i>                   | 23,321,545                | 133,352,940        | (110,031,395)  |
| <i>ARMM</i>                     | 4,165,004                 | 4,616,200          | (451,196)      |

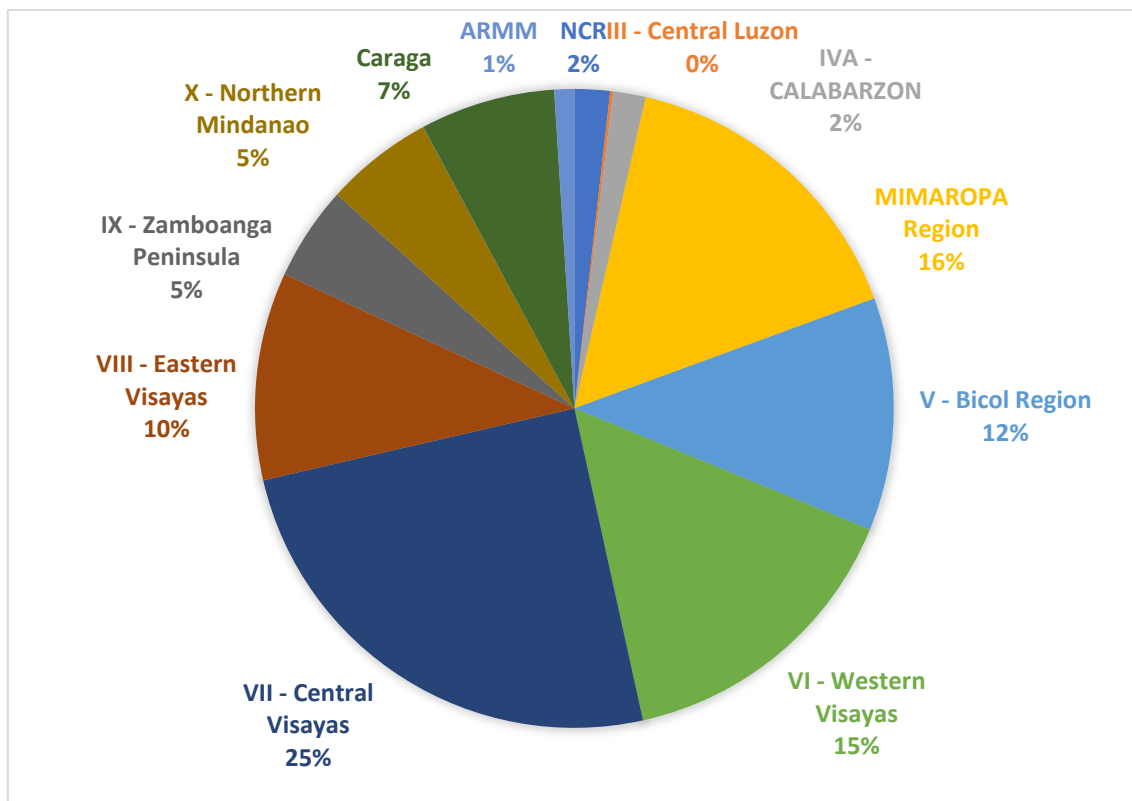
Source: Philippine Statistics Authority

Note: “-” means no transaction

Water transfer is also a popular mode of travelling domestically. Data shows that total domestic passenger traffic in 2018 was recorded at 76 million<sup>2</sup>. In 2019, the top three region of origin of domestic travelers are Central Visayas, MIMAROPA and Western Visayas region. These regions account for 25 percent, 16 percent, and 15 percent of total travelers, respectively (Figure 1).

<sup>2</sup> According to Philippine Statistical Yearbook 2019.

**Figure 1. Regions of origin of domestic travelers, 2019**



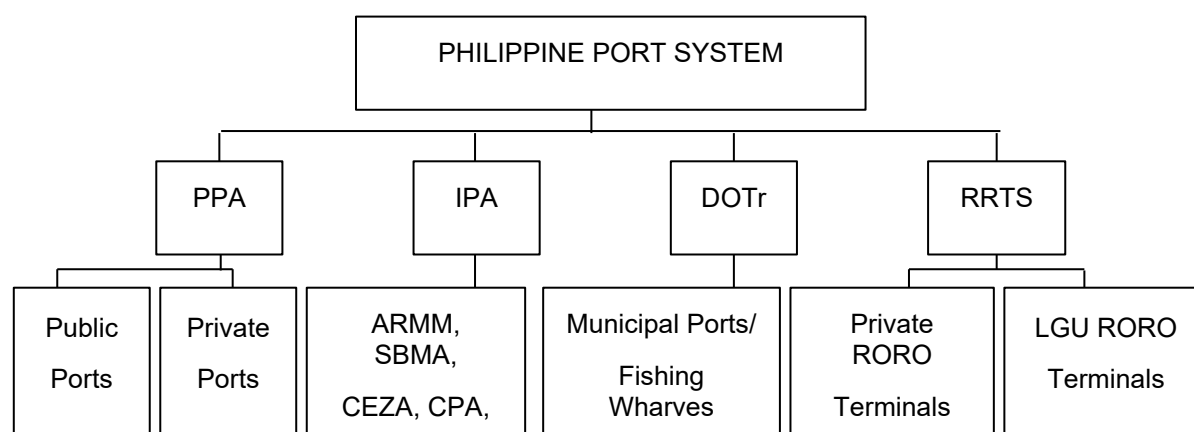
Source: Philippine Statistics Authority

### ***Port inventory***

A prerequisite to analyzing the current state and performance of the country’s water transport infrastructure is having an appreciation of the operation and management structure of the ports. Most sea ports in the country are managed and controlled by port authorities. Port authorities, according to the World Bank (2007) perform the following roles: (a) approval of port investment proposals; (b) setting financial policies such as common financial objectives for ports, determining common infrastructure policies to be funded centrally or locally, and giving advice on loan applications to the government; (c) regulation of tariff policies like rates and charges protecting the interest of the public; (d) specifying labor policies on setting recruitment standards, common wage structure and common qualifications for promotion, as well as counsel common labor union procedure; (e) establishing grounds for licensing of port employees or agents; (f) facilitating the collection of information and statistics of port activity for general use, and sponsor research and development related to ports as needed; and (g) serving as legal advisory over local port authorities.

The Philippine port system as illustrated in Figure 3, can be categorized into four groups: 1) mainly dominated by the Philippine Ports Authority (PPA) which consists of the private and public ports, 2) independent port authorities (IPA) separate from the jurisdiction of PPA, 3) municipal ports transferred to and mandated by local government units (LGUs), and 4) the Road Roll-on/Roll-off Terminal System (RRTS). A description of the functions of these agencies is found in Appendix 1.

**Figure 2. The Philippine Port System**



Source: Llanto, Basilio and Basilio (2005)

The number of ports in the country has grown over the years. In 1994, the country has a total of 1,230 operational seaports out of 1,312. By 1999, an additional 229 seaports were operated. Of the total operational seaports during this year, 33 percent (480) were commercial private ports, 29 percent (421) were fishing ports, 24 percent (343) were commercial public ports, and lastly, 15 percent (215) were feeder ports<sup>3</sup>. Unfortunately, the detailed inventory of Philippine ports has been discontinued after the year 2000<sup>4</sup>. The Census alternatively, provides information on active ports in the country albeit not as detailed as the information provided by the ports inventory publication. Data from the Census suggests that the total operational ports in the Philippines have now increased to 1,886. Figure 3 shows a map of the location of these active ports. The location of PPA-managed ports is also distinguished in the map.

**Table 5. Philippine ports by classification and operation status**

|                     | 1994         | 1999         | 2015 <sup>a</sup> |
|---------------------|--------------|--------------|-------------------|
| <b>TOTAL</b>        | <b>1,312</b> | <b>1,592</b> | <b>1,886</b>      |
| Fishing             | 427          | 462          | -                 |
| Feeder              | 168          | 224          | -                 |
| Commercial, Private | 408          | 539          | -                 |
| Commercial, Public  | 309          | 367          | -                 |

<sup>3</sup> Ports are classified based on their purpose. Commercial private ports are owned and operated by private operators, mainly to serve their needs. Commercial public ports on the other hand, are owned and operated by the government. These ports are built to be used by the general public and serve vessels of 30 tonnage and above. Fishing ports are operated and managed both by government and private owners. These are constructed for the service of the fishing industry to act as the main collection and distribution center for fish. Lastly, feeder ports are owned and operated by the government. These ports provide important linkages among small islands and urban centers and cater to small passenger and fishing boats (as defined in the 2000 Quinquennial Inventory of Ports, National Statistical Coordination Board).

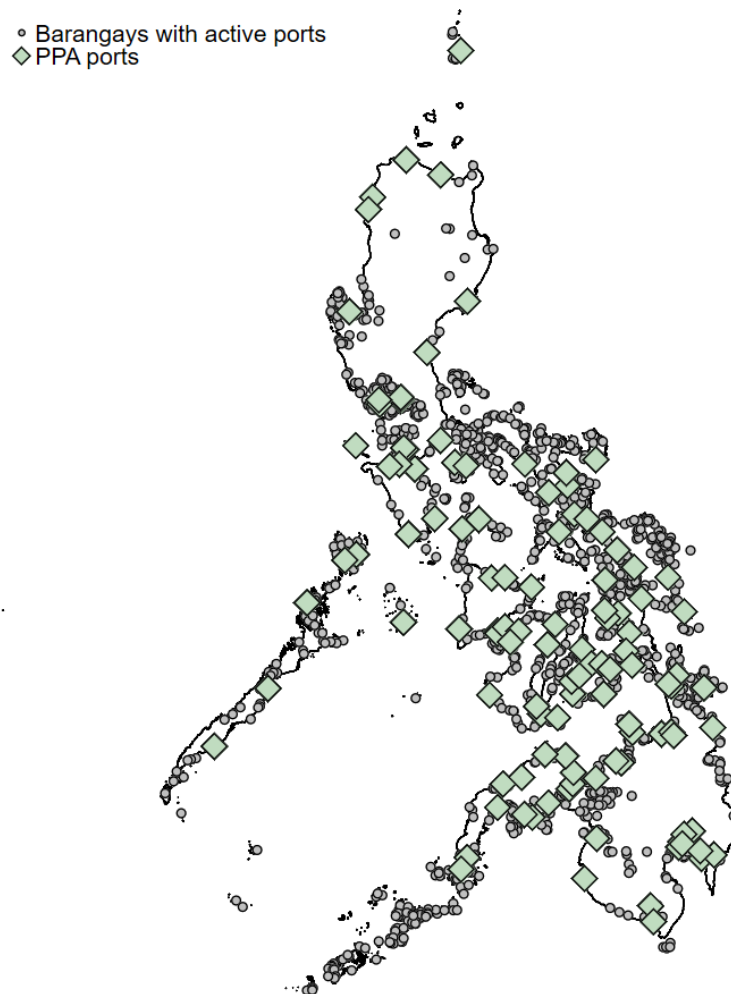
<sup>4</sup> The Philippine Ports inventory was last published in 2000. This was a publication released by the National Statistical Coordination Board (now Philippine Statistics Authority), in coordination with the Philippine Ports Authority (PPA), Department of Public Works and Highways (DPWH), Philippine Fisheries Development Authority (PFDA), Department of Transportation and Communications/Project Management Office, For Ports Project (DOTC/PMO Ports) and National Statistics Office (NSO).

|                            |              |              |   |
|----------------------------|--------------|--------------|---|
| <b>Operational</b>         | <b>1,230</b> | <b>1,459</b> | - |
| <i>Fishing</i>             | 397          | 421          | - |
| <i>Feeder</i>              | 162          | 215          | - |
| <i>Commercial, Private</i> | 372          | 480          | - |
| <i>Commercial, Public</i>  | 299          | 343          | - |
| <b>Non-operational</b>     | <b>82</b>    | <b>133</b>   | - |
| <i>Fishing</i>             | 30           | 41           | - |
| <i>Feeder</i>              | 6            | 9            | - |
| <i>Commercial, Private</i> | 36           | 59           | - |
| <i>Commercial, Public</i>  | 10           | 24           | - |

Source: 2000 Quinquennial Inventory of Ports

Note: "a" - based on Census 2015

**Figure 3. Map of active ports in the Philippines, 2015**

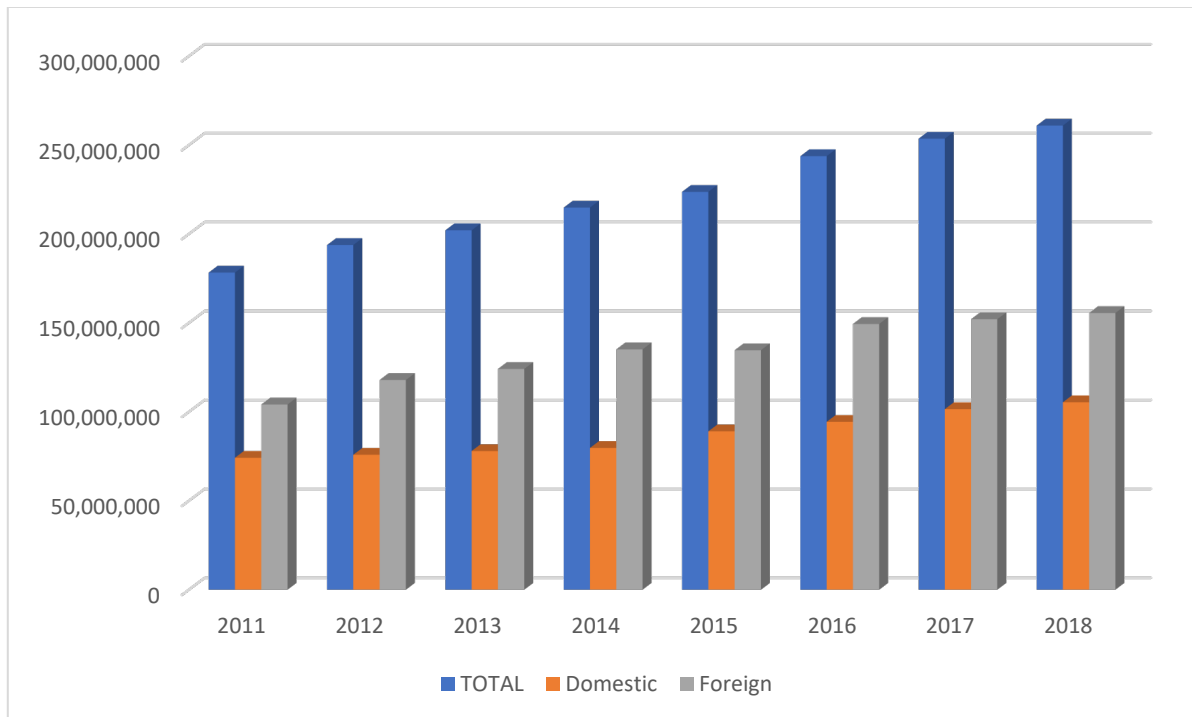


Source of basic data: Census 2015 and PPA

### ***Domestic utilization of ports***

The ability of the Philippines to maximize the benefits from trade is highly dependent on how well our ports are able to support trading activities. Seaports serve as major facilitators of domestic and international trade as most goods are transported through water. In recent years, our ports have seen a general increase in total cargo throughput (Figure 4). As exhibited in the figure, ports are receiving more international cargo in terms of volume, as compared with domestic cargo.

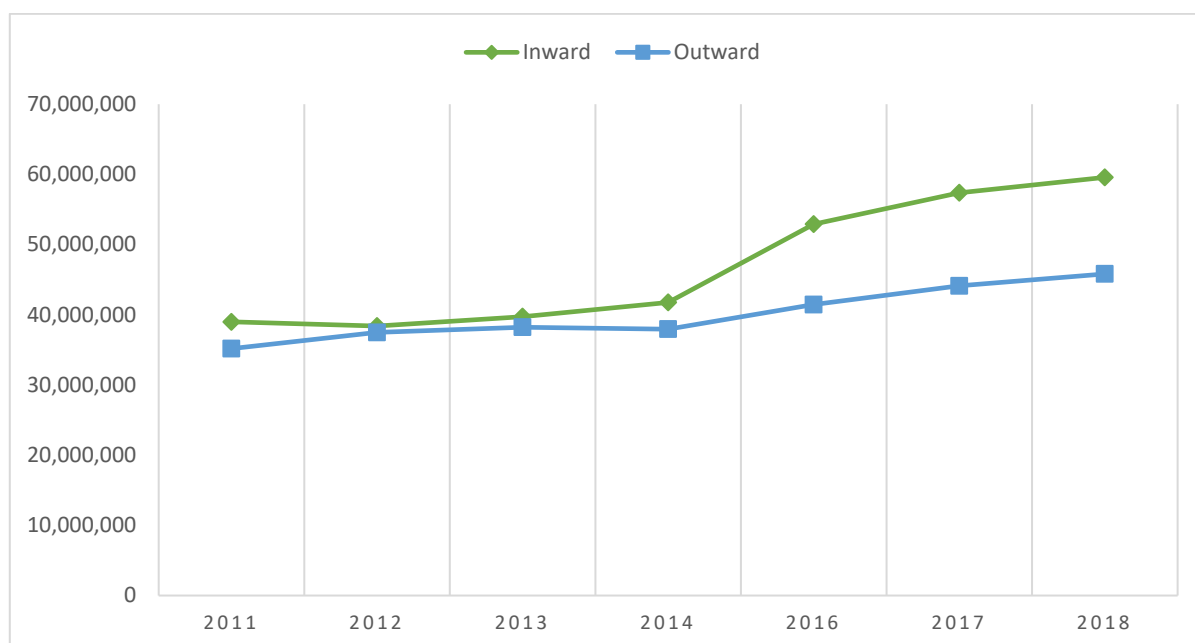
**Figure 4. Philippine cargo throughput (in metric tons), 2011-2018**



Source: Philippine Statistical Yearbook 2019

Domestic cargo is observed to be on a slow but steady increase the past couple of years (Figure 4). A more detailed inspection on the composition of domestic cargo throughput (Figure 5) reveals that the increase is traced back to the rise in inward cargo movement (i.e., those that are recorded from the port of loading), more notably between 2014 and 2016.

**Figure 5. Domestic cargo throughput (in metric tons), 2011-2018**



Source: Philippine Statistical Yearbook 2019

When clustered based on port management offices, seaports in the Manila/Northern Luzon and Visayas area experience higher domestic cargo throughput than other management offices in the country (Table 6). Foreign cargo throughput meanwhile, is higher for seaports in the Manila/Northern Luzon and Mindanao areas.

**Table 6. Cargo throughput by management office, 2019 (in metric tons)**

| Port management office           | Total              | Domestic          | Foreign           |
|----------------------------------|--------------------|-------------------|-------------------|
| <b>Manila/ Northern Luzon</b>    | <b>104,674,569</b> | <b>40,107,377</b> | <b>64,567,192</b> |
| <i>NCR North</i>                 | 37,480,211         | 32,464,616        | 5,015,595         |
| <i>NCR South</i>                 | 7,700,840          | 1,068,556         | 6,632,284         |
| - <i>M.I.C.T.</i>                | 25,917,063         | 107,766           | 25,809,297        |
| <i>Bataan/ Aurora</i>            | 24,304,240         | 5,973,535         | 18,330,704        |
| <i>Northern Luzon</i>            | 9,272,216          | 492,904           | 8,779,312         |
| <b>Southern Luzon</b>            | <b>43,683,213</b>  | <b>16,256,719</b> | <b>27,426,494</b> |
| <i>Batangas</i>                  | 25,788,883         | 9,506,193         | 16,282,690        |
| <i>Mindoro</i>                   | 899,464            | 897,479           | 1,985             |
| <i>Bicol</i>                     | 2,928,573          | 2,392,623         | 535,950           |
| <i>Palawan</i>                   | 7,210,594          | 2,544,100         | 4,666,493         |
| <i>Marinduque/ Quezon</i>        | 6,173,745          | 249,017           | 5,924,728         |
| <i>Masbate</i>                   | 681,953            | 667,307           | 14,647            |
| <b>Visayas</b>                   | <b>40,659,144</b>  | <b>22,148,058</b> | <b>18,511,086</b> |
| <i>Negros Oriental/ Siquijor</i> | 2,518,398          | 1,845,169         | 673,230           |



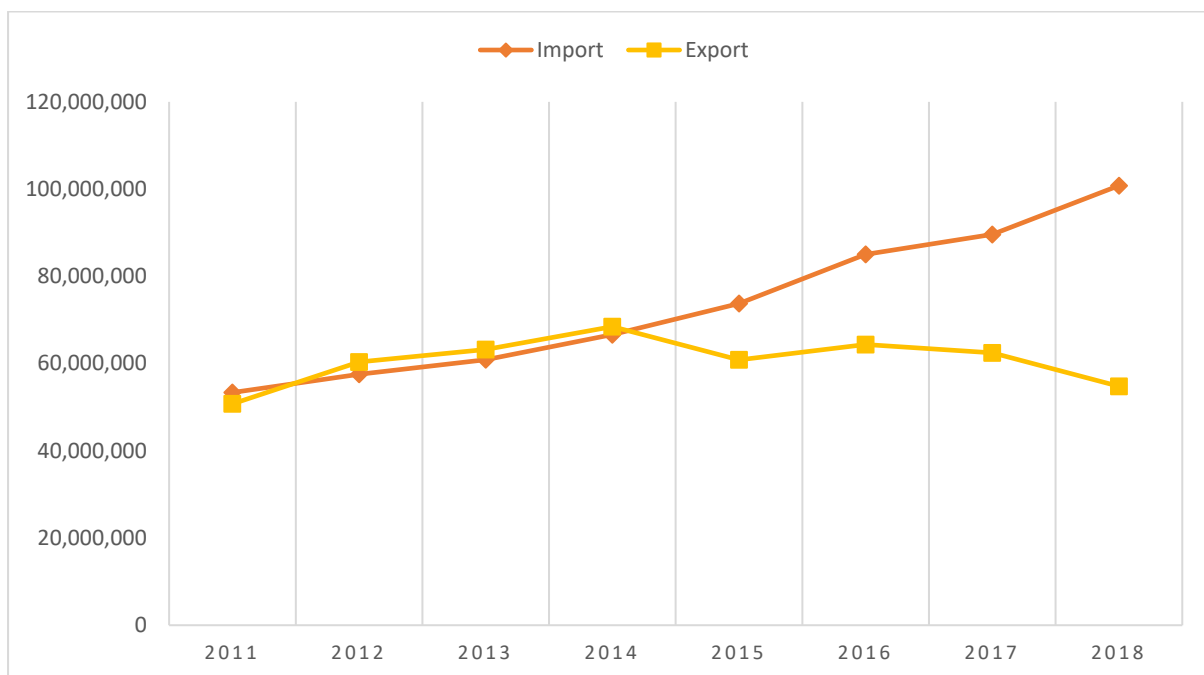
|   |                    |                    |                    |
|---|--------------------|--------------------|--------------------|
| <i>Panay/ Guimaras</i>                            | 18,760,916         | 5,565,422          | 13,195,494         |
| <i>Western Leyte/ Biliran</i>                     | 4,901,326          | 3,111,679          | 1,789,647          |
| <i>Negros Occidental/ Bacolod/ Banago/ Bredco</i> | 6,867,487          | 5,763,575          | 1,103,912          |
| <i>Eastern Leyte/ Samar</i>                       | 2,421,392          | 2,025,878          | 395,513            |
| <i>Bohol</i>                                      | 5,189,625          | 3,836,335          | 1,353,290          |
| <b>Northern Mindanao</b>                          | <b>49,332,699</b>  | <b>13,600,934</b>  | <b>35,731,765</b>  |
| <i>Misamis Oriental/ Cagayan de Oro</i>           | 10,610,131         | 7,600,464          | 3,009,667          |
| <i>Lanao del Norte/ Iligan</i>                    | 3,217,460          | 1,198,169          | 2,019,291          |
| <i>Agusan</i>                                     | 4,635,788          | 1,843,569          | 2,792,219          |
| <i>Misamis Occidental/ Ozamiz</i>                 | 1,338,606          | 1,191,478          | 147,128            |
| <i>Surigao</i>                                    | 29,530,715         | 1,767,255          | 27,763,460         |
| <b>Southern Mindanao</b>                          | <b>28,067,583</b>  | <b>12,315,266</b>  | <b>15,752,318</b>  |
| <i>Zamboanga del Norte</i>                        | 1,613,183          | 1,025,713          | 587,470            |
| <i>Davao</i>                                      | 17,766,785         | 5,664,583          | 12,102,202         |
| <i>SOCSARGEN</i>                                  | 5,078,157          | 2,383,266          | 2,694,891          |
| <i>Zamboanga</i>                                  | 3,609,458          | 3,241,704          | 367,754            |
| <b>TOTAL</b>                                      | <b>266,417,209</b> | <b>104,428,354</b> | <b>161,988,855</b> |

Source: Philippine Ports Authority

Note: Data only includes PPA ports.

Figure 6 suggests that the country has been increasingly using its ports for international import activities. The recorded volume of international exports, on the other hand, appears to be on a decline since 2014.

**Figure 6. Foreign cargo throughput (in metric tons), 2011-2018**



Source: Philippine Statistical Yearbook 2019

Table 7 provides a detailed account of exports going through specific ports in the country. Data suggests that the highest percentage of exports pass through Luzon (81 percent), where 19 percent of the total value of exports is received at the Manila International Container Port (MICT). Aside from the MICT, the Manila South Harbor, Subic Area Free Port and the port in Clark Special Economic Zone in Pampanga are three other important seaports that handle exports. In Visayas and Mindanao areas, the seaports in the main cities of Cebu and Davao serve as the main receiver of exports.

**Table 7. Philippine exports and share of top 5 ports in 2017 (F.O.B. value in US dollars)**

| Ports  | Exports           |               |
|--|-------------------|---------------|
|  | Value             | Percent       |
| <b>TOTAL</b>   | <b>68,712,897</b> | <b>100.00</b> |
| <b>Luzon</b>   | <b>55,823,945</b> | <b>81.24</b>  |
| <i>Ninoy Aquino International Airport*</i>           | 32,458,012        | 47.24         |
| <i>Manila International Container Port</i>           | 13,078,358        | 19.03         |
| <i>Manila (South Harbor)</i>                         | 2,169,349         | 3.16          |
| <i>Subic Area Free Port, SBMA, Olongapo City</i>     | 1,800,477         | 2.62          |
| <i>Clark Special Economic Zone, Pampanga</i>         | 1,523,231         | 2.22          |
| <b>Visayas</b>                                       | <b>6,862,331</b>  | <b>9.99</b>   |
| <i>Cebu City, Cebu</i>                               | 2,833,504         | 4.12          |
| <i>Mactan Export Processing Zone, Lapu-Lapu City</i> | 1,889,689         | 2.75          |
| <i>Isabel, Leyte</i>                                 | 704,455           | 1.03          |
| <i>Cebu International Airport*</i>                   | 681,611           | 0.99          |
| <i>Iloilo City, Iloilo</i>                           | 343,312           | 0.50          |
| <b>Mindanao</b>                                      | <b>6,026,622</b>  | <b>8.77</b>   |
| <i>Davao City, Davao del Sur</i>                     | 2,189,718         | 3.19          |
| <i>General Santos City, South Cotabato</i>           | 1,126,885         | 1.64          |
| <i>Bislig, Surigao del Sur</i>                       | 789,174           | 1.15          |
| <i>Cagayan de Oro City, Misamis Oriental</i>         | 554,901           | 0.81          |
| <i>Ozamis City, Misamis Occidental</i>               | 490,146           | 0.71          |
| <i>Butuan City, Agusan del Norte</i>                 | 178,428           | 0.26          |

Source: Philippine Statistical Yearbook 2019

Note: \* pertains to airports

A similar picture can be observed for import activities. Based on Table 8, import movement is likewise strongest in Luzon (87 percent) and most of it passes through the MICT (almost 30 percent). The ports of Manila South Harbor, Subic Area Free Port and the Clark Airbase serve as important gateways for imports as they are for exports. Moreover, ports in the main cities of Cebu and Davao also provide entry for imported goods in the Visayas and Mindanao areas.

**Table 8. Philippine imports and share of top five ports in 2017 (F.O.B. value in US dollars)**

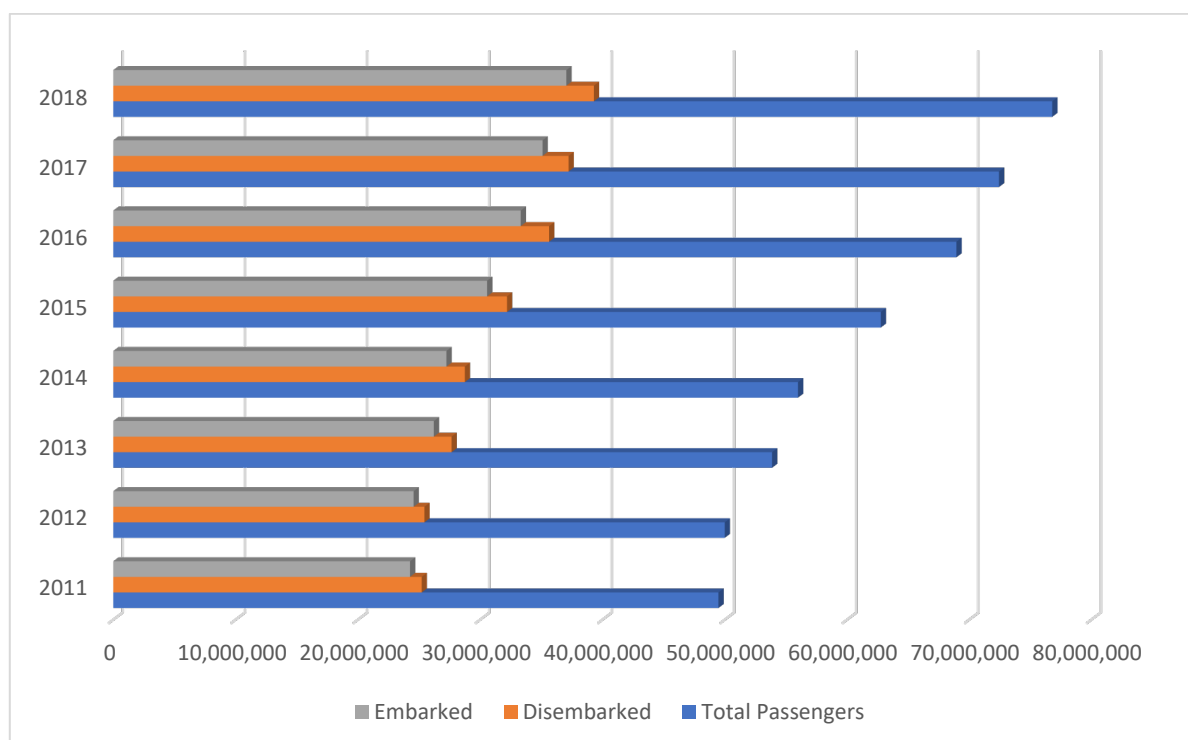
| Ports  | Imports           |               |
|--|-------------------|---------------|
|  | Value             | Percent       |
| <b>TOTAL</b>   | <b>96,093,235</b> | <b>100.00</b> |
| <b>Luzon</b>   | <b>83,936,127</b> | <b>87.35</b>  |
| <i>Manila International Container Port</i>           | 28,590,360        | 29.75         |
| <i>Ninoy Aquino International Airport*</i>           | 23,799,740        | 24.77         |
| <i>Manila (South Harbor)</i>                         | 8,102,050         | 8.43          |
| <i>Subic Area Free Port, SBMA, Olongapo City</i>     | 2,281,207         | 2.37          |
| <i>Clark Airbase</i>                                 | 1,118,203         | 1.16          |
| <b>Visayas</b>                                       | <b>6,932,465</b>  | <b>7.21</b>   |
| <i>Cebu City, Cebu</i>                               | 3,548,029         | 3.69          |
| <i>SEPZ, Isabel, Leyte</i>                           | 1,303,080         | 1.36          |
| <i>Mactan Export Processing Zone, Lapu-Lapu City</i> | 280,062           | 0.29          |
| <i>Isabel, Leyte</i>                                 | 101,447           | 0.11          |
| <i>Iloilo City, Iloilo</i>                           | 84,023            | 0.09          |
| <b>Mindanao</b>                                      | <b>5,224,643</b>  | <b>5.44</b>   |
| <i>Davao City, Davao del Sur</i>                     | 2,039,699         | 2.12          |
| <i>Cagayan de Oro City, Misamis Oriental</i>         | 848,148           | 0.88          |
| <i>Dadiangas, Gen. Santos City, South Cotabato</i>   | 587,294           | 0.61          |
| <i>General Santos City, South Cotabato</i>           | 587,294           | 0.61          |
| <i>Iligan City, Lanao del Norte</i>                  | 127,423           | 0.13          |

Source: Philippine Statistical Yearbook 2019

Note: \* pertains to airports

Aside from trading activities, seaports have also been utilized as important jump-off points to reach other parts of the country. Figure 7 shows an increase in passengers using water transport in recent years. This increase in passenger movement implies that seaports are servicing more people as inter-island water transfer is gaining more ground.

**Figure 7. Passenger traffic via water transport, 2011-2018**



Source: Philippine Statistical Yearbook 2019

Based on Table 9, heavy passenger traffic is experienced in the Visayas and Southern Luzon areas, with 39 percent and 32 percent of total passenger traffic, respectively. Bohol appears to be the busiest area in Visayas, while Batangas emerges as the most utilized gateway in Southern Luzon.

**Table 9. Passenger traffic by management office, 2019**

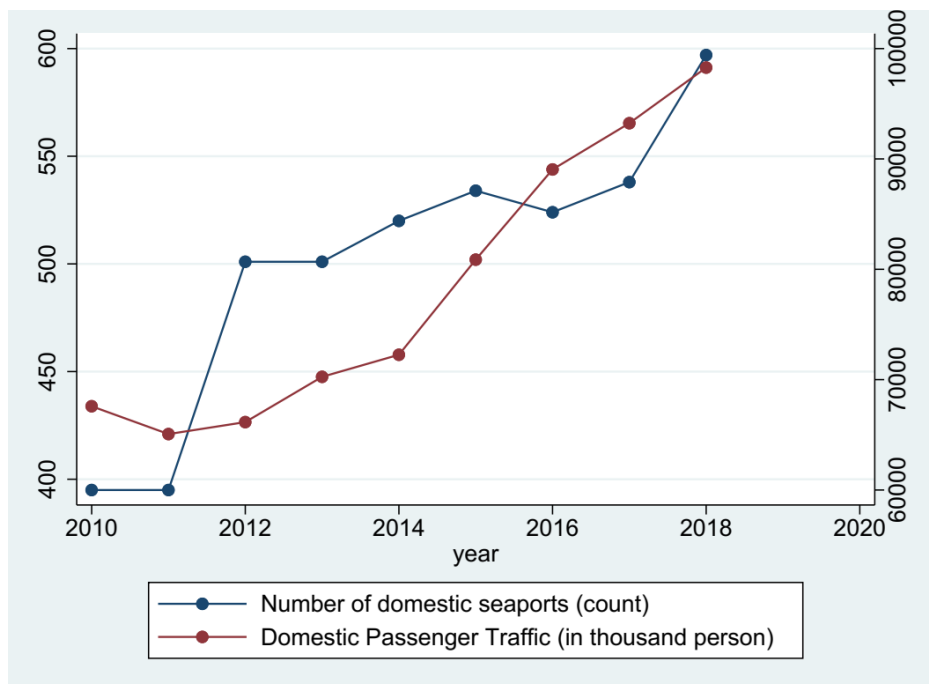
| Port management office           | Passenger Traffic |
|----------------------------------|-------------------|
| <b>Manila/ Northern Luzon</b>    | <b>1,454,607</b>  |
| <i>NCR North</i>                 | 1,132,875         |
| <i>NCR South</i>                 | 164,836           |
| <i>- M.I.C.T.</i>                | 0                 |
| <i>Bataan/ Aurora</i>            | 107,421           |
| <i>Northern Luzon</i>            | 49,475            |
| <b>Southern Luzon</b>            | <b>26,676,508</b> |
| <i>Batangas</i>                  | 8,514,615         |
| <i>Mindoro</i>                   | 8,499,261         |
| <i>Bicol</i>                     | 5,388,058         |
| <i>Palawan</i>                   | 952,958           |
| <i>Marinduque/ Quezon</i>        | 1,813,479         |
| <i>Masbate</i>                   | 1,508,137         |
| <b>Visayas</b>                   | <b>32,261,447</b> |
| <i>Negros Oriental/ Siquijor</i> | 6,207,386         |

|  |                   |
|--|-------------------|
| <i>Panay/ Guimaras</i>                           | 5,814,891         |
| <i>Western Leyte/ Biliran</i>                    | 3,357,393         |
| <i>Negros Occidental/ Bacolod/ Banago/Bredco</i> | 5,659,372         |
| <i>Eastern Leyte/ Samar</i>                      | 4,221,266         |
| <i>Bohol</i>                                     | 7,001,139         |
| <b>Northern Mindanao</b>                         | <b>13,152,757</b> |
| <i>Misamis Oriental/ Cagayan de Oro</i>          | 2,844,640         |
| <i>Lanao del Norte/ Iligan</i>                   | 2,844,650         |
| <i>Agusan</i>                                    | 415,845           |
| <i>Misamis Occidental/ Ozamiz</i>                | 3,668,833         |
| <i>Surigao</i>                                   | 3,378,789         |
| <b>Southern Mindanao</b>                         | <b>10,176,076</b> |
| <i>Zamboanga del Norte</i>                       | 1,262,248         |
| <i>Davao</i>                                     | 3,697,884         |
| <i>SOCSARGEN</i>                                 | 66,797            |
| <i>Zamboanga</i>                                 | 5,149,147         |
| <b>TOTAL</b>                                     | <b>83,721,395</b> |

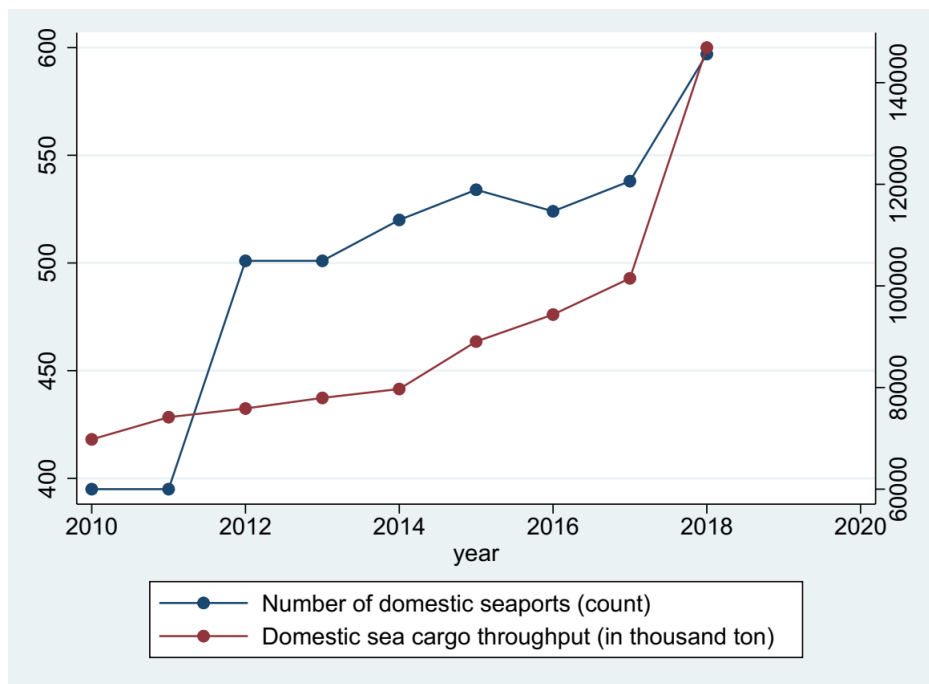
Source: Philippine Ports Authority  
Note: Data only includes PPA ports.

It appears that the higher demand for domestic cargo and passenger traffic was complimented by an increase in the number of domestic ports, as shown in Figures 8 and 9. These figures indirectly suggest the responsiveness of the country’s port infrastructure to the changing market.

**Figure 8. Number of domestic seaports vs domestic passenger traffic**



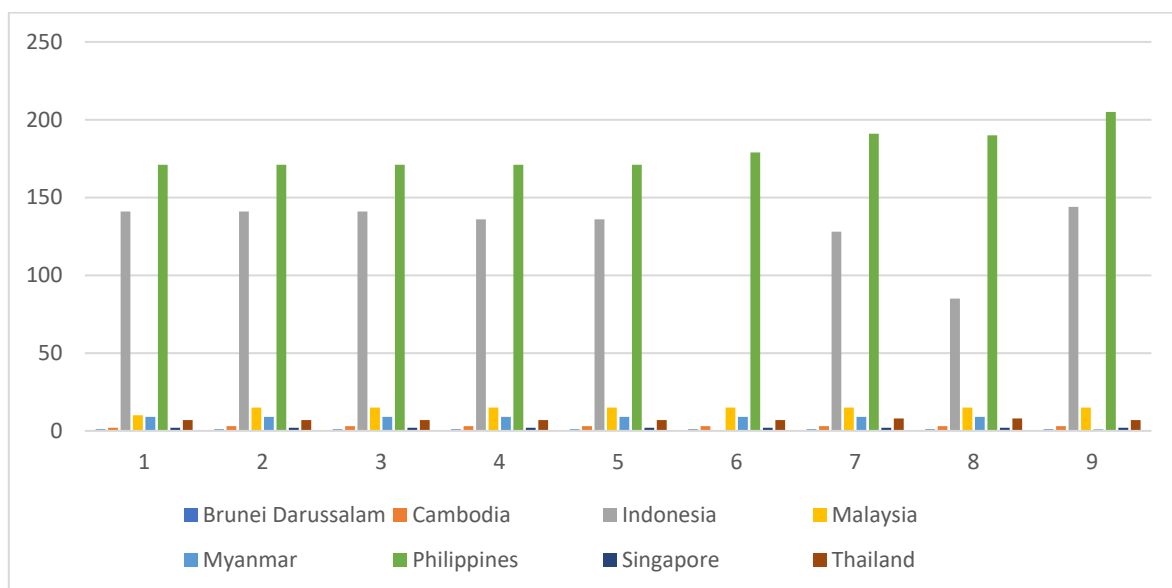
**Figure 9. Number of domestic seaports vs domestic cargo throughput**



***International comparison***

As important as examining the domestic utilization of seaports, it is also worthwhile to draw comparisons of related port statistics with neighbor countries to assess how our port infrastructure fare. In terms of quantity, the Philippines along with Indonesia possess higher number of seaports probably due to the archipelagic structure of both countries (Figure 10). It can also be seen that the country’s number of international seaports have likewise increased through the years.

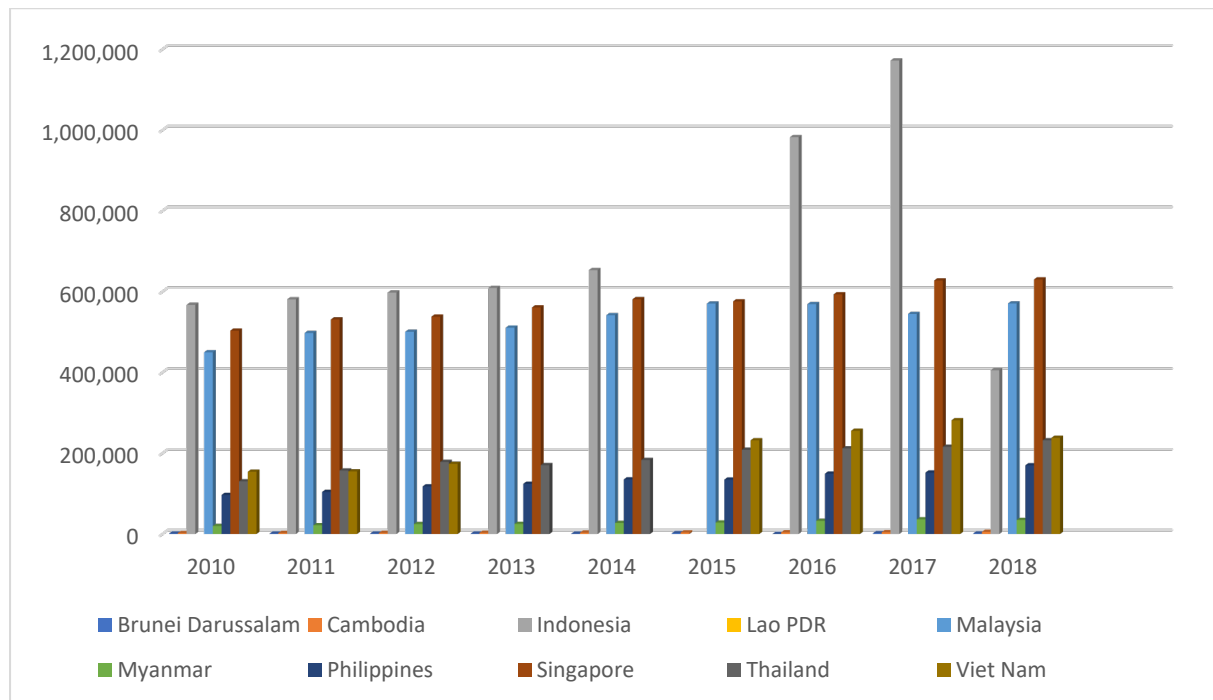
**Figure 10. Number of international ports, select ASEAN countries**



Source: ASEAN Secretariat, ASEANstats

Unfortunately, despite having more international seaports, the Philippines seems to be trailing behind other ASEAN countries in terms of volume of international cargo and international shipping container (Figures 11 and 12). Data shows that most sea cargo in the ASEAN region goes through Indonesia, Singapore, and Malaysia (Figure 11). Comparatively, the volume of international sea cargo that goes through Philippine waters is only relatively higher to three countries in the region, namely, Myanmar, Cambodia, and Brunei.

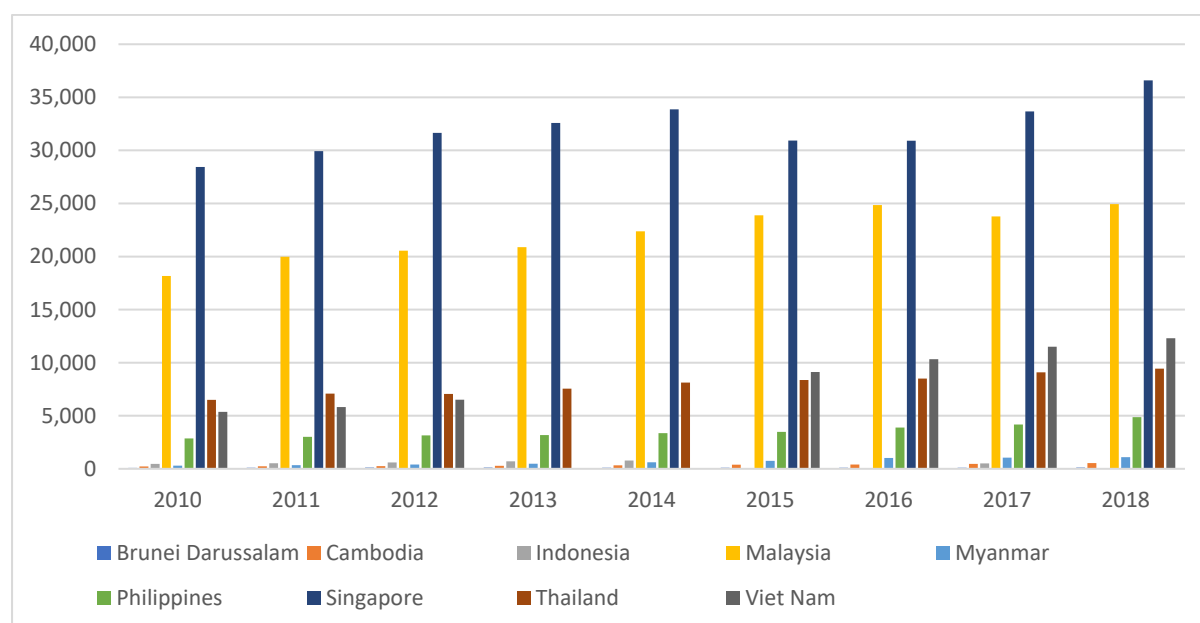
**Figure 11. International sea cargo throughput, select ASEAN countries (in thousand ton)**



Source: ASEAN Secretariat, ASEANstats

While the direction of trade is certainly affected by numerous factors, the relative share of Singapore and Malaysia in the total international cargo and container ships that goes through the ASEAN region, strengthens the argument that having many international seaports is not enough to attract maritime trade traffic. As presented in Figure 12, Singapore and Malaysia have consistently outperformed neighbor countries in terms of attracting container ships. It can also be noted from the figure that the Philippines' share in international sea container traffic remains relatively low.

**Figure 12. International sea container throughput, select ASEAN countries (in Thousand TEUs)**



Source: ASEAN Secretariat, ASEANstats

A review of port performance indicators in Table 10 reveals some preferable qualities of ports of high-performing countries. For instance, the ports of Singapore and Malaysia can accommodate larger cargo vessels and container ships, on average, than other ports in the region. Singapore and Thailand also appear to have more efficient ports, as implied by the shortest number of days spent by ships in the ports (0.7 days).

**Table 10. Port Performance Indicators for ASEAN countries, 2018**

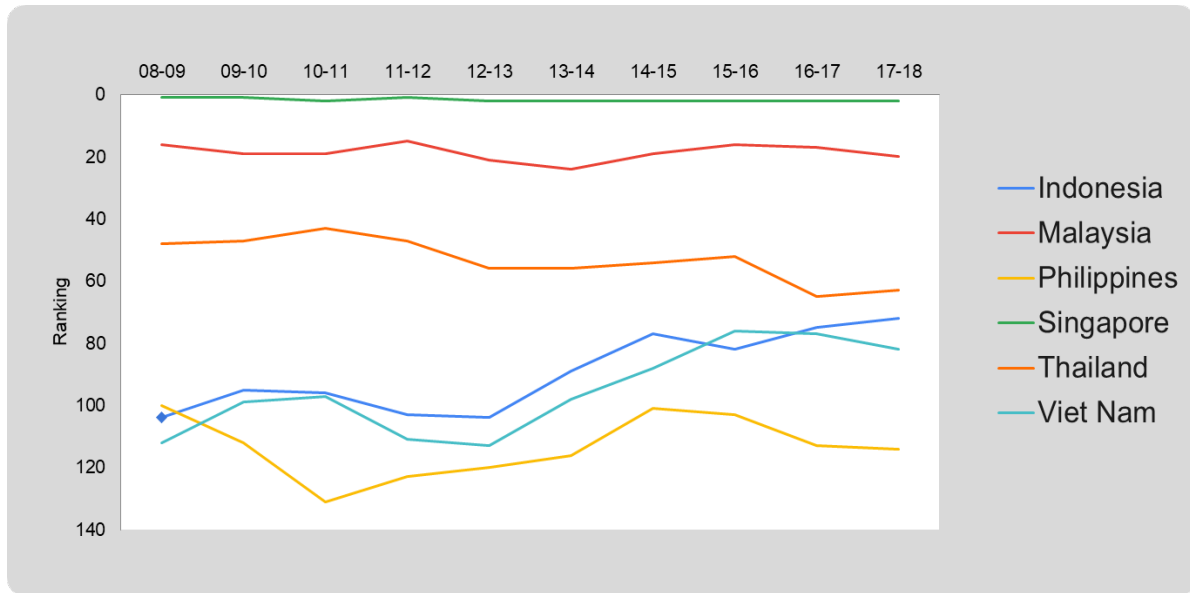
| Country            | Median time in port (days) | Ave. age of vessels | Ave. size (GT) of vessels | Max. size (GT) of vessels | Ave. cargo carrying capacity (dwt) per vessel | Max. cargo carrying capacity (dwt) of vessels | Ave. container carrying capacity (TEU) per container ship | Max. container carrying capacity (TEU) of container ships |
|--------------------|----------------------------|---------------------|---------------------------|---------------------------|---|---|---|---|
| Brunei             | 1.0                        | 14                  | 20,401                    | 72,684                    | 30,421  | 74,999  | 1,354   | 2,174   |
| Cambodia           | 0.9                        | 14                  | 13,580                    | 115,875                   | 9,579   | 46,732  | 1,517   | 2,174   |
| Indonesia          | 1.2                        | 20                  | 7,670                     | 172,000                   | 16,098  | 300,542                                       | 1,509   | 14,855  |
| Malaysia           | 1.0                        | 14                  | 28,611                    | 236,583                   | 32,706  | 441,561                                       | 3,706   | 23,756  |
| Myanmar            | 2.0                        | 15                  | 15,653                    | 165,511                   | 25,133  | 321,300                                       | 1,318   | 2,806   |
| <i>Philippines</i> | <i>1.0</i>                 | <i>20</i>           | <i>8,179</i>              | <i>199,631</i>            | <i>11,997</i>                                 | <i>400,000</i>                                | <i>1,858</i>  | <i>6,622</i>  |
| Singapore          | 0.7                        | 11                  | 25,755                    | 236,583                   | 18,889  | 323,183                                       | 5,228   | 23,964  |
| Thailand           | 0.7                        | 17                  | 12,482                    | 228,741                   | 11,431  | 321,225                                       | 2,177   | 23,656  |
| Viet Nam           | 1.1                        | 14                  | 16,002                    | 194,849                   | 14,024  | 187,882                                       | 1,966   | 18,400  |

Source: UNCTAD



Users perceive the quality of ports in the Philippines to be quite low. Figure 13 displays the ranking of ASEAN ports based on a survey of business executives regarding their perceptions on their country's port facilities. The figure suggests that there is a huge gap in the quality of ports and port facilities in the Philippines relative to its ASEAN neighbors.

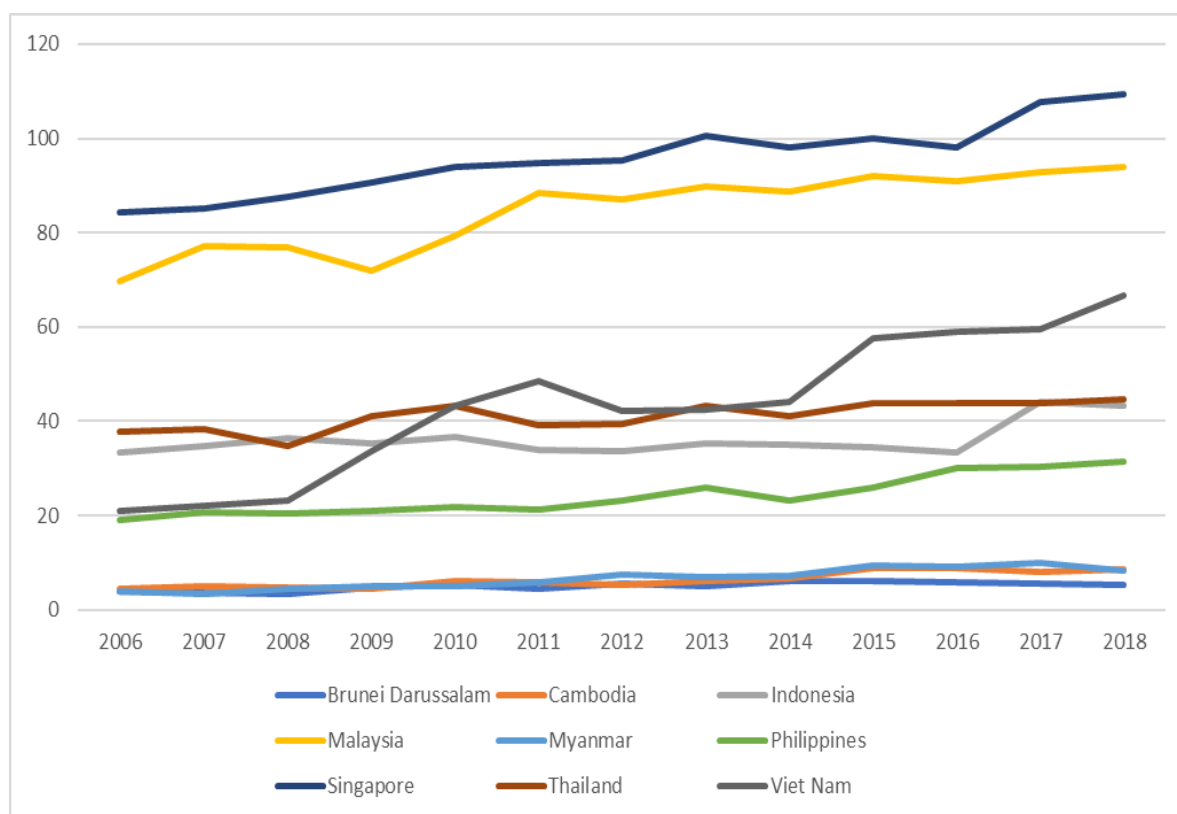
**Figure 13. Quality of Ports Rankings ASEAN 6**



Source: World Economic Forum

Furthermore, the connectivity of the country's ports also requires huge improvement if the goal is to be more integrated with global trade. Figure 14 reveals that the similarity of the Philippines with countries such as Cambodia, Brunei and Myanmar, aside from having low share in international sea cargo and container shipping throughput, is having low connectivity to the global liner shipping networks. The liner shipping connectivity index (LSCI) measured and compared in Figure 14, takes into account each ASEAN country's integration level into global liner shipping networks considering factors such as regular shipping services for the import and export of manufactured goods. Higher index means higher level of connectivity. Thus, the Philippines appears to be the least connected to the global liner shipping networks among the ASEAN 6 countries.

**Figure 14. Liner shipping connectivity index**



Source: UNCTAD, Division on Technology and Logistics

Note: Data is for Q4 of each year.

#### 4. Issues and challenges related to water transport infrastructure

A substantive number of research has been done on the Philippine water transport sector. Interestingly, a lot of the issues and constraints affecting the quality of physical infrastructure in the sector, which has already been mentioned in past studies, still continue to impede the performance of the whole sector. The discussion below provides a summary of the findings:

*Seaports are sufficient in quantity, but most are underdeveloped and have inadequate equipment.* In 2009, a World Bank report revealed that while the quantity of seaport infrastructure in the Philippines fares well with neighbor countries, the quality, capacity and service delivery need much improvement. The report emphasized that the discussions on transport infrastructure should not solely focus on quantity but also consider the infrastructure's effective capacity, quality of services available, location of port infrastructure as well as the port's connectivity to the whole transport network. Relatedly, Ismail and Mahyideen (2015) noted that infrastructure development in Asia appears to be more concentrated on quantity rather than quality. Their study showed that the quality of infrastructure has better impact on economic growth through its effect on increased productivity and efficiency. Llanto et al. (2005) surmised that the Philippine government is financially constrained in responding to the growing demand for better quality infrastructure; hence, the strategy to turn to the private sector for support. A more recent study (Baek and Kim 2018) pointed out that the Philippines continue

to lag behind other ASEAN countries in terms of port development. The study found that the general characteristics of Philippine seaports such as berth number and length, cargo throughput capacity, maximum draft and number of quay cranes, are comparatively inferior with that of Indonesia, Singapore, Malaysia and Korea. A common sentiment of respondents from the interviews conducted in preparation of the Philippine Multimodal Transportation and Logistics Industry Roadmap by the Institute for Development and Econometric Analysis (2016), is that government-operated seaports outside of Manila need major upgrades as they usually lack cargo-handling equipment needed for an efficient supply chain. The Maritime Industry Authority released a report in 2016 that mentioned the limited cargo base and inadequate port infrastructure as part of the factors affecting the high logistics cost in the country. Similarly, Ho et al. (2018) referred the absence of proper port infrastructure as one of the reasons for the high export cost in the Philippines. They explained that shipping companies need to utilize vessels equipped with cranes in cases where gantry cranes are not available in regional ports; thereby, raising the overall shipping cost for companies. Llanto et al. (2005) estimated that around 40 percent of maritime transport cost for most coastal countries is due to inefficient port infrastructure. Moreover, they found that cargo handling cost in the Philippines usually account for 46 percent of the total sea transport cost. While inefficient port operation caused by the lack of equipment remains a problem for most ports in the country, many ports also lack the financial resources to procure the needed equipment especially the ones operated by local government units (Baek and Kim 2018). Meanwhile, both the UNESCAP (2002) and JICA (2004) noticed that port charges in the Philippines are set at an extremely low level. The reports explained that this lowers the financial viability of port operation and also creates disincentive for private sector investment in ports (Baek and Kim 2018). Ho et al. (2018) revealed however, that while the Philippine Ports Authority has increased cargo handling rates over the years, many of its ports still persist to have inefficient port infrastructure and generally remain underdeveloped.

*Congestion in major ports.* Congestion in the port of Manila remains an issue that policymakers and government agencies have been trying to resolve. The port of Manila is composed of three large ports namely, the Manila International Container Terminal, the Manila North Harbor and the Manila South Harbor, which altogether serves as the main gateway for domestic and foreign containerized cargo to and from the country. The World Shipping Council lists Manila as one of the top 50 busiest ports in the world based on 2019 data<sup>5</sup>. In 2013, a JICA report noted that the increasing cargo and passenger traffic in the Greater Capital Region is further straining the already-congested port of Manila and is also affecting nearby road networks. Patalinghug et al. (2016) added that mismanagement of shipping containers as well as the lack of depot areas further exacerbates the congestion problem in Manila port. Particularly, the accumulation of empty shipping containers and the overstaying of loaded containers is adding pressure to the limited capacity of container depots. Hence, the urgent need to create a more efficient system for handling containers and possible expansion of container freight station. Initiatives to address the cargo traffic situation in the port of Manila includes the development of Batangas and Subic ports (Patalinghug et al. 2016). The Batangas port, which was completed in 2007 was envisioned to support trading activities in the CALABARZON region while the Subic port, which was finished in 2009, was developed to facilitate growth in Central Luzon and Subic

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<sup>5</sup> Manila ranks 31<sup>st</sup> out of 50 ports in the world. Accessed from <https://www.worldshipping.org/top-50-ports> on June 15, 2022.

Bay Freeport Zone. The Oxford Business Group (2014) however, advised that the Batangas port may only be able to partially relieve the congestion in Manila port due to its annual capacity of 300,000 containers<sup>6</sup>. In 2012, the National Economic and Development Authority reported the low utilization rate of both Batangas and Subic ports, at 2.3 and 6.1 percent, respectively. In comparison, the utilization rate of Manila port remained at 71.6 percent. The JICA also conducted their own study in 2013 and found that around 95 percent of the total capacity of both Batangas and Subic ports remains unutilized. According to the study of Patalinghug et al. (2016), majority of shippers and shipping lines still prefer to use Manila port despite efforts to improve facilities and lower charges in Batangas and Subic ports. Findings from their interviews and focus group discussions with shippers and freight forwarders revealed that the reason why they continue to use Manila port is because it remains as the most common destination used by shipping companies. Respondents of the interview rated "the availability of service providers/shipping companies/forwarders" as the most important factor affecting their choice of port. They generally favor Manila port's reliable shipping schedule and efficient cargo acceptance/release processes. On the other hand, freight forwarders expressed their satisfaction with the road condition and traffic regulation in Batangas port but lamented about the frequency of shipping schedule, availability of allied service providers, and sufficiency of cargo handling facilities. Frequency of shipping schedule also emerged as an issue for utilizing Subic port. Moreover, the longer travel time to reach Subic port serves as a disincentive, according to the respondents. Overall, there is a general consensus among respondents in using Batangas and Subic ports as a strategy to relieve congestion in Manila ports; but they underscored the need to improve overall capability in terms of berth capacity, container yard capacity, cargo handling equipment and available personnel. Relatedly, respondents from the interviews conducted in preparation of the Philippine Multimodal Transportation and Logistics Industry Roadmap by the Institute for Development and Econometric Analysis (2016) expressed that there is a crucial need to expand the capacity of Manila port but this will only work if there is corresponding improvement of facilities and services (warehouses, roads, off-dock facilities) offered in ports outside of the Greater Capital Region.

*Conflicting roles of government agencies.* The conflicting roles of the Philippine Ports Authority (PPA) as operator, developer and regulator of ports is a popular discussion among previous studies. The World Bank report in 2009 pointed out that the existing institutional setup is unable to provide checks against influence of operational interests in the formulation of policy and regulations. Llanto et al. (2005) enumerated several reasons why the current setup is unfavorable for the growth of the water transport sector. First, it affects port competition. Being the entity that issues permit to construct and operate ports allows the PPA not to grant the application if the construction or expansion of a port will threaten PPA's existing ports. High port competition especially in the foreign containerized market could reduce PPA's income; hence, its bias against full competition. Second, since the PPA receives 10 percent and 20 percent share from domestic and foreign cargo handling revenues, respectively, requests of government and private ports to increase rates and tariffs usually gets approved, to the disadvantage of the users. In theory, higher income for PPA should translate to its port development and maintenance activities. However, as discussed in a study (Ho et al. 2018), many of the PPA ports remain underdeveloped and not equipped with the needed facilities.

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<sup>6</sup> Manila port hosts around 3.8 million containers annually.

Tongzon (2018) observed that the Cebu Ports Authority (CPA) suffers the same conflict of interest as the PPA. He noted that the CPA tends to approve any application for rate increase to the benefit of terminal operators but to the detriment of logistics service providers and shippers. Previous studies (Llanto et al. 2005, World Bank 2009, Patalinghug et al. 2016, Baek and Kim 2018, Ho et al. 2018, Tongzon 2018) are united in the call to revisit the functions granted to Ports Authority. Llanto et al. (2005) proposed to separate the regulatory responsibilities of the PPA from the development and operation functions, which the study indicated, are strengths of the private sector. In the same way, Ho et al. (2018) suggested to leave the development role of the PPA to the private sector while the development of less economically viable ports on LGU land, to be turned over to the LGUs. The JICA (2004) meanwhile, recommended to reform the PPA to concentrate on the following functions: (1) formulate policies related to port development and management; (2) create regulations and guidelines related to technical operation and safety; (3) coordinate port development plans for public and private ports; (4) spearhead the drafting of the national port development plan; (5) manage port-related issues and cooperate with foreign countries. Tongzon (2018) encouraged the establishment of one separate entity to regulate ports. Baek and Kim (2018) also suggested the PPA to stop collecting cargo handling tariff and instead lease the port facilities to the terminal operator to induce competition among terminal operators and encourage them to improve the port services.

*Lack of nationwide coordination in port planning.* Based on the World Bank report (2009), the main challenge in Philippine transport infrastructure in general, is that there is no institutional anchoring for overall integrated planning for multi-modal transport. Similar with many countries, the institutional setup for planning, building and operating transport infrastructure is complex. The responsibility for transport infrastructure such as ports are divided between local government units and national-level departments, making the decision-process more difficult and weakens the accountability and incentives to take care of the infrastructure. In the study of Baek and Kim (2018), it was noted that the inefficiency of the national port network as well as the imbalance of port investment, can be attributed to the lack of nationwide coordination in port planning. Thus, the problem also persists for individual transport subsectors such as water transport. Currently, there exists no institution to coordinate port development plans. While a number of port development bodies have been organized, these bodies manage ports independently. The study also cited the lack of development strategies for small-scale ports. Overall, the establishment of a national body for port development was recommended to coordinate individual plans of port authorities as well as the strengthening of data reporting to be used for effective national port system planning.

## **5. Government plans and strategies**

Llanto (2004) worked on a comprehensive review of the government's infrastructure development strategies and policies that spans several administrations. In his study, he provided a discussion of what was planned and achieved from 1978 to 2004, based on the Philippine Medium Term Development Plans (MTPDP) and Philippine Development Plans (PDP). He noted that for the period of 1978 to 1982, the vision of the government was to construct an integrated and efficient multi-modal transport system to support the movement of goods, services, and the population within the country. The overall goal was to make the

transportation cost affordable to support food production, manufacturing and tourism, for a more balanced distribution of economic development. For the water transport sector, the focus was on the construction of national and regional seaports and trunk lines and the establishment of ferry services to serve these links. From 1984 to 1987, efforts were shifted to the development of regional fishing port complexes to support the fishing sector by enhancing the distribution channel of fish products. However, in 1983, political instability astounded the country. The Philippines during that time, was also experiencing severe economic and financial crisis due to the global financial turmoil. This ultimately led the government to prioritize maintaining existing transport infrastructure instead of constructing new ones. From 1987 to 1992, the succeeding administration intended for the transport sector to support agricultural production. The main concern for the water transport sector during this period is the improvement and rehabilitation of the feeder port system, which facilitates access between markets and rural areas. Rehabilitation and minor improvements were done to smaller ports, light houses and fishing ports. Some notable developments were the civil works at the Manila International Container Terminal, Manila North Harbor and Manila South Harbor. Studies on the roll-on roll-off system, along with efforts to deregulate shipping passage rates were also initiated during this time. From 1992 to 1998, the government focused on strengthening interregional as well as urban and rural linkages through transportation. The plan was to implement the Nationwide Feeder Ports Program to develop feeder ports and construct additional fishing ports through the Nationwide Fishing Ports Program. Similar with the previous administration, maintenance of existing infrastructure took precedence over building new ones. Distinguished projects that were finished during this period were the expansion of Batangas port, rehabilitation of North and South Harbor of Manila, and improvement of the ports of Cagayan de Oro, Davao, General Santos, Nasipit and Surigao. The succeeding administration from 1998 to 2000 viewed the restructuring of port institutions as the most urgent concern in the water transport sector. Responsibilities such as planning, management of ports, and commercial decision-making were transferred to Port Management Offices and Port District Offices, in preparation for privatization. Projects that were completed were the expansion of Batangas port, rehabilitation, and expansion of the ports of Sasa Davao, Jolo, Virac, San Carlos, Zamboanga and Pagadian. A number of fishing ports, feeder ports and light houses were also constructed. From 2001 to 2004, the goal of the administration was for the transport infrastructure to support government's agriculture modernization projects and tourism development programs, decongest traffic and support the development of information and communication technology. Several ports included in the roll-on/roll-off (RORO) network were rehabilitated and modernized during this period, in preparation for the full implementation of the RORO policy. The RORO system is considered a great achievement during this period as it offered a new mode of transfer for goods, services and population within the country that is more efficient and affordable.

In the Medium-Term Development Plan 2004-2010, the government outlined the need for a more efficient transport institutions and increased private sector participation in providing transport infrastructure and services. The government's goal was to generate more transport infrastructure with minimal financial cover. Priority was given to infrastructure projects that are crucial in facilitating trade and investments. The hierarchy of priority activities were listed as: (1) maintenance of existing infrastructure, (2) rehabilitation activities, (3) improvement projects, and (4) construction of missing links. During this period, the focus for the water transport sector was on development of more RORO ports and highways connecting

them. Vital links of the Western, Eastern and Central Nautical Highways were completed to improve the connection between islands and enhance access to markets in support of the agro-fisheries sector. Executive Order (EO) 170 and 170-A were signed to encourage private sector participation in port development. These EOs simplified the guidelines and procedure in the processing of necessary documents and permits to construct and operate RORO ports. Furthermore, efforts to deregulate routes and rates were also initiated to attract more investors and discourage monopolies. At the same time, the government focused on the coordination of development plans to support the integration and efficiency of the port system. Modernization of shipping vessels was encouraged through Republic Act (RA) 9295, an Act Promoting the Development of the Philippine Domestic Shipping, Shipbuilding and Ship Repair and Ship Breaking, Ordaining Reforms in Government Policies Towards Shipping in the Philippines, and for Other Purposes.

From 2011 to 2016, the government's overall strategy for infrastructure development was to increase public spending to around 5 percent of the country's gross domestic product (GDP). The government aimed to achieve this by involving the private sector as partner in infrastructure development through the PPP approach. Amendments were done to the implementing rules and regulations of the Build-Operate-Transfer Law (RA 6957 as amended by RA 7718) as well as the guidelines and procedures for joint venture agreements, to accelerate the implementation of PPP projects and enhance the check-and-balance mechanism in government projects. The National Transport Policy (NTP) was likewise developed during this time, which is a long-term comprehensive policy that is designed to guide all-sub-sectors as well as players (i.e., passengers, shippers, service providers, other stakeholders) in the transportation sector. The approval of the NTP is expected to improve accountability for transport-related decision-making and increase interaction among key agencies for a more integrated and efficient implementation of transport policies. Meanwhile, some of the major achievements for the water transport sector during this period was the completion of the Central RORO Spine project, which was meant to facilitate travel in the Luzon-Panay-Negros-Cebu-Bohol-Mindanao route. The Philippines also suggested the idea of establishing an ASEAN RORO Network during the ASEAN 17th Summit in 2010, which was later adopted as a flagship program of the ASEAN Connectivity Master Plan.

The need to improve the quality and operational efficiency of the Philippine's port system is well-recognized in the Philippine Development Plan (PDP) 2017-2022. As stated in the document, passenger traffic and cargo volume have increased from 2010 to 2015, but the inefficient operation of major ports such as Manila and Cebu resulted to congestion of the port itself and the connecting road networks. The government generally pushes for the utilization of the Batangas and Subic ports to address the congestion problem in Manila port but also acknowledges the fact that users still favor Manila port due to the inadequacy of ancillary services in these ports. Overall, the PDP underscores the strategy to adopt a systems approach in infrastructure provision in the country. The specific commitments of the government for the maritime transport sector are as follows: (1) improve port facilities to ensure viability of inter-island shipping, including strengthening of the RORO network; (2) develop breakwater facilities to protect ports from deteriorating; (3) expansion of port facilities consistent with international standards; (4) develop navigation channels that will allow for the accommodation of larger vessels; (5) optimize the use of existing ports; (6) explore the idea of providing a direct connection between Manila and Batangas ports as well as co-loading (modified

cabotage) to encourage shipment between domestic ports; (7) improve dry ports and build new ones to support manufacturing and trade sectors; and (8) improve BIMP-EAGA transit transport route in Mindanao.

In 2020 however, the government released an updated version of the PDP to reflect changes in priorities due to the challenges brought by the COVID-19 pandemic. The response to the pandemic has resulted to a tighter fiscal space that constrained the availability of funds for the implementation of programs and projects. Despite this, the government is firm on using the 'Build, Build, Build' program as its main tool in reviving the economy. The aim to accelerate infrastructure development in the country remains a primary goal, although the targets for 2020-2022 were revisited and updated. To improve the competitiveness of the whole transport sector, the government commits to using the following 5 main strategies:

- 1) *Enforce and strengthen the National Transport Policy (NTP) through legislation.* The National Economic and Development Authority (NEDA) Board pushes for a law adopting the NTP. This law seeks to streamline processes and regulations in the transport sector by creating independent regulatory bodies for seaports, airports and railways, among others. This step is expected to improve the competitiveness of the sector.
- 2) *Implement an integrated approach to transport planning consistent with the NTP and the National Spatial Strategy (NSS).* The National transport agencies will work with the local government units (LGU) to implement an integrated approach in the provision of transport infrastructure and services. To this end, the LGUs will be required to prepare their local transport sector plans as part of their Comprehensive Development Plans, which will be updated regularly. This approach is expected to enhance the responsiveness of transport facilities to the demand of passengers and goods.
- 3) *Develop and support the efficiency and resiliency of the national supply chain.* Transport agencies will continue to work with other government agencies to ensure that sectors such as agriculture and tourism are supported with the necessary infrastructure and related services. The provision of farm-to-market and farm-to-mill roads in agricultural areas will continue, as well as the provision of transport infrastructure in tourism destinations.
- 4) *Maintain existing infrastructure while at the same time expanding the transport network.* To generate optimal economic outcomes, the government will maintain existing physical infrastructure and further expand the country's transport network.
- 5) *Facilitate universal access to transport facilities.* Consistent with the government's goal to improve the quality of life of people through an inclusive, people-oriented national transport system, the Task Force on Accessibility that was created in 2007 will be tasked to develop initiatives to incorporate the needs of children, pregnant women, elderly, and persons with disabilities in public transportation systems.

The specific strategies for the water transport sector in the revised PDP are as follows:

- The goal to improve port facilities, including the expansion of the RORO network, to ensure that inter-island shipping remains a viable choice of transport for people and cargo is maintained.
- The government will continue to find ways to maximize the utilization of existing ports and upgrade port capacities. One of the measures being explored is the development of



a freight rail service between Clark and Subic, the utilization of inland container terminals as well as port container yards, and finally, the incorporation of port management plans in the logistics network development.

- The government will further enhance the Cavite Gateway Terminal, which provides a direct connection between Manila and Batangas ports. Co-loading (modified cabotage) will also be encouraged between the two ports.
- To relieve road traffic congestion and further expand intermodal transport network in the country, the government will promote the use of the ferry system through the Coastal and Inland Waterways Transport System, as an alternative mode of travel.
- Eight priority programs of the Maritime Industry Development Plan (MIDP) have started implementation. The MIDP was formulated to enhance the development of the maritime industry. Some of the most notable programs include the Maritime Industry Program, Nautical Highway Development Program, National Fishery Industry Development Program and Maritime Tourism Program.
- Lastly, the government will develop an eco-maritime industrial park, which will bring together maritime-related companies to provide ancillary services to international and domestic passengers and ships in the Philippine waters.

## **6. Policy Developments**

As listed in the updated Philippine Development Plan 2017-2022, the important legislative agenda of the government to hasten infrastructure development in the country are: (1) enactment of the NTP; (2) enactment of a law establishing independent regulatory bodies for the railway and maritime transport sectors; and (3) enactment of a law establishing an independent body for transport safety and security.

Currently, there are two related House Bills (HB) on the NTP, HB 2222 s. 2010 and HB 315 s. are pending with the committee on transportation since 2013. In the meantime, the NEDA Board adopted the NTP on September 2017 and its IRR was approved in December 2018.

There is also an existing bill filed in the 18<sup>th</sup> congress that seeks to restructure the Philippine Ports Authority. The Philippine Ports Corporation (PHILPORTS) Act HB 4317 aims to separate the regulatory and commercial function of the Philippine Ports Authority by creating a separate agency called the Philippine Ports Corporation. PHILPORTS shall retain the development and management functions of the PPA while the regulatory functions of the PPA shall be transferred to MARINA. HB 4317 was filed on September 2019 and is currently pending with the committee on Government Reorganization.

Finally, Senate Bill (SB) 1077 aims to create a National Transportation Safety Board, attached to the Office of the President, to ensure the safety of people and goods through cost-effective measures that will prevent accidents involving any mode of transport. At present, different agencies handle accident investigations depending on which transport sector is involved. HB 9030 and SB 1077 has been passed in June 2022 and is currently pending for a bicameral conference.

## **7. Conclusion and Recommendations**

Water transport infrastructure has an undeniably crucial role in facilitating a balanced growth within the Philippine economy. However, as discussed in this study, there exists many outstanding issues in the water transport sector that affects the provision of a well-functioning and efficient port system. As shown by data and discussed in previous studies, most ports in the country are small and have insufficient equipment and facilities. There also exists an imbalance in the usage of ports as some ports remain underutilized while other major ports continue suffer from congestion. This imbalance in usage is partly driven by the unevenness in the capacity and capability of ports.

In previous years, the government has given too much focus on expanding the port network by building new ports and rehabilitating existing ones. However, little attention has been given to providing a conducive institutional environment to allow ports to compete and operate efficiently. Certainly, the conflicting roles of government agencies and the lack of coordination in port planning have contributed to the low quality of services and inefficient functioning of public ports. On a different but related note, the private sector has usually served as a government partner in the provision of transport infrastructure. Looking forward, it may be beneficial for the government to expand the private sector's involvement in the water transport sector by taking advantage of their expertise in the provision of port services. By allowing the private sector to operate public ports, issues with insufficient port facilities and equipment can be solved. This, however, can only be possible if regulations in the water transport sector becomes less restrictive, to encourage more private sector participation. It appears that the key to solving many of the prevailing bottlenecks constraining the performance of the water transport sector lie in (1) the streamlining of functions of major government agencies in the water transport sector –to separate operating, development and regulatory functions; and (2) the enactment of the National Transport policy –to ensure coordinated planning and efficient functioning of the whole port system.

## Appendix 1

*Philippine Ports Authority.* The Philippine Ports Authority is the primary government agency responsible for the planning and development of the country's seaports. It was created in 1974, and has since expanded its functions in regulating finance, operation, and maintenance of ports, including all port construction projects (under its port system). This GOCC has been previously removed under the jurisdiction of DPWH and given financial autonomy as an attached agency of the Department of Transportation (DOTC). The organizational structure of PPA is influenced by the country's geography, which also determines the distribution of infrastructure, human resources, and other aspects of its management systems. There are currently 25 Port Management Offices (PMO) and Terminal Management Offices (TMO), strategically located across the country. The port authority earns its revenue from leasing concession fees and other port charges from supervising one of the biggest common-user ports in the Philippines such as the Manila International Container Terminal (MICT), and the North and South Harbors.

*Independent Port Authorities.* IPAs were formed to decentralize power from the PPA and promote competition, while at the same time, giving LGUs more control over their local ports. IPAs are given the power to set their own rates, although they still normally match the rates of PPA. Most of the ports included in the list below were devolved from the PPA port system, except for SBF and MCT.

- The Regional Port Authority - Autonomous Region of Muslim Mindanao (ARMM) manages the Polloc, Jolo and Bongao ports devolved by the PPA.
- The Bases Conversion and Development Authority (BCDA) is a development corporation engaging in PPPs for the infrastructure of former military bases into economic growth centers. They supervise the ports in San Fernando, La Union, and the former U.S. military air base facility in Clark Field, Pampanga.
- In 1997, the Cagayan Economic Zone Authority (CEZA) was created to supervise the Cagayan Special Economic Zone and Freeport. The Cagayan Freeport is operated as a separate customs territory.
- The Cebu Ports Authority (CPA) was created in 1992 to govern over all ports located in the Cebu Province, acting separately from the Philippine Ports Authority (PPA) system. The Cebu Port System is composed of the Cebu International Port and the Cebu Baseport - Domestic Zone. Additionally, there are five subports under the jurisdiction of CPA, namely: Mandaue, Danao, Sta. Fe, Toledo and Argao – each subports are smaller ports that are essential to the flow of domestic inter-island commerce.
- Although the Mindanao Container Terminal (MCT) is officially under the regulation of PHIVIDEC Industrial Authority (PIA), it is operated by its own subsidiary – International Container Terminal Services, Inc. (ICTSI).
- The government of the Philippines created the Subic Bay Metropolitan Authority (SBMA) to operate and oversee the development of the Subic Bay Freeport (SBF) in Zambales.

*Department of Transportation.* The DOTr is responsible for funding the construction and development of small quays and fishing/feeder ports. Some of the fishing ports serve as commercial cargo handling set by the PPA and the PFDA. These ports are later transferred back to the by the respective LGUs or the municipal government themselves that built those ports.

*The Road Roll-On/Roll-Off Terminal System.* The RRTS was established in 2003 by the government meant to provide greater access and connectivity between island provinces, while expanding the country’s transport system at minimum cost (Francisco 2017). This was an infrastructure investment that converted existing ports to be parallel to the national highway networks. The RoRo policy was aimed to improve travel and logistics efficiency in the country, as well as encourage private sector participation. The four main RoRo routes are the Western Nautical Highway, the Central Nautical Highway, the Eastern Nautical Highway, and the Pan-Philippine Highway. Table 4 shows the ports included in the RRTS.

**Table A1. Routes of the Road Roll-on/Roll-off Terminal System**

| <b>RRTS</b>                                    |  |
|--|--|
| <b>A. Western Nautical Highway</b>             |  |
| (Major routes)                                 | (Minor routes)   |
| Batangas City, Batangas – Calapan, Mindoro     | Lapuz, Iloilo – Jordan, Guimaras                             |
| Roxas, Mindoro – Caticlan, Aklan               | Tampi, Negros Oriental – Bato, Camarines Sur                 |
| Dumangas, Iloilo – Bacolod, Negros             | San Carlos, Negros – Toledo/ Cebu                            |
| Dumaguete, Negros – Pulauan, Dapitan           |  |
|  |  |
| <b>B. Central Nautical Highway</b>             |  |
| Pilar/Bulan, Sorsogon – Masbate City, Masbate  | Jagna, Bohol – Mambajao, Camiguin                            |
| Cawayan/Cataingan, Masbate City – Bogo, Cebu   | Benoni, Camiguin – Balingoan, Misamis Oriental               |
| Cebu City, Cebu – Tubigon, Bohol               |  |
|  |  |
| <b>C. Eastern Nautical Highway</b>             |  |
| Pilar/Bulan, Sorsogon – Masabate City, Masbate | San Ricardo, Southern Leyte – Surigao City, Misamis Oriental |
| Cataingan/Esperanza, Masbate – Naval, Biliran  |  |
|  |  |
| <b>D. Pan-Philippine Highway</b>               |  |
| Matnog, Sorsogon – Allen, Samar                | Liloan, Southern Leyte – Lipata, Surigao del Norte           |
|  |  |

Source: Philippine Ports Authority

Note: Listed major Ro-Ro routes of the Central Nautical Highway have been updated per PPA Memorandum Circular 07-2017.

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