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1 INTRODUCTION

1.1 BACKGROUND OF EVALUATION

The port of Batangas is one of the major ports in the Calabarzon Region and in the country. The port is 110 km south of Metro Manila and located in the northeastern part of Batangas Bay in Barangay Sta. Clara, Batangas City (see ***Figure 1.1***). The port contributes to enhancing logistics hub in the Subic-Clark-Manila-Batangas corridor. Batangas Port serves as an alternative to the Port of Manila.

FIGURE 1.1: LOCATION OF BATANGAS PORT

The Batangas Port has two facilities: (a) the rehabilitated Phase I which caters to passengers and cargo; and (b) the Phase II which caters to international container cargoes. The Batangas Port Development Project

Phase II (also known as BCT) was primarily intended to handle the expected excess container cargoes from the Port of Manila with the following completed facilities: a) container berth; b) domestic berth; c) boarding bridge at Phase I; d) terminal buildings; e) flyover; and f) other items such as cargo handling machinery and total port security system.

The Batangas Port Project also included livelihood projects for the affected residents. The project's total investment cost was US$266 million, funded by the Japan Bank for International Cooperation Agency (JICA) and the Government of the Philippines through the Philippine Ports Authority. The JICA conducted an ex-post evaluation study of the project in 2012 and rated the project as unsatisfactory.

This report contains the results and findings of the impact evaluation study of the Batangas Port Development Phase II Project (also called the Batangas Container Terminal or BCT).

1.2 PURPOSE, OBJECTIVE AND SCOPE

As stated in the Terms of Reference (see ***Annex A***), the purpose of this study is to assess the gains and benefits of the Batangas Port Development Phase II Project in relation to the policy of shifting container cargoes from the Port of Manila. The project impacts to be measured include the following:

- Assess if there was a decrease in port congestion in Manila International Container Port as an effect of the transfer of some containerized cargo in Batangas Port;
- Measure performance of the Batangas Port in handling foreign cargo in terms of capacity and accessibility;
- Measure the growth of heavy industries in the Batangas City-Bauan area and other industries in the Province of Batangas;
- Measure the growth in the local and regional economy; and
- Identify and assess the environmental and social impacts of the project as well as other benefits and gains (both planned and unplanned) and impact (intended and unintended) of the project to the beneficiaries.

The evaluation will also identify the lessons learned in the implementation of the project which could be adopted in future port projects. Although not explicitly required in the Terms of Reference, the Consultant was also

requested to recalculate the Economic Internal Rate of Return (EIRR) of the Batangas Port Phase II Project.

To attain the study's objectives, the Consultant formulated the evaluation design framework, approach and methodology, and data analysis (see ***Annex B***).

2 METHODOLOGY

2.1 DESCRIPTION OF METHODOLOGY

In line with the discussion during the kick off meeting with NEDA, the Consultant formulated the evaluation design framework, evaluation questions, approach and methodology and data analysis. The framework of the study is shown in ***Figure 2.1***. The study assessed the statistical and other relevant details on international container traffic for Batangas Port Phase II and MICT, the attributes of Port facilities, economy of Batangas Port hinterland giving emphasis on the industrial and manufacturing sectors and the environmental/social impacts of the Port Project.

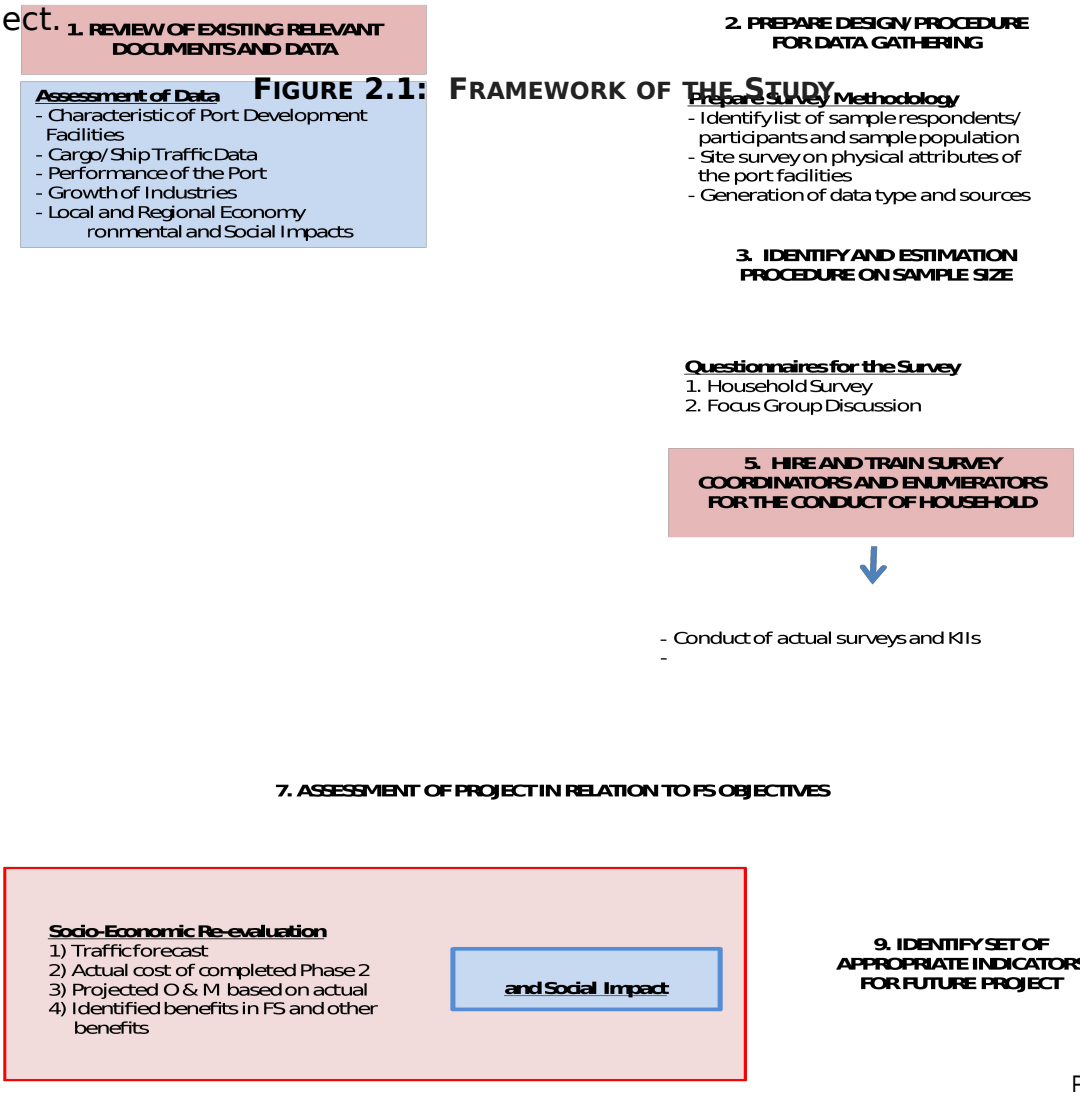


FIGURE 2.1: FRAMEWORK OF THE STUDY

2.2 DATA COLLECTION AND ANALYSIS

Four tools were used in the collection of needed data and information, namely: desk review of relevant documents and reports, survey, focus group discussion (FGD) and key informant interview (KII).

Desk review of relevant documents and reports

An extensive review of relevant documents and reports was made including, among others, the documents and reports listed in ***Annex C.***

Survey of Relocated Households

An important component of the Phase II Development was the relocation of families living within the vicinity of the project site. These families had their residences in areas to be cleared to give way to the construction of Phase II. Aside from being relocated to a new site, the families were provided training on livelihood activities and other forms of benefits. Face-to-face survey was conducted to understand the extent that the programs set out for them actually benefitted them. Details of the conduct and the results of the survey are presented in ***Annex D***.

Focus Group Discussions (FGD) and Surveys

Focus group discussions were used to learn more about opinions on a designated topic, and then to guide future action. The group's composition and the group discussion are carefully planned to create a non-threatening environment, so that participants feel free to talk openly and give honest opinions. Since participants are actively encouraged to not only express their own opinions, but also respond to other members and questions posed by the leader, focus groups offer depth, nuance, and variety to the discussion that would not be available through surveys. Additionally, because focus groups are not only directed but also expressive, they can yield a lot of information in a relatively short time. In short, focus groups are a good way to gather in-depth information about a group’s thoughts and opinions on a topic. Details of the conduct and results of the FGDs are presented in ***Annex E***.

The study also used the survey approach to nearby establishments, industries, custom brokers and truckers in order to verify the factors that affect their decisions on their choice of port and on their satisfaction ratings of their chosen port.

Key Informant Interviews

Interviews were conducted of government agencies and private operator particularly Asian Terminal Inc. (ATI) that have first-hand knowledge about the planning, implementation and operation of Phase II of Batangas Port. The government agencies include the PPA PMO of Batangas and, PPA Manila Head Office, PPA-MO NCR South, the Local Government of Batangas City and the Bureau of Custom (BOC). Interviews were also conducted among relevant personnel of the Department of Trade and Industry as well as with organizations that use the Batangas Port. To ensure the comprehensive coverage of all relevant stakeholders, additional interviews were conducted among the nearby establishments/industries, custom brokers and truckers in response to the RPMC and SCID recommendations.

In addition to qualitative information and opinion on the Port Project, data and statistics were made available by the various agencies such as traffic volumes, the number of industries located in the region, and other relevant information. Details of the conduct and results of the KIIs are presented in ***Annex F***.

3 FINDINGS

3.1 GENERAL FINDINGS

In achieving the aforesaid objectives, the Consultant assessed the characteristic and existing condition of BCT as well as the Manila Ports.

3.1.1 Current Condition and Performance of Batangas Port Phase II

Existing Facilities

Batangas Port has a total land area of 120 hectares including the basins of which 70 hectares have been utilized for port development and 50 hectares are still available for future development.

The current facilities at BCT are used as one of the indicators to measure the capacity of the port to handle foreign cargo. The existing facilities of Batangas port Phase II consist of the following:

TABLE 3.1: EXISTING FACILITIES

Item	Completed Project
1. Container Berth	2 Berths: Total 450m Water depth: 15m
2. Dredging	Water depth: 13m, 4.1 million m^3 Land excavated: 330,000 m^3
3. Reclamation	Container terminal: 2.1 million m^3 General cargo berth: 700,000 m^3
4. Pavement Works	Pavement construction: 16.7 ha, including container yard of 15 ha
5. Berthing Space for Phase I	3 Berths
6. Attaching a boarding bridge with the ferry dock for Phase I	1 set (as planned)
7. Terminal buildings, electricity, water line, sewerage and facilities for waste disposal	1 set (as planned)
8. Flyover construction work	Extension: 824 m
9. Additional Items	Installing cargo handling machinery*1 and total port security system*2: *1. Two (2) quay side gantry cranes and four (4) rubber-tired gantry cranes *2. This system consists of the following five (5) functions: Gate Management System, Vessel Traffic Management System, Closed Circuit Television System, RO-RO Inspection System and Patrol Boat

Batangas Port Phase II (September 25, 2017)

At present, the Batangas Port Phase II facilities generally have the following physical attributes:

- The number of berth for container terminal berth/wharf has been maintained to 2 Berths with the length of 450 lineal meters and depth of (-)15 m;
- Container yard with total area of 12 hectares, the 6.6 hectares is utilized for throughput of 300,000 TEU's per annum and Stacking 7,150 TEU (Reefer Van stack Yard 480 TEUs of refrigerating containers);
- Basin area and access channel of 32 hectares with a depth of (-) 13rm.
- Access Road Public (1,840m long 3- Lane Two way; Service road (1,300 m long) 6- Lanes Fly-over construction work became longer than the initial plan taking into account the actual land shape;
- Installation of cargo handling machinery.
- Installation of port security system called the International Ship and Port Facility Security (ISPS) in compliance with International Maritime Organization (IMO) regulation on 2002 following the IMO adoption of a new regulation in the 1974 International Convention for the Safety of Life at Sea (SOLAS).
- Installation of navigational aids for navigational safety.

Institutional Arrangement

For the Batangas Port, a contract was awarded to Asian Terminal Inc. (ATI) on 20 October 2005 effective for a period of 10 years. It authorized the contractor to manage, operate, and provide cargo-handling services at the Port of Batangas, Phase I including the newly constructed General Cargo Berth and passenger services at the Fastcraft Passenger Terminal Building. Under the said contract, the financial obligations of ATI include: (a) for cargo handling and related services, remittance of 10% of the gross income from handling domestic cargoes and 20% of gross income for handling foreign cargoes, whether billed/unbilled and collected/uncollected, from all sources in connection with its arrastre, stevedoring and other related handling services provided; and (b) for leasing and operating the Fastcraft Passenger Terminal and its facilities at Phase I, payment of monthly rental fee of P441,666.67, exclusive of VAT, subject to yearly escalation of 5%, compounded annually during the term of the contract.

A separate contract for the management, operation, maintenance, development, and operation of Container Terminal “A-1”, Phase II was awarded to ATI on 25 March 2010 for a period of 25 years.

The JICA Impact Assessment

Based on JICA’s Impact Assessment Report, there were variations made on port facilities from project appraisal to project completion as follows:

a. Dredging works increased due to actual land shape and geology;
b. The amount of reclamation and pavement works for the container terminal slightly decreased due to land acquisition limitations that were less than planned;
c. Fly-over construction work became longer than the initial plan taking into account the actual land shape;
d. Installation of cargo handling machinery;
e. Installation of port security system called the International Ship and Port Facility Security (ISPS) in compliance with International Maritime Organization (IMO) regulation on 2002 following the IMO adoption of a new regulation in the 1974 International Convention for the Safety of Life at Sea (SOLAS).

Based on JICA's post-evaluation of the project in 2012, four (4) major factors affecting its viability were identified as follows:[1]

a. Weak government policy action;
b. Delays in civil engineering works;
c. Delays in the selection of the port operator; and
d. Insufficient interest from the private sector to migrate from Manila to Batangas port.

The report showed that delays in the construction and selection of a port operator had led to Batangas port operating at a minimum level. The port was planned for completion in 2002 but was not fully completed until 2007 because of delays in land acquisition and resettlement. As a result of this delay, the selection of port operator was delayed from August 2007 to June 2009. During that time, a temporary outsourcing agreement was in place with Asian Terminals Inc., who is the present operator of the Batangas Port. Full-scale operations of the port only began in March 2010. The result of the evaluation also found that JICA had overlooked several conditions at the Batangas Port when it initially did the study in 1984, which essentially magnified the expected interest coming from the private sector. One of the conditions overlooked was that companies located between Batangas and Manila hire shipping companies to haul shipments, and these shipping companies choose the port that would handle the cargo. Another faulty assumption was that the cost of shipping was equivalent to overland transport cost when in fact overland transport cost across Luzon was found to just be a small fraction of the total transport cost in shipping. Most came from maritime transport depending on shipment destination or origin. It was also found that Philippine-based offices did not select the routes but rather the companies' main office. And lastly, there was a large risk associated in changing shipping routes.

1 JICA report finds Batangas Port to be less viable, Infrastructure, Philippine Analyst, pp 64-65, April 2014.

Thus, shipping companies were cautious when adjusting routes and changing ports. Because of these facts, stakeholders were taking the "wait-and-see approach" rather than taking the bait.

According to the report, "The project has shown only an extremely limited effect on local employment and the economic growth of local businesses; therefore, its effectiveness and impact is low." It found that the Economic Internal Rate of Return (EIRR) dropped drastically from 22.9% at the time of appraisal to -8.1%. But the report added, "Overall, however, with its financial uncertainties...sustainability of the project is fair." The current status of the operation and maintenance of the project is, so far, running smoothly with regards to the organization and technical aspect of it. But in terms of financial stability, the maintenance of the project is uncertain. The report stated that as the volume handled is lower than expected a significant deficit is deemed to occur.

In the attempt to encourage the use of Batangas Port, the Philippine Ports Authority has implemented a measure that reduces port charges on vessels. However, to be fully effective, the report suggested that the expansion policy in the Port of Manila be changed. It added that since the capacity of the Port of Manila was increased, the chances of the Batangas Port being chosen as an alternative narrowed. But to stop any expansion activities in the Port of Manila is impractical. The government should just be able to implement better incentives for shipments and vessels in the Batangas Port and make it into a smart choice for shipping companies.

3.1.2 Current Condition and Performance of Manila Ports

Location, Facilities and Cargo Traffic

The Manila Port has collective facilities and terminals that process maritime trade function in harbors that serve primarily the Metro Manila Area as well as the surrounding provinces and cities. It is located in the Port Area and the Tondo area of Manila facing Manila Bay. It is the largest and the premier international shipping gateway to the country. The Philippine Ports Authority, a government-owned corporation, manages the Port of Manila. Its jurisdictional district includes the Manila North Harbor (MNH), Manila South Harbor (MSH), and the Manila International Container Terminal (MICT), as shown in ***Figure 3.1***. All three (3) ports are operated by private concessionaires.

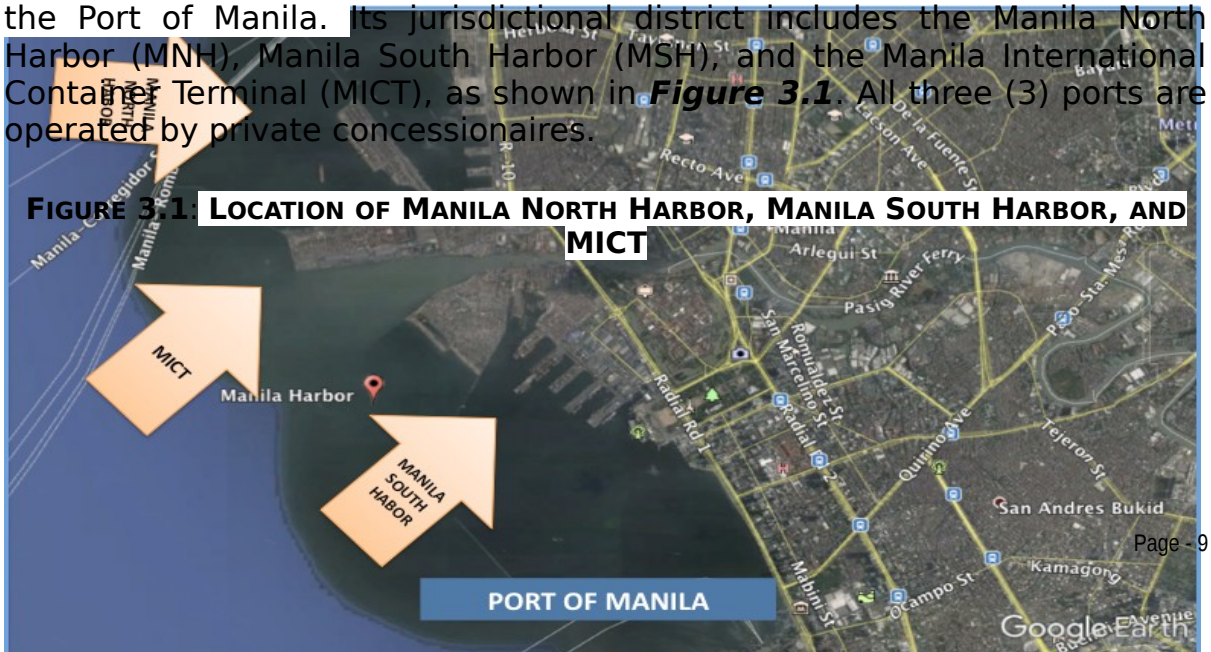


FIGURE 3.1: LOCATION OF MANILA NORTH HARBOR, MANILA SOUTH HARBOR, AND MICT

The MICT is operated by International Container Terminal Services Inc. (ICTSI), has a capacity of 2.5 million TEUs, and handles mainly international container cargoes. The Manila North Harbor is operated by Manila North Harbor Port Inc. (MNHPI) and has a capacity of 2 million TEUs of mainly domestic cargoes, while the Manila South Harbor is operated by Asian Terminals Inc. (ATI) and has a capacity of 1.2 million TEUs. These are summarized in ***Table 3.2***, including the actual volume of cargoes handled by each port during the past few years.

TABLE 3.2: OPERATORS AND CAPACITIES OF THE MANILA PORTS

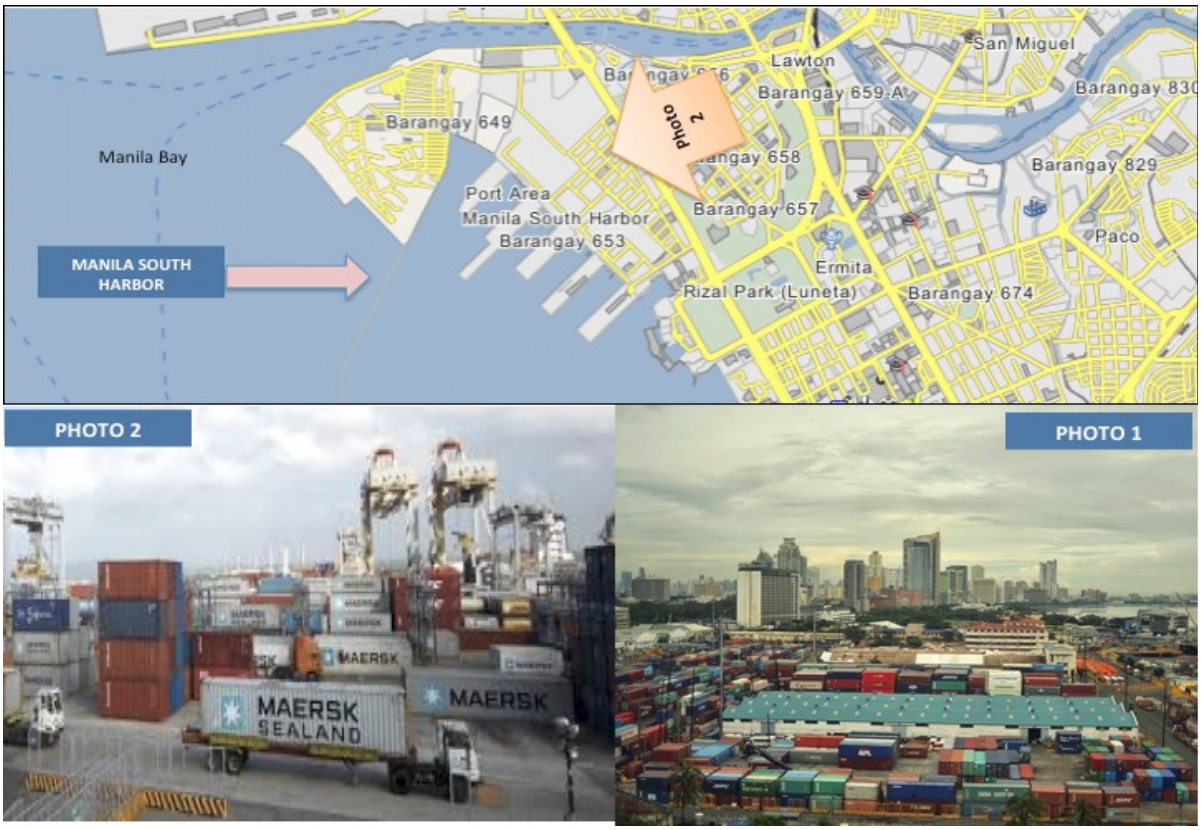
Port	Operator	Container Traffic In Twenty-Foot Equivalent Unit	
		Actual	**Capacity***
Manila International Container Terminal	International Container Terminal Services Inc. (ICTSI)	2,173,987.50 (2016) 2,275,640.25 (2017)	2,500,000
Manila North Harbor (domestic)	Manila North Harbor Port Inc. (MNHPI)	1,137,455 . 00(2015)	2,000,000
Manila South Harbor	Asian Terminals Inc. (ATI)	877,593.00 (2015) 1,046,172.00 (2016) 1,131,665.50 (2017)	1,200,000

*Source: * Philippine Development Plan 2017-2022*

The Manila North Harbor occupies an area of 53 hectares, has 7 piers namely Piers 2, 4, 6, 8, 10, 12 and 14 and is accessible by road through Radial Road 10. The port handles mainly domestic cargoes and passengers from/to different parts of the country and thus is not included in the current study.

The Manila South Harbor has an area of 80 hectares, has 5 piers, namely, Piers 3, 5, 9, 13 and 15, and is accessible by road through Bonifacio Drive (see ***Figure 3.2***).

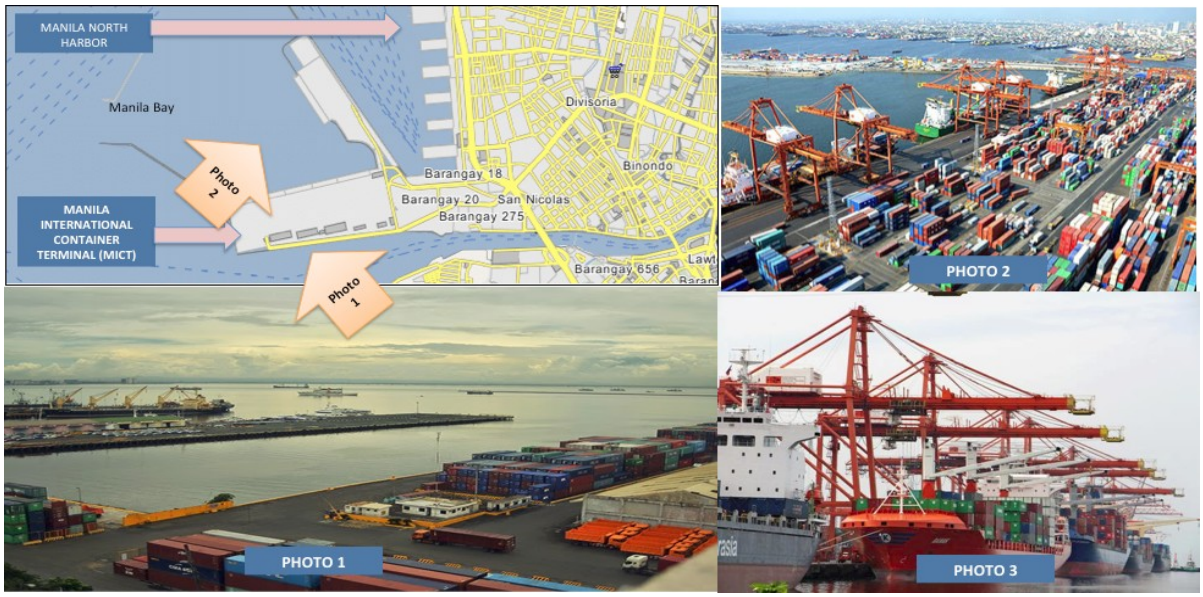
FIGURE 3.2: THE MANILA SOUTH HARBOR



The Manila South Harbor handled a record-breaking volume of 1 Million TEUs in 2016, which is 87% of MSH capacity. The volume of cargo further increased to 1.13 Million TEUs in 2017, which is about 94% of MSH capacity. To meet this demand, ATI procured in December 2016 two quay cranes and additional port equipment in 2017 in order to attain higher terminal productivity and to deliver faster service. Consequently, MSH has been operating at an optimum level with yard utilization averaging just below 70% and berth occupancy averaging just below 65%. Despite the significant increase in volume, its production has averaged above the industry standard of 25 Gross Moves per Crane per Hour (GMPH), and even recorded world-class levels of over 30 GMPH during some months.

The MICT lies between the North Harbor and the South Harbor, protruding westward into the Manila Bay, Northside of the mouth of Pasig River, the city's main waterway (see ***Figure 3.3***). The entrance to the MICT is through a two-kilometer long fairway. The channel is 350 meters at the entrance gate and leads to a turning basin with an area of approximately 100 hectares, bounded by a 12-meter deep contour line, located mostly at the southern portion of the inner basin. A total of two kilometers of breakwaters with an average height of 2 meters above mean low water protect the MICT inner basin. A designated quarantine anchorage for vessels entering MICT is located about 3 kms from the entrance and has a controlling depth of 12 meters.

FIGURE 3.3: THE MANILA INTERNATIONAL CONTAINER PORT



The MICT has a straight wharf with a total length of 1,300 meters, providing five berths numbered 1 to 5 from the seaward end. Berths 1 to 4 are all 250 meters long with a common depth of 12.5 meters. Berth 5 is 300 meters long and has a depth of 14.5 meters. Berth 6 is on the northern side of the basin, opposite to and having the same dimensions as Berth 5. A roll-on/roll-off facility is located at the extreme west of the MICT wharf. It includes a fully adjustable ramp to compensate for tidal variations and weight shifts during vessels loading. It is accessible to forklifts trucks and tractors with 40-foot containers.

Among the three ports, the MICT is the Philippines' busiest, most modern, and largest container terminal occupying a total land area of 93.9 hectares with an annual capacity of 2.5 - 2.75 million twenty-foot equivalent units (TEUs). It also offers excellent front and back-end services. It is a dedicated container terminal which mainly handles international containerized cargoes. The MICT is linked by rail to an inland container depot (ICD) in Laguna, operated by ICX Corporation, a subsidiary of ICTSI. Containers are transported between MICT and the Laguna ICD by a 2,000 HP locomotive and 26 wagons. Based on data from PPA, MICT handled 2,173,987.50 TEUs in 2016 and 2,275,640.25 TEUs in 2017, which are 87% and 91% of port capacity, respectively.

Based on the Terms of Reference (TOR), this study covers mainly the current condition and performance of the Manila International Container Terminal and to a lesser extent the Manila South Harbor, since Manila South Harbor is operated by the same firm operating the Batangas Container Terminal, namely, Asian Terminals Inc.
The two ports, MICT and MSH (handling international container cargoes), had a total annual cargo traffic of 3.22 Million TEUs in 2016. In 2017, they

handled 3.41 Million TEUs representing an increase of 6% from the prior year. These data are summarized in ***Table 3.3***.

TABLE 3.3: CARGOES HANDLED BY MICT AND MSH

MICT			Manila South Harbor		
Year	2016	2017	Year	2016	2017
Foreign	2,173,987.50	2,275,640.25	Foreign	1,046,172.00	1,131,665.50
Import	1,175,675.00	1,215,071.25	Import	480,343.75	542,435.31
Export	998,312.50	1,060,569.00	Export	565,828.25	589,230.19
Domestic	-	-	Domestic	-	-
Import	-	-	Import	-	-
Export	-	-	Export	-	-
TOTAL	2,173,987.50	2,275,640.25	TOTAL	1,046,172.00	1,131,665.50
TOTAL FOR MICT & MANILA SOUTH					
2016	3,220,159.50				
2017	3,407,305.75				

In terms of the number of vessel calls, both MICT and MSH experienced lower numbers during 2013 and 2014. However, in 2015 and 2016 the number of vessel calls at MICT went up, while that for MSH further declined in 2015 but recovered and increased in 2016. Accordingly, the combined MICT and MSH annual number of vessel calls increased by 6.22% in 2015 and by 101.41% in 2016 (see ***Table 3.4***). ***Table 3.5*** presents additional and more detailed data on the annual vessels traffic in MICT and MSH. The data from 2010 to 2016 in terms of annual cargo traffic in metric tons are presented in ***Table 3.6***, and in greater detail in ***Table 3.7***. These data show that by 2016, there was already robust traffic in both MICT and MSH in terms of annual vessel calls and annual volume of cargoes handled.

TABLE 3.4: ANNUAL NUMBER OF VESSEL CALLS IN MICT AND MSH

Year	No. Of Vessels	% Increase/ Decreased	Vessels Sizes In GRT	% Increase/ Decreased
2012	4,138.00		73,031,996.00	
2013	3,959.00	-4.33%	69,855,934.00	-4.35%
2014	2,720.00	-31.30%	52,217,860.00	-25.25%
2015	2,796.00	2.79%	55,467,180.64	6.22%
2016	3,794.00	35.69%	111,718,933.00	101.41%

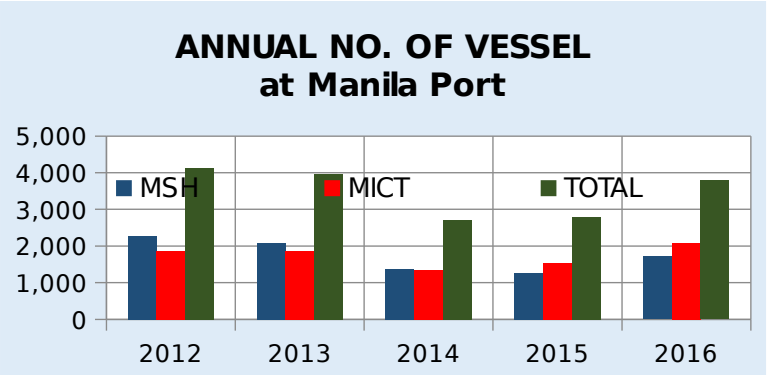


TABLE 3.5: DETAILED ANNUAL VESSELS TRAFFIC AT MICT AND MSH

Port Name	Particular	2012	2013	2014	2015	2016
MICT	1. Number of Vessels	1,862	1,877	1,350	1,531	2,082
	Domestic	92	92	42	-	-
	Foreign	1,770	1,785	1,308	1,531	2,082
	2.Gross Registered Tonnage	34,345,059	34,137,114	28,388,094	33,196,830	43,972,027
	Domestic	883,388	883,384	371,152	-	-
	Foreign	33,461,671	33,253,730	28,016,942	33,196,830	43,972,027
Manila South Harbor	1. Number of Vessels	2,276	2,082	1,370	1,265	1,712
	Domestic	355	207	0	8	0
	Foreign	1,921	1,875	1,370	1,257	1,712
	2. Gross Registered Tonnage	38,686,937	35,718,820	23,829,766	22,270,351	30,225,493
	Domestic	5,712,779	3,256,304	0	3,225	0
	Foreign	32,974,158	32,462,516	23,829,766	22,267,126	30,225,493
TOTAL	1. Number of Vessels	4,138.00	3,959.00	2,720.00	2,796.00	3,794.00
	Domestic	447.00	299.00	42.00	8.00	802.00
	Foreign	3,691.00	3,660.00	2,678.00	2,788.00	5,612.00
	2. Gross Registered	73,031,996	69,855,934	52,217,860	55,467,180	111,718,933

	Tonnage					
	Domestic	6,596,167	4,139,688	371,152	3,225.06	12,308,946
	Foreign	66,435,829	65,716,246	51,846,708	55,463,955.58	99,409,987

TABLE 3.6: ANNUAL CARGO TRAFFIC IN MICT AND MSH (IN MT)

Year	Volume Of Cargo at MICT	% Increase/ Decreased	Volume of Cargo at MSH	% Increase/ Decreased
2012	19,966,465		8,380,491	
2013	20,919,293	4.55%	7,526,390	-11.35%
2014	21,430,567	2.39%	5,095,732	-47.70%
2015	21,573,324	0.66%	4,719,010	-7.98%
2016	23,255,594	7.23%	5,921,419	20.31%

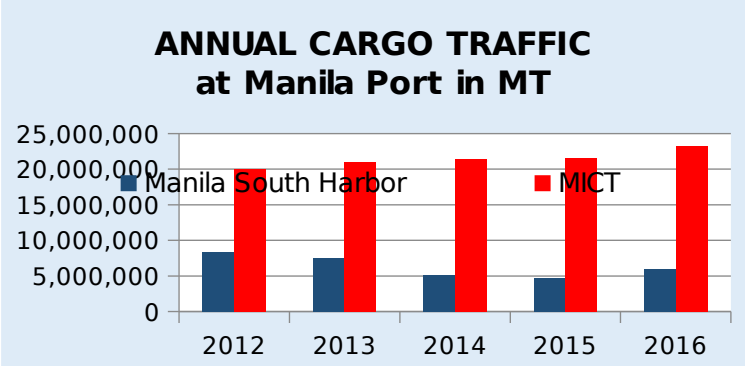


TABLE 3.7: ANNUAL CARGO TRAFFIC AT MANILA PORT HARBOR

Port Name	Particular	2012	2013	2014	2015	2016
MICT	**Total Cargo in MT**	**19,966,465.00**	**20,919,293.00**	**21,430,567.00**	**21,573,324.00**	**23,255,594.00**
	a. Domestic (Containerized)	1,054,242	1,128,068	396,309	0	0
	b. Foreign	18,892,293	19,771,907	21,025,552	21,573,324	23,255,594
	c. Transit Cargo	19,930	19,318	8,706	0	0
	d. Foreign (Transhipment)	113,668	118,966	65,550	6,888	132,795
Manila South Harbor	**Total Cargo in MT**	**8,380,491**	**7,526,390**	**5,095,732**	**4,719,010**	**5,921,419**
	a. Domestic (Containerized)	1,482,220	891,274	-	10,807	-
	b. Foreign	6,898,271	6,635,116	5,095,732	4,708,202	5,921,419
	c. Transit Cargo	0	0	0	0	0
	d. Foreign (Transhipment)	0	0	0	0	0
	e. Passenger	161,500	195,000	27,013	29,970	43,508
TOTAL	**Total Cargo in MT**	28,346,956.00	28,445,683.00	26,526,298.69	26,292,333.53	29,177,013.26
	a. Domestic (Containerized)	2,536,462	2,019,342	396,309	10,807	-
	b. Foreign	25,790,564	26,407,023	26,121,284	26,281,526	29,177,013
	c. Transit Cargo	19,930	19,318	8,706	-	-
	d. Foreign (Transhipment)	113,668	118,966	65,550	6,888	132,795
	e. Passenger	161,500	195,000	27,013	29,970	43,508

Institutional Arrangements

Manila International Container Terminal

In 1988, PPA entered into an agreement with the International Container Terminal Services, Inc. (ICTSI) for the management, operation, and development of the MICT at the Port of Manila, subject to the direct control and supervision of PPA. It provides for the remittance of Fixed Fee and Variable Fee from its gross income, which shall include all income generated by ICTSI from the MICT from every source and on every account except interest income, whether collected or not, to include but not limited to harbor dues, berthing fees, wharfage, cargo handling revenues, carnage fees, stripping/stuffing charges, and all other revenues from ancillary services.

A renewal of the agreement was made on 20 April 2005 (Renewal/Extension Agreement), which provides for an extension of the contract period for another 25 years reckoned from 19 May 2013 (expiration of 'Extended Term" up to 18 May 2038) and committed investment of US$125 million covering the period 2004 to2012 for Berth construction and various port cargo-handling/IT equipment installation.

In 2007, a "Supplemental Contract" to the contract executed on 19 May 1988 which was renewed in April 2005, was signed granting the contractor the authority to provide arrastre, stevedoring and other related cargo-handling services to domestic vessels and cargoes at MICT for additional investment amounting to about US$146.4 million for Berth construction, Rehabilitation of Berths 1-4 and additional port cargo-handling equipment from 2013 onwards.

Manila South Harbor

The latest contract entered into with Asian Terminal Inc. (ATI) for the management and operation of South Harbor was the Third Supplemental Contract executed on 19 October 2007, which extended the contract up to 18 May 2038. The 3rd Supplement covers areas/services under the (a) Lease Agreement dated 15 January 1997 covering certain areas of South Harbor intended for use as international and domestic storage areas, and (b) the Second Supplement which expanded the scope of services of the contractor to include the management of domestic terminal facilities.

3.2 PERFORMANCE ASSESSMENT

This section covers the assessment of the performance of the Batangas and Manila Ports in relation to the objectives of the current study.

3.2.1 Assessment of port congestion in MICT as effect of cargo transfer to Batangas Port

The Manila Port, which includes the MICT, is the busiest and most important shipping gateway for international trade in the country. It is about 110 kilometers to Batangas Port, which links to other areas in Western Visayas, Mindanao and other countries.

MICT is connected to a 1 kilometer 6-lane access road to Manila's main thoroughfares with another 4-lane road which links to Manila North Harbor. Previously, there was a rail-link to Laguna but it had ceased operation. At present, containerized cargoes are transported to the Laguna Inland Container Depot by containerized trucks.

DISTANCE FROM MANILA TO BATANGAS

TYPE	DISTANCE		
	Kilometer	*Nautical Miles*	*Miles*
Air distance	98	53	61
Land distance	110	59	68
Sea distance	224	121	139

An assessment of the port congestion at MICT was made by the Philippine Institute for Development Studies (PIDS) in two separate publications in 2015 and 2016.[2] [3] The Consultant agrees with the PIDS assessment and thus we present the findings in some detail here.

The PIDS reports described the condition and performance of the Port of Manila in 2014 when the port congestion occurred. The Port of Manila was operating at almost full capacity thus putting pressure not only on the roads within the Manila Port Area but also along major roads in Metro Manila brought about by port traffic. Accordingly, the City of Manila imposed a truck ban on 4 February 2014 limiting the operating hours of container trucks plying the city streets. This led to the delay in the delivery of goods, accumulation of containers at the port, a slowdown in the logistics chain in and out of the port and created the problem of returning empty containers. On 13 September 2014, the City of Manila

2 Patalinghug, Epictetus, et. al., A system-wide study of the logistics industry in the Greater Capital Region, Discussion Paper Series no. 2015-24, Philippine Institute of Development Studies, March 2015.

3 Patalinghug, Epictetus, et. al., Easing port congestion and other transport and logistics issues, Philippine Institute of Development Studies, 2016.

lifted the truck ban indefinitely, but the problem of port congestion, high trucking costs, surcharge imposed by shipping lines related to removing large quantities of empty containers, and the lessening of road use due to construction projects remained. ***Table 3.8*** shows the chronology of events of the Manila truck ban.

TABLE 3.8: CHRONOLOGY OF EVENTS OF THE MANILA TRUCK BAN

Date	Event
04 Feb 2014	City of Manila Ordinance No. 8336 prevents trucks with gross weight of 4.5 tons and above from plying city streets from 5:00 am to 9:00 pm
24 Feb 2014	The truck ban was modified to provide a five-hour window (10:00 am– 3:00 pm) for loaded trucks for six months; trucks with empty containers were not covered.
12 May 2014	The truck ban was again modified to provide a seven-hour window (10:00 am–5:00 pm) for loaded trucks.
09 Jun 2014	The Metro Manila Council issued a resolution allowing cargo trucks from Manila ports to use an express lane on Roxas Boulevard for 24 hours a day, Mondays to Sundays, except Fridays, from June 10 to December 10, 2014.
18 Aug 2014	The City of Manila opened a second 24-hours-a-day express lane on the stretch of Quirino Avenue and Osmeña Highway.
01 Sep 2014	The Metro Manila Development Authority (MMDA) restricted cargo trucks to only use a single lane on C5 road to help ease traffic flow.
08 Sep 2014	MMDA implemented the “last mile” project that allowed 3,000 trucks to move the cargoes that had long piled up at the ports and bring them to their warehouses up to September 22, 2014. The trucks with “Lastmayl” stickers were allowed to complete their journey during the hours covered by the truck ban in Manila and other cities.
13 Sep 2014	Manila Mayor Joseph Estrada issued EO 67 that lifted the truck ban indefinitely.
16 Sep 2014	President Benigno S. Aquino III issued EO 172 that declared the ports of Batangas and Subic as extensions of Manila ports during times when there are port congestion and other emergency cases to be determined by the PPA.

As a result of the port congestion, the cost of shipping a 20-ft or a 40-ft container by truck doubled after the truck ban. Likewise, port congestion led to a time delay in cargo releasing. The economic cost of the port congestion during the seven-month period of the Manila Truck Ban was estimated at PhP 43.85 billion due to BOC revenue decrease, output and productivity losses, and vehicle operating costs. The port congestion increased the price of trucking services and reduced the number of turn-around. But even without the truck ban, truckers complained of fees and charges imposed on them such as payment to security guards just to exit the port after unloading the containers, container imbalance charge paid to the shipping lines, and port congestion surcharge paid by the owner of the goods to the shipping lines.

An assessment of the port congestion in MICT in 2014 can be made by looking at the annual berth throughput, the average waiting time, the ship's turnaround time at berth, and the berth occupancy rate.

The average growth rate of cargo throughput at MICT during the period 2012 to 2016 is 3% (see ***Table 3.9***). It may be noted, however, that in 2014 and 2015 (the years affected by the congestion), the growth rate of the annual cargo throughput grew by only 2% and 1%, respectively. These are very much lower that the growth rate of 5% in 2013 and 8% in 2016. This may imply that some cargoes were shifted to other ports, in particular, to the Batangas Port.

TABLE 3.9: ANNUAL CARGO THROUGHPUT AT MICT (IN METRIC TONS)

Year	Cargo Throughput	Difference	Percentage
2012	19,966,465		
2013	20,919,293	952,828	5%
2014	21,430,567	511,274	2%
2015	21,573,324	142,757	1%
2016	23,255,594	1,682,270	8%
Average Growth Rate			3%

Table 3.10 provides data on the number of annual shipcalls, total GRT, waiting time, service time, and berth time at MICT during 2012 to 2016. It is evident that the annual number of shipcalls dropped to only 1,350 in 2014 (the year of port congestion) from 1,877 in 2013, but recovered slightly to 1,531 in 2015. Compared to 2013 and 2015, the total GRT also decreased in 2014 to only 28.388 million. The waiting time, service time, and berth time all increased to 95,852 hrs. 61,216 hrs, and 157,068 hrs, respectively, compared to the corresponding times in 2013 and 2015. Finally, the berth output decreased to only 464 tons/hour from 736 tons/hour in 2013, but recovered to 572 tons/hour in 2015. All these data reflect the port congestion at MICT that was experienced in 2014.

TABLE 3.10: SHIPCALLS, GRT, WAITING, SERVICE AND BERTH TIME AT MICT

Particular	2012	2013	2014	2015	2016
SHIPCALLS	**1,862**	**1,877**	**1,350**	**1,531**	**2,082**
Domestic	92	92	42	0	0
Foreign	1,770	1,785	1,308	1,531	2,082
TOTAL GRT	**34,345,059**	**34,137,114**	**28,388,094**	**33,196,830**	**43,972,027**
Domestic	883,388	883,384	371,152	0	0
Foreign	33,461,671	33,253,730	28,016,942	33,196,830	43,972,027
WAITING TIME (hrs.)	15,024	15,172	95,852	30,033	25,163
Domestic	1,242	1,073	2,684	0	0
Foreign	13,782	14,099	93,168	30,033	25,163

Particular	2012	2013	2014	2015	2016
SERVICE TIME (hrs.)	**51,320**	**46,407**	**61,216**	**57,966**	**56,089**
Domestic	2,349	2,417	1,450	0	0
Foreign	48,971	43,990	59,766	57,966	56,089
BERTH OUTPUT (tons/hr.)	**66,344**	**61,579**	**157,068**	**87,999**	**81,251**

Waiting time is the delay between the ship's arrival in port and its tying up at the berth. It can be quite large when no vacant berths are available because of congestion, or if the tides are against the vessel, or when strikes or other similar events occur. Normally, waiting time is only a small fraction of turnaround time. As shown in ***Table 3.11***, the average waiting time at MICT is only one day. However, in 2014, the waiting time increased significantly to 6 days, again reflecting the traffic congestion experienced during that year. As a consequence, the ship's turnaround time, which is usually 2 days only, increased three-fold to 6 days.

TABLE 3.11: AVERAGE WAITING TIME AND SHIP'S TURNAROUND TIME AT MICT

Year	Ships Turnaround Time		Average Waiting Time	
	(hrs)	*(days)*	*(hrs)*	*(days)*
2012	35.63	2	154.70	6.5
2013	32.81	2	19.56	1
2014	116.35	6	135.13	6
2015	57.48	3	19.62	1
2016	39.03	2	12.09	1

MICT has 1,300 meters berthing facilities that can accommodate 5 vessels at same time. There are two important indicators on how intensively berth facilities and resources are used: berth occupancy, which is the proportion of time a berth is occupied by vessels; and capacity utilization, which is the proportion of actual traffic to either the optimum capacity using (OBOR) or maximum capacity using 100% OBOR. ***Table 3.12*** shows that the berth occupancy rate increased to 130% in 2014 from only 100% in 2013.

TABLE 3.12: BERTH OCCUPANCY RATE AT MICT

Year	Berth Occupancy Rate
2012	112%
2013	100%
2014	136%
2015	132%
2016	128%

In terms of yard utilization, the generally accepted ideal level ranges from 70% to 80%. This level has already been achieved, in fact already exceeded by MICT, with yard utilization of 87% in 2016 and 91% in 2017 (see ***Table 3.13***). This implies a need to expand the cargo handling facilities or operate them at higher efficiencies. Alternatively, shifting some cargoes to the Batangas Port may be considered in order to maintain an ideal yard utilization level.

TABLE 3.13: YARD UTILIZATION AT MICT

Year	Yard Utilization	
	TEU's	*%*
2016	2,173,987.50	87
2017	2,275,640.25	91
MICT Capacity	2,500,000.00	100

In meetings with PPA NCR South, the Consultant was informed that the cargo volume in Manila Port consists mostly of construction materials needed for the booming construction industry in Metro Manila as well as consumer goods destined for the various stores and supermarkets in Metro Manila. The warehouses for these goods are also mainly located in Metro Manila. Thus, there seems limited scope for shifting such cargoes to

the Batangas Port. According to PPA, the 2014 traffic congestion has been addressed not only by shifting some cargoes to the Batangas Port by also by implementing the Truck Appointment and Booking System (TABS) and imposing high storage fees at the port. Congestion is expected to further decrease with the opening of the gate in Ternate, Cavite as well as the continuing improvement in cargo handling facilities at MICT. Accordingly, the average yard utilization of the two international ports, namely, MICT and MSH, has eased despite the temporary shutdown of the BOC's Green Lane operations and subjecting majority of imported cargoes to inspection.

3.2.2 Performance of Batangas Port in handling foreign cargo in terms of Capacity and Accessibility

3.2.2.1 Accessibility of Batangas Port

The Batangas Port is connected to Manila and the rest of Calabarzon with good, concrete, and well-paved roads of 4 to 6 lanes, including the South Luzon Expressway (SLEX) and the Southern Arterial Road (STAR Tollway) as shown in ***Figure 3.4***.

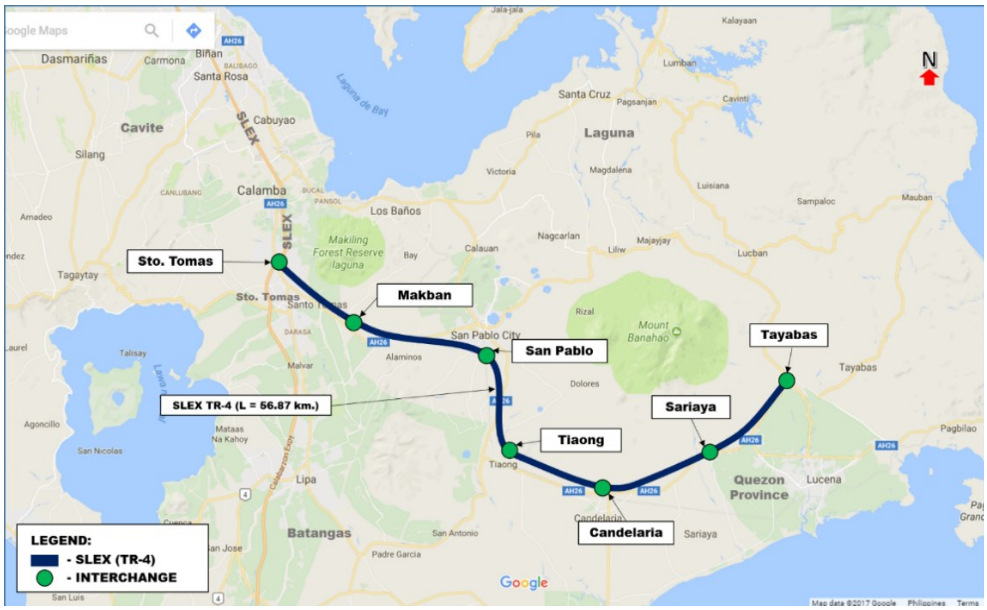
FIGURE 3.4: BATANGAS PORT VIA MANILA

The port diversion road starts at Balagtas Rotonda of the STAR Road. The Tollway is located at the junction of Pres. Jose P Laurel Highway and the Batangas-Balete Tagalog. The flyover is included within the diversion road located at the junction with Palico-Balayan-Batangas Road until the road ends at the seaport area (see ***Figure 3.5).***

FIGURE 3.5: PORT DIVERSION ROAD TO BATANGAS PORT

The distance from Batangas to Manila is about 110 kilometers. Travel time is normally 1.5 to 2 hours but may even take up to 3.5 hours if there is traffic congestion in Metro Manila. The use of the STAR tollway is the fastest way to access the Batangas Port. In the future, access to/from the Batangas Port will further improve once the proposed SLEX (TR-4) that will extend the South Luzon Expressway from Sto. Tomas, Batangas to Lucena City/Tayabas City in Quezon is fully completed (see ***Figure 3.6***).

FIGURE 3.6: ALIGNMENT OF SLEX (TR-4)



With regard to distances and travel time to business parks and eco-zones from the Manila Port and the Batangas Port, the locators in the towns of Malvar and Sto. Tomas have shorter distance and travel time to the Batangas Port. Business and industrial locators in these areas prefer to use the Batangas Port because they experience much less delays in their shipments as a result of, among others, less traffic congestion in going

to/from the Batangas Port as compared to the Manila Port. Similarly, a number of locators in business parks in Laguna, though of longer distance from the Batangas Port, experience shorter travel times compared to Manila Port due to traffic congestion in Metro Manila (see ***Table 3.14***).

TABLE 3.14: DISTANCE AND TRAVEL TIME TO/FROM BCT AND MANILA

Location of Business Parks	Distance From/To Manila	Distance From/To BCT	Difference	Travel Time	
				From Mla	From BCT
Cabuyao	45	63	(18)	160	80
Calamba	53	56	(3)	180	70
Canlubang	49	59	(10)	165	70
Malvar	71	37	34	200	45
Silangan	47	61	(14)	160	70
Sto Tomas	61	47	14	190	60
Sta. Rosa	40	68	(28)	150	90

A better appreciation of the accessibility of the Batangas Port may be obtained from ***Figure 3.7***, which indicates the location of the economic zones (red dots) in Calabarzon, as well as the primary roads (red line) and the provincial roads (while line). On the other hand, ***Tables 3.15*** and ***3.16*** provides a list of economic zones in the provinces of Batangas and Laguna, respectively. Among the biggest economic zone in Batangas is the LIMA Technology Center in Malvar, Batangas with a total area of almost 430 hectares.

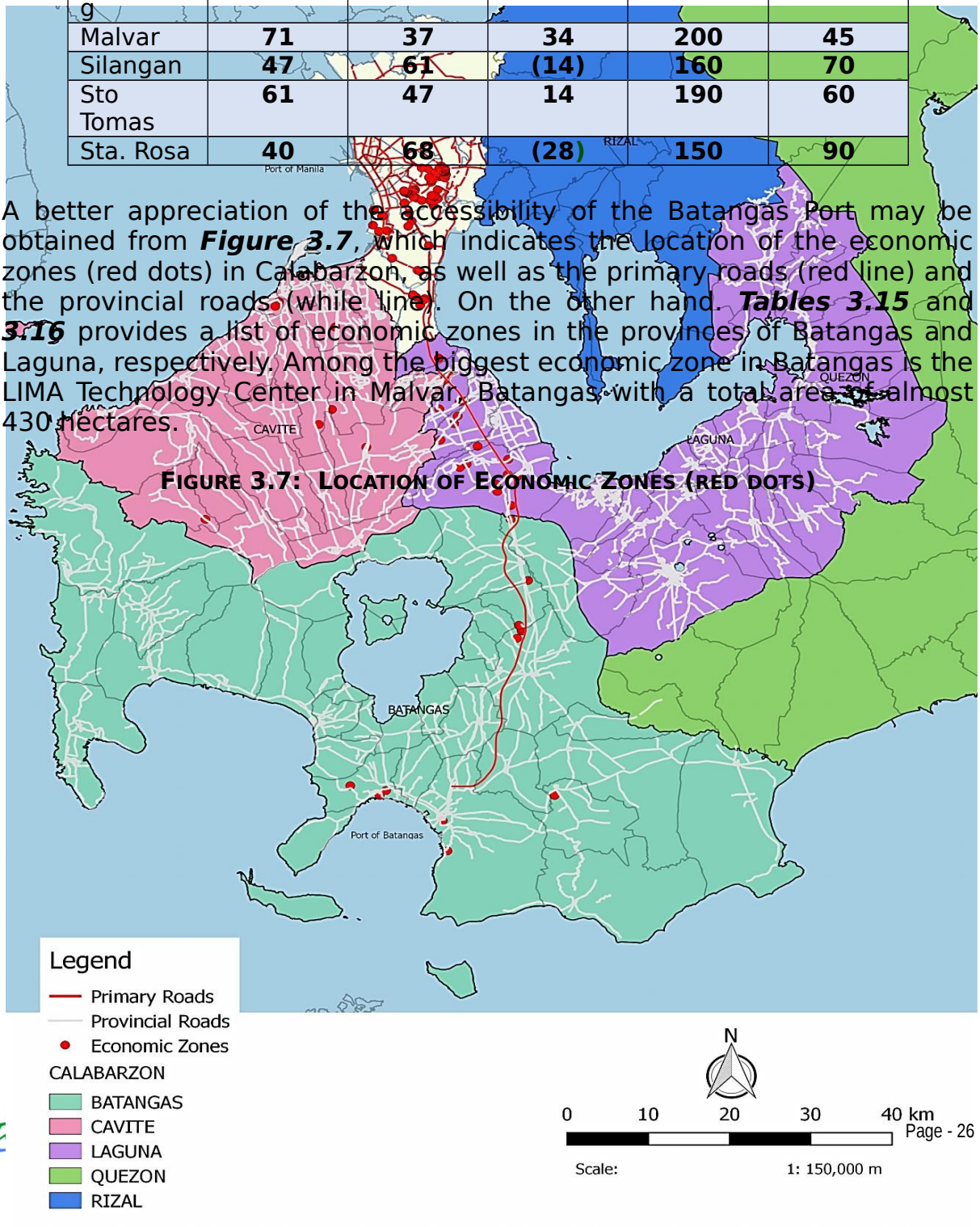


FIGURE 3.7: LOCATION OF ECONOMIC ZONES (RED DOTS)

TABLE 3.15: ECOZONES IN BATANGAS PROVINCE

ID	ECOZONE NAME	LOCATION	DEVELOPMENT OPERATOR	NATURE	AREA (ha)
1	Lima Technology Center	Payapa, Malvar, Batangas	Lima Land Inc.	MSEZ	429.96
2	Tabango Special Economic Zone	Tabango, Batangas	Tabango Realty, Inc.	MSEZ	86
3	Cocochem Agro-Industrial Park	San Antonio,Sn Pascual Bat	Cocochem Agro-Industrial Inc	MSEZ	42
4	Keppel Phils Marine SEZ	Brgy Sn Miguel Bauan, Bat	Good soil Marine Realty Inc	MSEZ	22.92
5	AG&P SEZ	Sn Roque, Bauan, Bat	Atlantic Gulf & Pacific Co MNL	MSEZ	39.11
6	Robinsons Place Lipa	JP Laurel Natl Hi-way	Robinsons Land Corp	IT Center	6.54
7	SM City Lipa	Ayala High, Lipa City	Premier Southern Corp	IT Center	10.32
8	Fiesta World Mall IT Center	Brgy Maraouy, Lipa	Fiesta World Mall Corp	IT Center	8.24
9	Light Industry & Science Park IV	Poblacion, Malvar, Batangas	Science Park of the Phil, Inc	MSEZ	64.7
9	Light Industry & Science Park III	San Rafael, Sto.Tomas,Batangas	RFM-Science Park Phils., Inc	MSEZ	110.48
10	Batangas Racing Circuit Tourism Estate	Maligaya,Rosario,Batangas	Brystol Realty Devt Corp	TEZ	27.21

TABLE 3.16: ECOZONES IN LAGUNA PROVINCE

ID	Laguna Ecozone	Location	Development Operator	Nature	Area
1	Laguna Int. Industrial Park	Mamplasan, Binan City, Laguna	Laguna Intl. Industrial Park Inc.	MSEZ	34.87
2	Sta. Rosa Commercial IT	Barrio San Jose, Sta Rosa City, Laguna	Laguna properties	IT Park	

ID	Laguna Ecozone	Location	Development Operator	Nature	Area
	Park		Holdings, Inc.		
3	Laguna Technopark	Sta. Rosa & Binan City, Laguna	Laguna Technopark, Inc.	MSEZ	
4	Toyota Sta. Rosa (Laguna) SEZ	Toyota Sta. Rosa City, Laguna	Toyota Motors Phils Corp.	MSEZ	
5	Laguna Technopark Annex	Brgy. Binan, Binan City, Laguna	Laguna Technopark, Inc.	MSEZ	
6	Greenfield Automotive Park	Don Jose, Sta. Rosa City, Laguna	Balibago Land Corp.	MSEZ	
7	Light Industry & Science Park1	Diezmo, Cabuyao, Laguna	LISP-I Locators' Asso., Inc.	MSEZ	71.75
8	SMPIC Special Ecozone	Brgy. Paciano Rizal, Calamba City	Taurus properties, Inc.	MSEZ	3.31
9	Calamba Premiere Intl. Park	Batino and Barndal, Calamba City	Starworld Corporation	MSEZ	65.63
10	Light Industry & Science Park2	Real St., Calamba City, Laguna	LISP-II, Locators' Asso., Inc.	MSEZ	70.43
11	Carmelray Industrial Park2	Punta & Tulo, Calamba City, Laguna	Carmelray-JTCI Corp.	MSEZ	143.03
12	Carmelray Intl. Business Park	Canlubang, Calamba City, Laguna	Carmelray Industrial Corp.	MSEZ	40
13	Filinvest Technology Park-Cala	Punta, Burol & Bubuyan, Calamba City	Filinvest Land Inc.	MSEZ	51.07
14	YTMI Realty SEZ	Brgy. Makiling, Calamba City, Laguna	YTMI Realty Corp.	MSEZ	22.78
15	NYK-TDG I.T. Park	Knowledge Ave., Carmel Town, Canlubang, Calamba, Laguna	NYK-Transnational Land Corporation	IT Park	2
16	Lakeside EcoZone	Brgy Don Jose & Sto. Domingo, Sta. Rosa City, Laguna	Ceci Realty, Inc.	IT Park	46

3.2.2.2 Capacity and utilization of Batangas Container Port

In selecting the port of entry, the port users generally consider several factors such as the quality of port facilities and equipment; navigational conditions; quality of administration and labor; availability of EDI; terminal security; and operational production. On the other hand, the port operator aims to provide high quality service to all port users and higher efficiency in order to reduce the time spent by vessels in ports and minimize costs. In order to measure the performance of the Batangas Container Port, data/information were gathered in terms of traffic (vessels and cargo) and

current service levels to provide a picture of the existing situation of BCT operation.

Ship Calls and Cargo Traffic

Based on the information provided by PPA, there are five (5) international containerized shipping liners regularly calling at BCT. Shipping vessels have sizes in GRT from 17,119 to 40,000 with the frequency of 1 to 3 calls per week. These are listed and summarized in ***Table 3.17***.

TABLE 3.17: SHIPPING LINES REGULARLY CALLING AT BCT

Company	Owner / Operator	Start of Operation	Remarks
1. Mercantile Ocean Maritime Co. (MCC)	Maersk Line	January 2012	Still utilizes BCT
2. Shandong International Transportation Corp. (SITC),		August 2014	Leading shipping company in intra-Asia area
3. Regional Container Line (RCL),		October 2015 on a fortnightly basis	Feeder and Container Vessel Operator established in Thailand in 1979. Operates to more than 60 destinations in Asia and the Middle East
4. Evergreen Marine Corporation (EMC)		April 19, 2016, on its weekly call	Global containerized-freight shipping company. Calls on 240 ports worldwide in about 80 countries, and is the fourth largest company of its type
5. COSCO Shipping Lines (Philippines) Inc.		October 2017 on its weekly call	

These shipping vessels make regular weekly calls at BCT and other Asian ports as summarized and described below:

TABLE 3.18: SHIPPING VESSELS; SIZE AND FREQUENCY OF CALLS

Shipping Vessels		Size of Vessel In GRT	Frequency of Calls
Mercantile Ocean	PH4 SOUTH BOUND SUN 1500 – MON 0300	35,975	3 Calls per week

Shipping Vessels		Size of Vessel In GRT	Frequency of Calls
Maritime Co. (MCC)/Maersk Line	Batangas – Cagayan de Oro – General Santos – Davao – Cagayan de Oro (exports) Shanghai – Ningbo – Busan – Vladivostok – Manila South – Manila North – Yantian – Hongkong		
	PH4 NORTH BOUND FRI 0001H – FRIDAY 2000H		
	Batangas – Shanghai – Ningbo – Ho Chi Minh – Sihanoukville – Laem Chabang – Batangas		
	IA3 SATURDAY 0500 – SUN 0400		
	Batangas – Manila – Subic – Hong Kong – Yantian – Taichung – Nansha – Tanjung Pelepas – Singapore – Jakarta – Tanjung Pelepas – Singapore – Batangas		
Evergreen	KTP MON 030 – Mon 1730	17,887	2 Calls per week
	Batangas – Subic- Kaoshiung – Kwangyang – Batangas- Incheon- Qingdao - Shanghai-Ningbo- Kaoshiung – Manila (SH)		
Shandong International Transportation Corp. (SITC)	TPX WED 1500 – THURS 1200	17,119	2 Calls per week
	Batangas – Manila – Laem Chabang – Batangas		
	CPX SUN 0600 – SUN 1500		
	Batangas – Cebu – Cagayan – Dalian – Tianjin – Qingdao – Shanghai – MICT – Manila (SH)		
Cosco Shipping Lines (Philippines)	CNP2	40,155	1 Call per week
	Shanghai-Qingdao-Ningbo-Xiamen-Manila North-Batangas-Hongkong		

The foreign ship calls at BCT increased from year 2011 to 2017 while domestic ship calls slowly decreased from year 2013 to 2015 and were reduced to zero in 2016 and 2017 (see ***Table 3.19*** and ***Figure 3.8***). According to PPA, BCT will be utilized only for international containerized vessels due to the increasing utilization of the port berth in facilities. The port operator, ATI informed that BCT has competitive advantage since there's no traffic, no truck ban at Batangas compared to Manila (morning: 6AM to 9 AM , Afternoon: 4PM to 9PM). The port also offers an efficient, safe and secure port operation and fast turnaround.

ATI foresee that there would be an increased in containerized cargo in BCT especially when locators contracts will expire with shipping lines in Manila.

TABLE 3.19: HISTORICAL ANNUAL RECORDS ON SHIP CALLS AT BCT PHASE II

Particulars	2011	2012	2013	2014	2015	2016	2017

Domestic	52	21	3	1	6	0	0
Foreign	82	128	150	205	195	306	320
Total	**134**	**149**	**153**	**206**	**201**	**306**	**320**

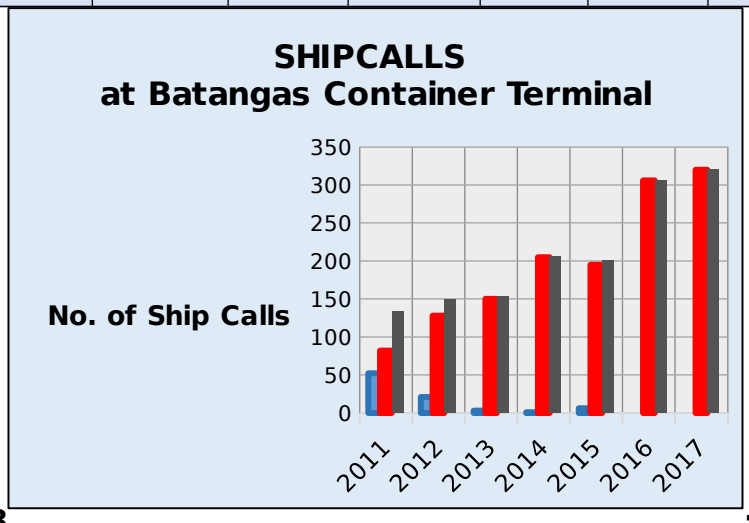


FIGURE 3.8: TREND ON SHIP CALLS AT BCT

In terms of number of calls per year, MCC has the highest number of calls per year and the second largest vessel size among the five (5) liners. The number of ship calls is presented in ***Table 3.20*** below.

TABLE 3. 20: NUMBER OF SHIP CALLS PER LINER AT BCT PHASE II

Liner Name	2012	2013	2014	2015	2016
1. MCC	52	50	86	124	127
2. SITC	-	-	-	54	111
3. RCL				7	26
4. EMC					37
5. ACL					1
Total	**52**	**50**	**86**	**187**	**292**

Cargo traffic at BCT increased significantly from 2013 to 2017. In particular, a sudden jump in both import and export cargoes occurred in

2014 from a total of a mere 97,124 metric tons to an eight-fold increase to 781,166 metric tons. This may be attributed to the shifting of cargo from the Port of Manila to Batangas Container Terminal resulting from the truck ban imposed in the City of Manila. From 2014, there has been a steady increase in cargo traffic at the Batangas Container Terminal reaching up to over 1.13 million metric tons in 2017. In terms of TEUs, there was a 783% increase in cargo volume in 2014 (see ***Table 3.21*** and ***Figure 3.9***) and the increase was maintained at a level of 18-35% during the succeeding years until 2017.

TABLE 3.21: INTERNATIONAL CONTAINER VOLUME IN TEU'S AT BCT

	Year	Volume	Percent Increase
Total International Container Volume in TEU's	2012		
	2013	11,019.50	
	2014	97,361.25	783%
	2015	132,957.75	35.0%
	2016	157,318.75	18.32%
	2017	197,534.00	25.56%

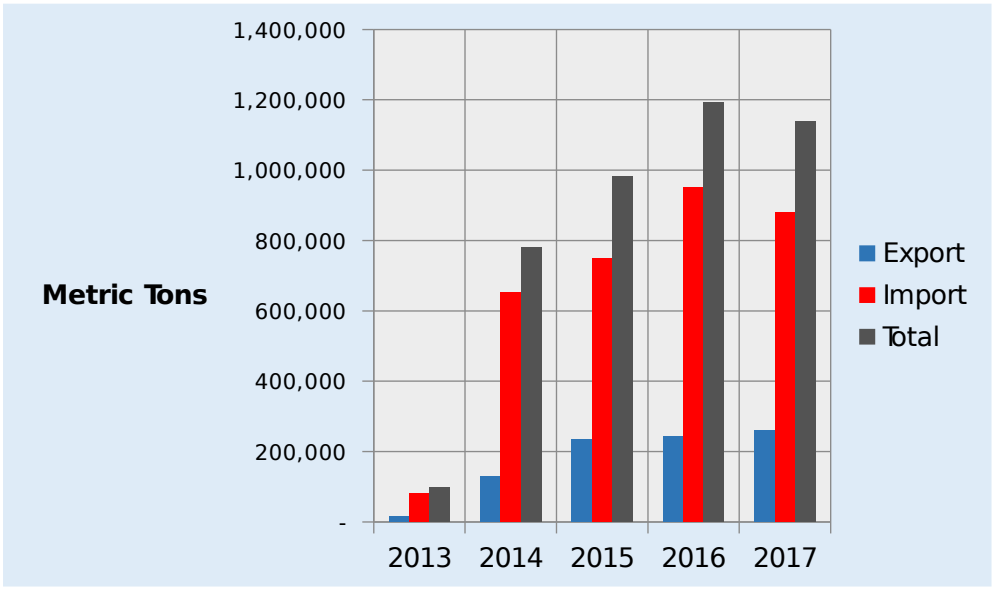
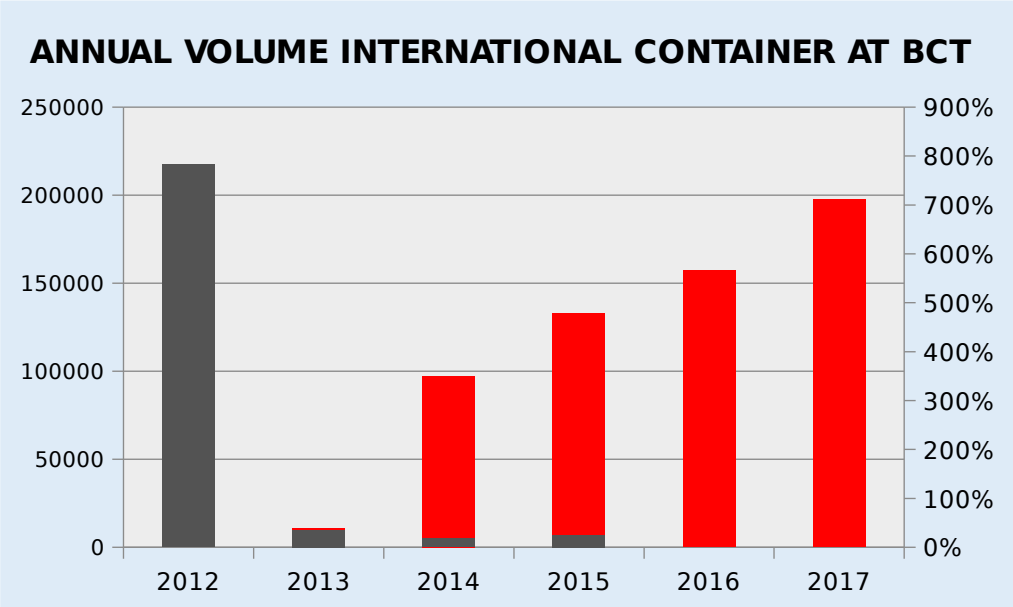


FIGURE 3.9: TREND ON CARGO VOLUMES AT BCT

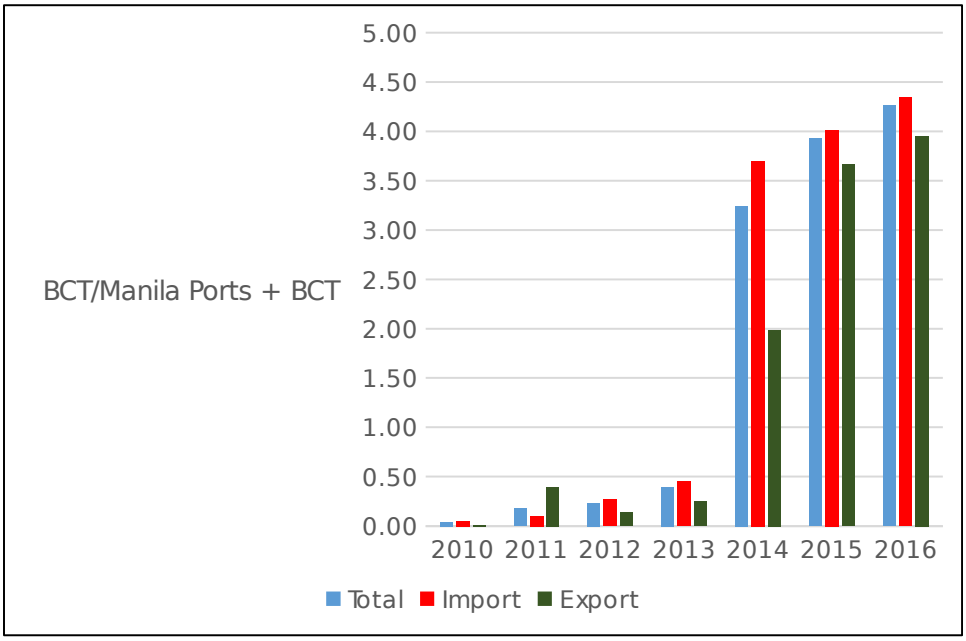
In Table 3.21 and ***Figure 3.10***, the annual cargo volume is translated in terms of TEUs. Actual volume on international container cargo has abruptly increased by 783% in 2014, 35% in 2015 and 18.32% in 2016 at BCT.

FIGURE 3.10: TREND ON INTERNATIONAL CONTAINER VOLUMES AT BCT



A further look at the percentage of cargo volumes at the BCT in relation to the total of cargo volumes of BCT and the Manila Ports, indicates that shifting of cargo traffic from the Manila Ports to BCT started in 2014 and is increasing since then, as shown by ***Figure 3.11*** below.

FIGURE 3.11: BCT SHARE OF CARGO TRAFFIC, % 2010 -2016



Berth Occupancy, Yard and Equipment Utilization, Turnaround Time

The common indicators of port performance are berth occupancy, storage utilization, and equipment use. These indicators measure the quality of service provided to port clients such as ship owners, ship operators, importers, transport operators, and others. Other performance indicators are ship turnaround time, truck turnaround time, container dwell time, and equipment availability.

Berth occupancy is the ratio of time the berth is occupied by a vessel to the total time available in that period. It also indicates the level for port services and indicator to measure on how intensively the berth facilities are being utilized.

The berth occupancy of BCT in 2013 was a mere 9.68%. This increased abruptly in 2014 due to shifting of cargo from the Port of Manila resulting from the imposition of truck ban in the City of Manila. However, even after the truck ban was lifted in Sept 2014, the berthing occupancy continued to increase reaching a level of almost 37-38%. While these are significant increases, these are, however, is still below UNCTAD's desired optimum berthing rates of 50% to 70%.

Year	Berth Occupancy Rate	Year	Berth Occupancy Rate
2012		2015	37.90%
2013	9.68%	2016	36.83%
2014	31.16%	2017	

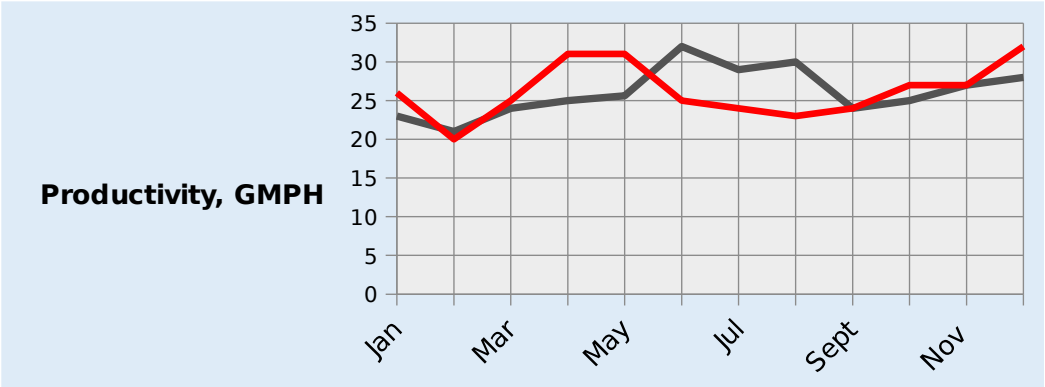
Notes: High berth occupancy is a sign of congestion (>70%), hence decline of services, while low berth occupancy signifies underutilization of resources (<50%).

Yard utilization is the ratio of the number of storage slots (number of containers on hand) to the number of available slots (terminal capacity). The maximum storage capacity for BCT is about 300,000 TEUs per annum. Based on the statistics provided by PPA Batangas, the average yard utilization is 44% in 2015 and 37% in 2016.

FIGURE 3.12: BATANGAS PORT PHASE II; YARD UTILIZATION

The productivity of equipment was reported to have average moves of 26 and 29 gross moves per hour in year 2015 and 2016, respectively, which exceeded its set target of 25 GMPH. This indicates that the equipment are well-maintained and operating efficiently for cargo handling operations.

FIGURE 3.13: BATANGAS PORT PHASE II; PRODUCTIVITY



Ship turnaround time is the total time spent by a ship at the port, which includes waiting time and service time. Waiting time is normally a small proportion of turnaround time. However, service time is the component which when reduced can substantially reduce ship turnaround time since it depends on the quantity of cargo a vessel has to load or discharge.

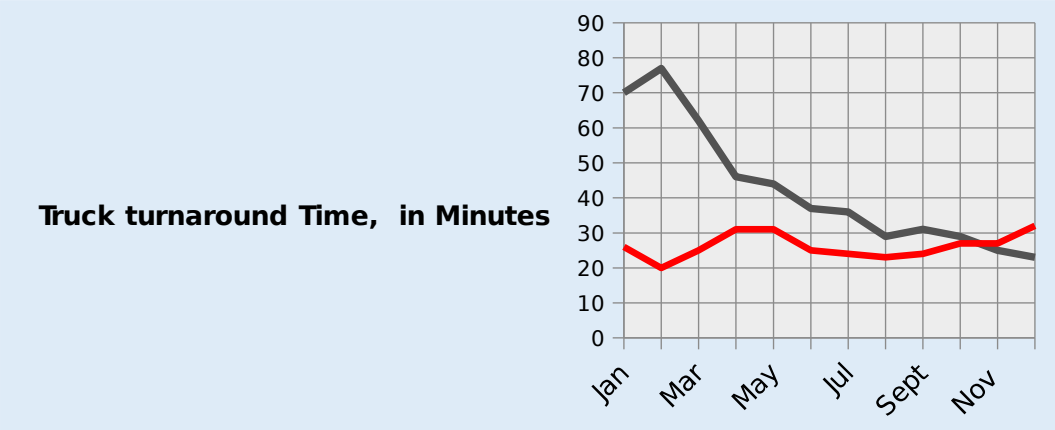
Berthing time depends on the quantity of cargo a vessel has to load or discharge, type and characteristics of a vessel, the type of equipment and other resources used at berth. Summarized below are the data on the number of ship calls, size of vessel in GRT, waiting time, and service time and berth output at BCT port. These data show that the berthing time of vessel has decreased in 2016 despite the increased quantity of cargoes and vessels at BCT.

TABLE 3.22: BERTHING TIME

Particular	2013	2014	2015	2016
SHIPCALLS	**153**	**206**	**201**	**306**
Domestic	3	1	6	-
Foreign	150	205	195	306
TOTAL GRT	**4,287,017**	**5,022,870**	**3,630,614**	**6,262,008**
Domestic	8,562	9,601	8,865	-
Foreign	4,278,455	5,013,269	3,621,749	6,262,008
WAITING TIME (hrs.)	**355**	**4,448**	**2,507**	**1,742**
Domestic	13	-	137	-
Foreign	342	4,448	2,370	1,742
SERVICE TIME (hrs.)	**2,186**	**6,897**	**8,597**	**6,150**
Domestic	146	31	302	-
Foreign	2,040	6,866	8,295	6,150
BERTH TIME (hrs.)	**2,541**	**11,345**	**11,104**	**7,892**
BERTH OUTPUT (Tons/hrs.)	**1,961**	**728**	**422**	**1,018**

Truck turnaround time is the time between the vehicle's arrival at the terminal entrance gate and its departure from the terminal exit gate. It is dependent on port operation activities and procedures such as scanning operations, gates layout, availability of equipment during delivery operations, service quality of roads and others.

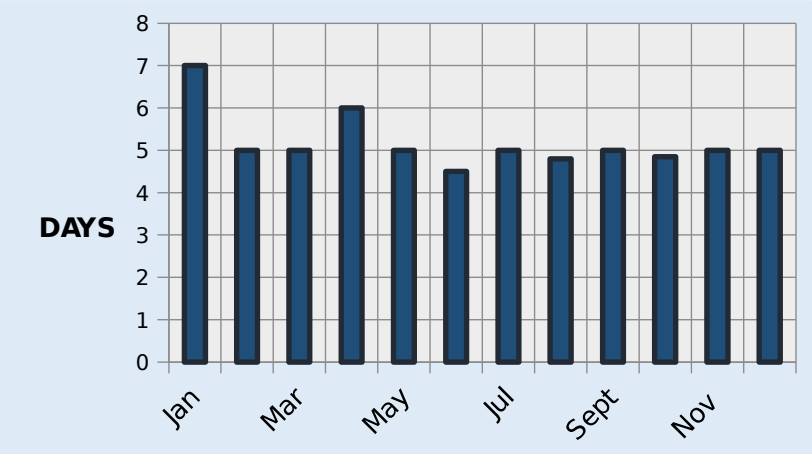
FIGURE 3.14: BATANGAS PORT PHASE II; TRUCK TURNAROUND TIME (MINUTES)



The truck turnaround time at BCT has been set at 30 minutes. The average truck turnaround time at BCT improved from an average of 42 minutes in 2015 to only 26 minutes in 2016.

Dwell time is the period containers stay at the terminal. Dwell time greatly influences the capacity of any container terminal. The dwell time at BCT is calculated on imports, exports and empties. The average dwell time in 2016 is 5 days.

FIGURE 3.15: BATANGAS PORT PHASE II; AVERAGE DWELL DAYS

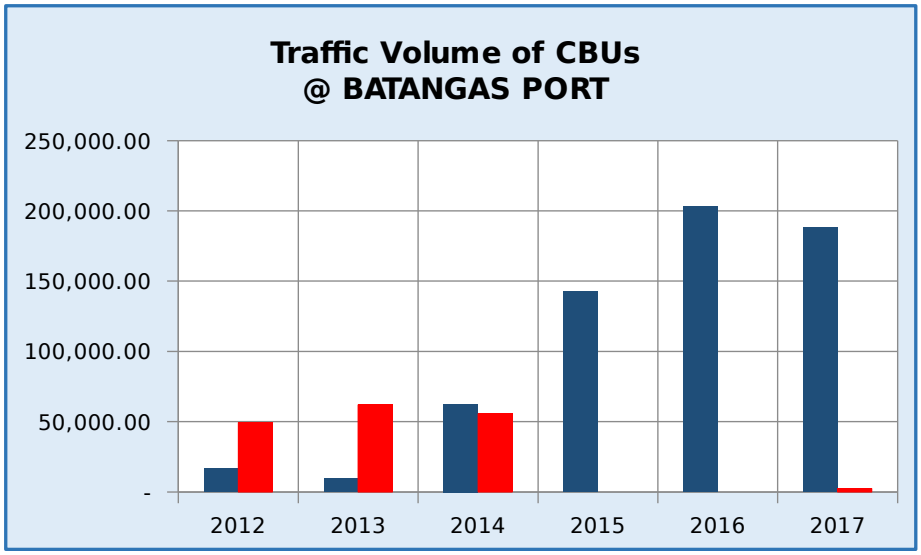


Capacity For Other Foreign Cargoes

While this study is limited to the Batangas Port Phase II Project (BCT), it may be useful to mention that in the past (2012-2013) when the volume of containerized cargoes was still low, the BCT was also utilized for handling non-containerized cargoes. But as the volume of container cargoes increased, non-containerized cargoes, in particular, the completely-built car units (CBUs) were transferred to Phase I.

The Batangas Port now handles majority of the country's annual car imports, due largely to the convenience, efficiency and proximity it offers to the major car manufacturers, importers and distributors based in Cavite, Laguna, Batangas, Rizal and Quezon. In 2016, the port handled over 200,000 CBUs. To meet the growing demand, the port operator, Asian Terminals Inc., is developing a multilevel car storage facility (MCSF) in a two-hectare space adjacent to the roll-on/roll-off berth, which will increase its capacity to over 7,000 CBUs at any single time.

FIGURE 3.16: BATANGAS PORT PHASE II; TRAFFIC VOLUME OF CBUS



3.2.3 Growth in the Regional and Local Economy, including Heavy Industries

In line with the requirement of this project's Terms of Reference to measure the growth in the local and regional economy, this section briefly discusses the performance of the economy of Region IV-A, with more details on that of the Province of Batangas and the City of Batangas, the province, and more specifically the city, being the site of the Batangas Port Phase II Project (referred to as the Batangas Container Terminal or BCT). It also covers briefly the heavy industries located in the hinterland of Batangas Port.

3.2.3.1 Growth of the Regional Economy

The Development Plan for Region IV-A for the period 1993 – 1998 envisioned the transformation of CALABARZON into one of the industrial areas of the country. The Region was expected to become the driving force of further industrialization not only in the region but in the whole country as well. The major role of the CALABARZON was to attract foreign and domestic investments which would contribute substantially to employment and increase export earnings for the county.

Batangas City was identified as Regional Agri-Industrial Center (RAIC) because of its strategic location and direct linkages to the Region's mainland and urban provinces. The provision of basic infrastructure such as the proposed international port at the Port of Batangas and alternative national roads connecting Batangas and Manila was expected to attract investments in the region. In the short-to-medium term, Batangas will receive all port- oriented industries and be built into a center for heavy industries.

The GRDP for the industrial sector was expected to grow by ll.34% annually from 1993-1998. Manufacturing would play a significant role in the growth of the industrial sector with an average annual growth rate of 10.58% followed by the construction sector at 8.91%.

The Gross Regional Domestic Product (GRDP) of CALABARZON in terms of annual levels are shown by ***Table 3.23*** and ***3.24*** below. In Table 3.23, the annual GRDP of the Region (in 1985 prices) for the period 2002 – 2008 increased by an annual rate of 3.7 %. This growth was much lower than the growth of the country's GDP, at 5.4 % during the same period. Further, the average contribution of CALABARZON to the GDP was 12% during the period.

TABLE 3.23: GRDP OF CALABARZON, 2002-2008 (IN PHP(MILLION), 1985 PRICES)

	Industry	2002	2003	2004	2005	2006	2007	2008	Annual Growth
1.	AGRI, HUNTING, FORESTRY AND FISHING	27,593	28,406	29,018	28,273	29,054	30,253	31,533	2.2%
	a. Agriculture, hunting and forestry								
	b. Fishing								
2.	INDUSTRY SECTOR	57,033	59,358	61,451	62,876	64,578	66,947	66,836	2.7%
	a. Mining & Quarrying	739	781	803	765	584	547	519	-5.7%
	b. Manufacturing	44,517	46,622	48,484	50,320	50,878	51,272	50,311	2.1%
	c. Construction	5,759	5,845	5,982	5,679	5,968	6,867	7,508	4.5%
	d. Electricity, Gas, & Water Supply	6,017	6,109	6,182	6,113	7,148	8,262	8,498	5.9%
3.	SERVICE SECTOR	50,511	52,981	56,291	59,409	63,056	67,860	69,930	5.6%
	Gross Regional Domestic Product	135,137	140,746	146,760	150,558	156,688	165,060	168,300	3.7%
	GDP Philippines	1,034,095	1,085,072	1,154,295	1,211,452	1,276,156	1,366,493	1,418,952	5.4%

TABLE 3.24: GRDP OF CALABARZON, 2009 – 2016 [IN P (MIL), 2000 PRICES]

	Industry	2009	2010	2011	2012	2013	2014	2015	2016	Annual Growth
1.	AGRI, HUNTING, FORESTRY AND FISHING	62,147	63,734	64,356			70,299	72,134	74,589	2.6%
	a. Agriculture, hunting and forestry						51672	54738	57298	
	b. Fishing						18627	17396	17291	
2.	INDUSTRY SECTOR	546,476	628,331	636,128	-	-	764,007	807,517	837,489	6.3%
	a. Mining & Quarrying	1316	1630	1646			2287	2696	2649	
	b. Manufacturing	473,447	546,789	552,197			664,103	700,331	725,608	
	c. Construction	37,128	42,083	44,263			57,711	61,851	63,409	
	d. Electricity, Gas & Water Supply	33,584	37,828	38,022			39,907	42,638	45,824	6.2%
3.	SERVICE SECTOR	296,288	312,250	329,681			396,065	422,646	452,873	
	a. Transportation, Storage and Communication	65,152	64,807	67040			81016	85785	91200	
	b. Trade and repair of motor vehicle.	71,980	78,038	81,438			91,479	97,793	103,375	
	motorcycles, personal and household goods									
	c. Financial Intermediation	29,616	31,820	33,513			45,740	48,482	52,484	
	d.R. Estate, Renting & Business Activities	73,577	78,038	86,247			106,414	113,591	121,776	
	e. Public Administration & Defense: Compulsory Social Security	11,945	12,813	12,720			15,199	15,321	16,466	
	f. Other Services	44,018	45,879	48,723			56,217	61,675	67,572	
	Gross Domestic Product	903,911	1,004,315	1,030,165	-	-	1,230,372	1,364,951	1,364,951	0
	GDP Philippines	5,297,240	5,701,539	5,910,201	6,305,229	6,750,079	7,165,478	8,126,403	8,216,403	0

During the period 2009 – 2016, the economy of the Region performed better (than the previous period) growing at an annual rate of 6.1%. It grew at an almost equal pace with the economy of the country as a whole, the GDP of which grew at an annual rate 6.3%. The Region contributed about 17% to country's GDP during this same period (see ***Table 3.25***).

TABLE 3.25: CONTRIBUTION OF CALABARZON TO PHIL GDP, %

	Annual Growth of GDP	Contribution to GDP
Philippines		
2002 – 2008	5.4%	

2009 – 2016	6.3%	
CALABARZON		
2002 – 2008	3.7%	12.4%
2009 – 2016	6.1%	16.8%

The following paragraphs further present the performance of the three major sectors of the economy. During the period 2002 – 2008, the service sector grew the fastest at 6% per year. However, during the following period 2009 - 2016, the industry sector exhibited a higher annual growth of 6.3%, besting the two other sectors.

Tables 3.26 and ***3.27*** further show that the industry sector, became the biggest contributor to the Region's GRDP during the period 2009 – 2016, contributing more than 60%, compared to its contribution the period before (2002 and 2005), contributing 42% to the GRDP.

TABLE 3. 26: SECTORAL GROWTHS

Sector	Annual Growth	
	2002 – 2008	**2009 – 2016**
Agri., Hunting, Forestry And Fishing	**2%**	**2.6%**
Industry Sector	**3%**	**6.3%**
Service Sector	**6%**	**6.2%**

TABLE 3. 27: SECTORAL CONTRIBUTIONS TO GRDP

Sector	Contribution To GRDP, in %				
	2002	2005	2010	2015	2016
Agri., Hunting, Forestry and Fishing	20	19	6	6	5
Industry Sector	42	42	63	62	61
Service Sector	37	39	31	32	33
Grdp, Calabarzon	100	100	100	100	100

The manufacturing industry has contributed more than 85% to the output of the industry sector. (The other sub-sectors are mining and quarrying, construction, electricity, gas and water supply). Manufacturing is mainly carried out inside economic zones. These zones significantly provided growth and employment in the region. A total of 53 economic zones are located in CALABARZON with 1,781 industry locators. Among these, 35 are Manufacturing Special Economic Zones (MSEZ), 8 are IT Centers, 5 are IT Parks, 1 is a Medical Tourism Park (MTP), 2 are Tourism Economic Zones (TEZ) and 2 are Agro-Industrial Economic Zones (AIEZ). Laguna Province with 19 economic zones has the most number of economic zones among the provinces. Majority of MSEZ are located in Laguna, Cavite and Batangas while the only MTP in the region is located in the Province of Batangas. On the other hand, Quezon has only one economic zone which is an AIEZ.

Exports in terms of value (in USdollars) from CALABARZON increased in 2017 from the 2015 level, by 17% as shown by ***Table 3.28*** below.

TABLE 3. 28: TRADE IN GOODS, 2015 – 2018 (IN US$ BILLION)

	2015	2016	2017	Jan-Mar 2018
Total Trade	129.89	141.51	164.81	40.17
Exports	58.83	57.41	68.71	15.75
Imports	71.07	84.11	96.09	24.41
Balance of Trade	(12.24)	(26.70)	(27.38)	(8.66)

As of 2017, there are 36 manufacturing ecozones located within CALABARZON. Eleven (11) ecozones are within the Province of Cavite, fourteen (14) within the Province of Laguna, ten (10) within the Province of Batangas, including Batangas City and one (1) in Palawan.

In summary, it appears that there are two distinct periods, 2002 – 2008 and 2009-2016, in the economy of the Region. During the period 2002 -2008, CALABARZON experienced slow growth (3.7 %) in its economic output (GRDP) relative to the country's output as a whole (5.7%). During the following period (2009 -2016), the economic output of the Region grew at a faster annual rate of 6.1% which was almost equal to that of the country's output which increased at an annual rate of 6.3%. Further, the contribution of CALABARZON to the country's GDP increased from 12% to 17%.

A breakdown of the contributions of the three major sectors of the CALABARZON'S GRDP also shows that the industry sector improved in performance both in terms of growth and contribution to the GRDP. The sector's output grew from 3% (2002-2008) to 6% (2009-2016) and its contribution to GRDP increased from 4 % to 6%. The manufacturing sub-sector spurred the growth of the industry sector contributing about 85% of the industry's output during the period 2009 -2016. In terms of export and domestic production, that for domestic production carried this growth, averaging more than 10% during the period. On the other hand, products for the international market increased at a minimal rate of less than 1%.

3.2.3.2 Growth of the Local Economy

Batangas Province

The Province of Batangas has a total population of 2,694,335 as of 2015. Among its three cities, Lipa City has the highest population at 332,386. Among the municipalities, Sto. Tomas is the most populated at 179,844. The provincial population grew at an annual rate of 2.41% during the period 2010-2015. Among its municipalities and cities, Sto Tomas has

grown the fastest at 5.4% per year during the period. Among the 3 cities, Lipa City has grown the fastest at 2.79% during the same period.

The Batangas Province (excluding Batangas City) houses 10 manufacturing ecozones covering 1,287 hectares and with investments amounting to a total of PhP10,884 million. The Province also has 8 industrial parks. Sto Tomas has the most number of ecozones and industrial parks, with the First Philippine Industrial Park having 76 locators. Malvar is the site of Lima Technology Center which has 48 locators.

TABLE 3. 29: LIST OF MANUFACTURING ECOZONES, BATANGAS PROVINCE, AS OF NOVEMBER 2017

Economic Zones	Location	No. of Locators
AG&P Special Economic Zone	Bauan	1
Cocochem Agro-Industrial Park	San Pascual	6
First Philippines Industrial Park	Sto. Tomas	76
First Philippine Industrial Park II	Sto Tomas	
Keppel Philippines Marines Special Economic Zone	Bauan	2
Light Industry & Science Park III	Sto. Tomas	0
Light Industry & Science Park IV	Malvar	
Lima Technology Center	Malvar	48
Tabango Special Economic Zone	Tabangao	1
First Industrial Township – SEZ	Tanauan	

TABLE 3.30: LIST OF INDUSTRIAL PARKS, BATANGAS PROVINCE

Industrial Parks	Location	No. of Locators
Philtown Technology Park	Tanauan	3
Robinsons Place Lipa	Lipa	1
Saint Frances Cabrini Medical Tourism Park	Sto. Tomas	1
SM Lipa City	Lipa	0
Robinsons Place Lipa	Lipa	1
Batangas Racing Circuit Tourism Estate	Rosario	1
First Batangas Industrial Park	Bauan	2
Phoenix Petroterminal & Industrial Park (formerly Batangas Union Industrial Park)	Calaca	8

Batangas City

Batangas City, the capital of Batangas Province, has a total land area of more or less 28,541.44 hectares. It is about 108 kilometers away from Manila and has an average travel time of approximately one hour forty-five minutes through the Southern Tagalog Arterial Road (STAR) tollway.

For the year 2015, the projected population of Batangas City, based from CY 2010 POPCEN of the Philippine Statistics Authority (PSA), is 339,551 with a population growth rate of 2.13%. Brgy. Sta. Rita Karsada has the biggest population with 19,254 while Barangay 17, an urban barangay,

has the smallest population of 115. In addition to the 24 barangays in the Poblacion, there are 17 urbanizing barangays, namely; Alangilan, Balagtas, Bolbok, Calicanto, Cuta, Gulod Itaas, Gulod Labac, Kumintang Ibaba, Kumintang Ilaya, Libjo, Malitam, Pallocan Kanluran, San Isidro, Sta. Clara, Sta. Rita Aplaya, Sta. Rita Karsada and Wawa. These barangays are situated within the immediate periphery of the poblacion. Urban population is 187,253 while rural population is 52,298 representing 55% and 45%, respectively, of the total city population.

The identification of the city as an industrial growth center in the CALABARZON region resulted in the increasing number of business establishments not only within the Central Business District (CBD) but also in the Pallocan-Gulod, Kumintang-Alangilan-Balagtas areas and the Bolbok-Balagtas Port Diversion Road. At present, there are several four- to six-storey commercial buildings already constructed in the city. Several of the existing business establishments in the city have already been improved and renovated or were demolished for reconstruction and redevelopment.
In 2010 there were only five major commercial establishments in the City, namely, the SM Shopping Mall, the Bay Citi Mall, the Caedo Commercial Complex, Citi Mart, and the SM Hypermarket. By 2015, major commercial establishments had increased to include the following: SM City Batangas, the Bay Citi Mall, the Caedo Commercial Complex, Citi Mart Plaza, Wilcon Builder's Depot, SM Hypermarket, Citi Hardware, Budget Lane, Excel Tom's Supermarket, Fiesta Home Center, Pic 'n Save, Unitop General Merchandize, Puregold, NuCiti Central Mall, Citimart Shop-On, Dilao Shopping Center, Epicenter, JHW Shopping Center and the Maquiling Hardware.

Further, in 2010 there were 3,023 business establishments in the City, per records of the Business Permits and Licensing Office. By year 2015, these number had increased to 7,144. Out of this figure, 6,199 establishments or 86.77% of the total applied for renewal of business and 945 or 13.25% are newly started businesses.

In 2010, there were nineteen (19) major industrial establishments in Batangas City, categorized into large, medium and small. Of these industries, thirteen (13) were large-scale industries with a capitalization of P60 M and above, two (2) were medium scale industries with a capitalization of less than P60 M to P15 M, and four (4) were small scale industries with a capitalization of less than P15 M.

TABLE 3.31: LIST OF LARGE INDUSTRIES IN BATANGAS CITY (2011)

	Name of Industry	Location	Type
1	Bitumen Import Storage and Distribution Facility	Shell Tabangao Refinery	Storage and Distribution Facility
2	Pilipinas Shell Petroleum Corp.	Brgy. Tabangao Ambulong	Oil Processing

	Name of Industry	Location	Type
3	Shell Gas Eastern, Inc.	Barangay Libjo	LPG Products
4	Malampaya Onshore Gas Plant (MOGP)	Brgy. Tabangao Aplaya	Natural Gas Processing
5	First Philippine Industrial Corp.	Kumintang Ilaya	Pipeline Concessionaire
6	San Miguel Food, Inc. (SMFI)	Brgy. Tabangao Aplaya	Flour Manufacturing/Milling - Exclusive Distribution
7	J.G. Summit Petrochemical Corp.	J.G. Summit Industrial Complex, Barangay Simlong	Manufacturer of Biaxially Oriented Polypropylene (BOPP) Film
8	First Gas Power Corporation (FGPC) (Sta. Maria Power Plant)	Brgy. Sta. Rita Karsada	Power Generating Plant 1000MW Combined Cycle Gas Turbine (CCGT) Power Plant
9	Kepco - Ilijan Power Corporation		Power Generating Plant 1200MW Fueled Primary by Natural Gas
10	FGP Corporation (San Lorenzo Power Plant)	Brgy. Sta. Rita Aplaya	Power Generating Plant 500MW Natural Combined Cycle Power Plant
11	Chemphil Bulk Terminal	Brgy. Pinamucan Proper	Chemical Bulk Storage/Terminal 18 Tanks (Organic Chemical Tank Farm)
12	Himmel Industries, Inc.	Brgy. Pinamucan Proper	Jet A-1 Fuel Storage Facilities
13	Himmel Industries, Inc.	Brgy. Pinamucan Proper	Importer and Distributor of Chemicals

Source: Socio-Economic Profile, Batangas City, CY 2010

By 2015, the number industries had increased to twenty-three (23) major industrial establishments. Of these, nineteen (19) were large-scale industries with a capitalization of P60 M and above, two (2) were medium scale industries with a capitalization of less than P60 M to P15 M, and two (2) were small scale industries with a capitalization of less than P15 M.

TABLE 3. 32: LIST OF LARGE INDUSTRIES IN BATANAS CITY (2015)

	Name of Industry	Location	Type
2015			
1	Bitumen Import Storage and Distribution Facility	Shell Tabangao Refinery	Storage and Distribution Facility
2	CFC Clubhouse Property, Inc.	JG Summit Complex, Simlong	Flexible Packaging/Printing
3	FGP Corporation (San Lorenzo Power Plant)	Barangay Sta. Rita Aplaya	Power Generating Plant 550MW Natural Combined Cycle Power Plant
4	First Gas Power Corporation (FGPC) (Sta. Maria Power Plant)	Barangay Sta. Rita Karsada	Power Generating Plant 1063MW Combined Cycle Gas Turbine (CCGT) Power Plant
5	First Philippine Industrial Corp.	Kumintang Ilaya	Petroleum Pipeline
6	Himmel Industries, Inc.	Barangay Pinamucan Ibaba	Distributor of Solvents and Chemicals

	Name of Industry	Location	Type
7	J.G. Summit Petrochemical Corp.	J.G. Summit Industrial Complex, Barangay Simlong	Manufacturer of Biaxially Oriented Polypropylene (BOPP) Film
8	Kepco - Ilijan Power Corporation (KEILCO)		Power Generating Plant 1200MW Fueled Primary by Natural Gas
9	LMG Land Development Corp.	Barangay Pinamucan Proper	Chemical Bulk Storage/Terminal 19 Tanks (Organic Chemical Tank Farm)
10	Malampaya Onshore Gas Plant (MOGP)	Barangay Tabangao Aplaya	Natural Gas Processing
11	Pilipinas Shell Petroleum Corp.	Barangay Tabangao Ambulong	Oil Processing
12	San Miguel Mills, Inc.	Barangay Tabangao Aplaya	Flour Manufacturing/Milling - Exclusive Distribution
13	Isla Gas Terminals, Inc.	Barangay Libjo	LPG Products
14	Total Bulk Terminal Corp.	Barangay Pinamucan Ibaba	Jet A-1 Fuel Storage Facilities
15	Universal Robina Corporation (Packaging Division)	JGSPC Complex, Simliong	Manufacturing
16	Asian Terminal Inc.	Port of Batangas, Calicanto	Port Operator
17	Isla Gas Terminals (IGT)	Barangay Libjo, Batangas City	LPG Truck Loading Facility
18	AG&P (Atlantic Gulf & Pacific Co.)	Barangay Libjo, Batangas City	LPG Truck Loading Facility
19	Tigerland Agro-Industrial Electronic Zone	Barangay Mabacong	Manufacturing

Source: Socio-Economic Profile, Batangas City, CY 2015

In summary, Batangas Province houses 10 manufacturing ecozones and 8 industrial parks. Sto Tomas has the most number of ecozones and industrial parks, with the First Philippine Industrial Park having 76 locators while Malvar is the site of Lima Technology Center which has 48 locators.

In Batangas City, activities in trade and commerce increased from 2010 to 2015. From only five major commercial establishments in 2010, this increased to 19 in 2015. Further, in 2010 there were 3,023 business establishments in the City but by 2015 this number had increased to 7,144. Out of this figure, 6,199 establishments or 86.77% of the total applied for renewal of business and 945 or 13.25% were newly started businesses. And by year 2015, there were already 19 large scale industries in Batangas City increasing from 13 during the year 2010.

3.2.3.3 The Role of Batangas Port in the industrialization of the Region

The discussion above shows that there is a marked period when industrialization of the Region started. The visions for the industrial

development as embodied in earlier development plans slowly materialized as evident in the GRDPs of the Region during the period 2010-2016.

During this start of the industrialization process and onwards, the operation of BCT provides an alternative port to idustries located within the Province of Batangas and Laguna offering port services which is more accessible in terms of distance and travel times (compared to the Manila Ports). Further, in order to encourage industries to use BCT, the Bureau of Customs, District Office and the ATI partnered to enhance the efficiency of their services by reducing the lengths of service times thereby assuring the prompt delivery of goods to their destinations. Based on discussions with BOC, the assessment of imports/exports is completed within a period of 1 day from entry. On the part of ATI, service efficiency in moving of containers from ship to shore ranges from 25- 31 GMPH in 2015-2017 (compared to the average GMPH at the Manila Ports which is +25 GMP).

While it is difficult to describe in quantifiable or statistical terms the contribution of BCT to the industrialization of the Region, it is evident that the operation of BCT has been made available to provide support to the needs of the growing industrial sector of the Region particularly of the Provnces of Batangas and Laguna by providing efficient port services.

Focus Group Discussion (FGD) and interviews were conducted among industries and companies located in Batangas and Laguna to determine which of these are presently using the BCT as their exit/entry points of their exports and imports***. Table 3.33*** shows a summary of the port preferences of some port users. However, the table shows that there are truckers which use Manila Ports but whose client industries are located in Batangas and Laguna. For **Bandai**, a toy manufacturer, the main reason why the company more frequently uses Manila Ports is the presence of more carrier and shipping services available at these ports.

TABLE 3.33: USAGE OF BCT AMONG INDUSTRIES

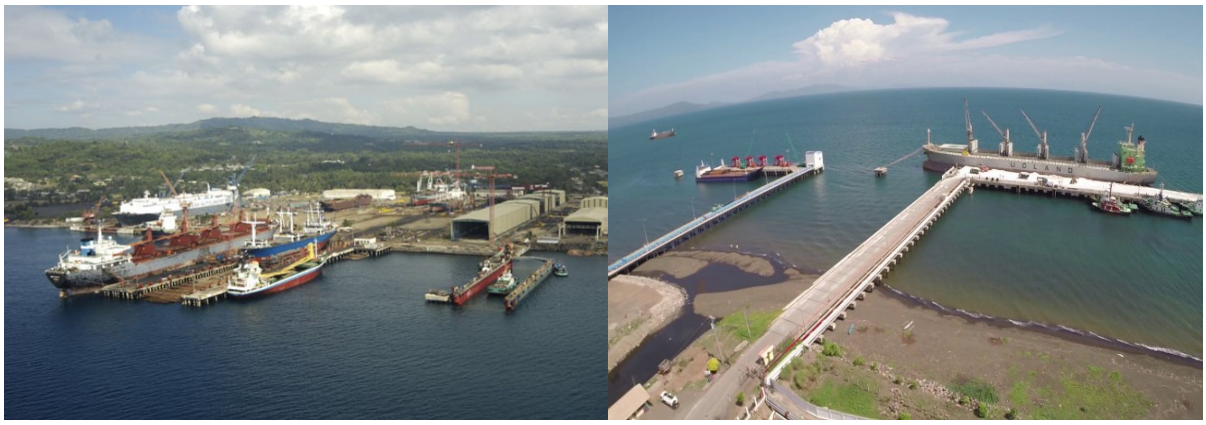
Company	Location of Office/Clients	Type of Product/Service	Use of BCT*
Yamaha Motorcycles	Lima	Assembly and distribution of motorcycles and parts	2
Nippon Express	Lima	Logistics and cargo forwarder	2
Evergreen		Shipping	3
JRMT Logistics	Manila and Southern Mindanao	Forwarding company	2
BoundPH	Based in Davao City	Forwarding company	4
InlandPH	Based in Manila with clients in Batangas and Manila	Freight and trucking services	5
Stepan Manufacturin	Batangas City	Manufacturer of chemicals such as	1

Company	Location of Office/Clients	Type of Product/Service	Use of BCT*
g		surfactants	
Blessed City Cardinal Carrier	Batangas City	Freight and Trucking Services	3
Bandai Namco Philippines Inc.	Lima Technology Center, Lipa City	Toy Manufacturer	4
* ***1 = uses Batangas Port only***			
2 = uses Batangas Port more than Manila Ports			
3 = uses BCT and Batangas Ports equally			
4 = rarely uses Batangas Port			
5 = never uses Batangas Port			

Data on exports from the Bureau of Customs District Office of Region IV however indicates that of the total export of CALABARZON is only 1.8% of the total value passed through the Batangas Container Port in 2016, but increased to 3.2% in 2017. *(Refer to Annex: Value of Export, BOC District Office.)* To encourage indusrties to use BCT as the port of entry/exit of goods, the BOC has reduced the length of assessment period for exports/imports to only one day from date of entry to the port.

The impact of the growth and presence of heavy industries on the utilization of the Batangas Container Terminal appears to be not very significant since most of these heavy industries have their own ports and majority of their shipments are made in bulk rather than in containers. ***Figure 3.17*** shows two examples of private ports being used by heavy industries in the area.

FIGURE 3.17: PRIVATE PORTS USED BY HEAVY INDUSTRIES



Keppel Batangas Shipyard Phoenix Petrochemicals and Industrial Park

3.2.4 Environmental and Social impacts

Environmental Impacts

The environmental impacts of ports may be divided into three sub-categories: (a) problems caused by port activity itself; (b) problems

caused at sea by ships calling at the port; and (c) emissions from inter-modal transport networks serving the port hinterland. These impacts can be exerted on the air, water, and land environment.

Air pollution is a significant concern at port facilities. Mobile sources at ports release pollutants including particulate matter (PM), nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), and greenhouse gases (GHG) such as carbon dioxide (CO_2). The sources include trucks, marine vessels, and cargo handling equipment. Various ship activities contribute to emissions of air pollutants particularly ships' movement in port, ships' activities during hoteling phase (from lighting, air conditioning, refrigeration, ventilation, etc.), and ships' loading and unloading activities.

There can also be sources of emissions from port activities other than ships. In port environment there are a lot of activities connected with ships activities, generating air pollution. These include: loading and unloading of products that produce volatile organic compound emissions; dry docks (evaporative volatile organic compound emissions); passenger car traffic (combustion products and evaporative volatile organic compound emissions); heavy vehicle traffic (combustion products emission); and occasionally, demolition or main modification of ships (asbestos, heavy metals, hydrocarbons, ozone depleting substances and others).

Noise can also be a concern in port operations. The major noise sources are the main propulsion machinery, the auxiliary engines, the propeller and transverse propulsion unit, and the heating, ventilation and air conditioning system. The majority of main and auxiliary machinery is driven by diesel engines. Machinery generates noise into the surrounding air and also induces vibration into any structure to which it is connected. Noise transmission can either be waterborne, airborne or structure-borne. The most evident noise for the port area is the airborne noise and particularly the ambient noise in outdoor areas. Noise can also come from passenger car and heavy vehicle (trucks) road traffic (the most important one); and from goods movement including from machinery such as quay-crane, pumps, etc.
Port operations can also have significant impacts on water quality and the health of marine life. Improperly discharged wastes from ships and other port activities can result in loss or degradation of habitat areas and can also harm marine life. Among the known impacts of port operations include:

- *Wastewater*. Ships periodically release sewage, wastewater and bilge water, which is wastewater that is often contaminated with oil.
- *Ship paint*. Leaching of anti-fouling paint additives (particularly those containing organotin tributyltin) meant to prevent sea-life (e.g., algae, mollusks or barnacles) from attaching to ships – thereby

slowing down the ship and increasing fuel consumption – can result in adverse impacts on marine life.

- *Stormwater runoff*. This gathers pollutants from paved surfaces at the port and deposits them in the water, often by-passing wastewater treatment plants.
- *Oil Spills*. Oil contamination can include chronic pollution from runoff, bilge water, and the loading and unloading of ships, as well as larger spills resulting from overfilling ships or tears in a ship's hull.
- *Dredging*. Removing sediment to deepen ship channels can increase the cloudiness of water and disturb bottom sediment, harm or permanently destroy critical wildlife habitats, and disturb or kill threatened and endangered species.
- *Invasive Species*. Marine aquatic organisms (including dormant stages of microscopic toxic organisms such as dinoflagellates, pathogens such as bacterium vibrio cholera) can be taken into ships through ballast water that is used to help maintain ship balance and then transported across the world to new habitats where they can become invasive species that threated the balance of natural ecosystems.

In various port areas, there can also be different sources of land or soil pollution. These include: operations on terminals and fuel deposits (accidental discharge of oil in the soil, loss from deposit tankers and pipeline); spill from the bulk handling device (oil, rubber etc.) and dust spread during the handling (transports between quay and storage area); oil and other spillage from the vehicles dissolve the surface and may cause a homogeneous tarmac to dissolve; heat and high loads cause settlements of the surface; and spill of chemicals from demolition of ships.

The following main sources of wastes can also be recognized in port and in its neighborhood: oil terminals and fuel deposits (oily and toxic sludge); dry docks operations (oily and toxic sludge); maintenance and retrofits of older vessels.

The Batangas Port has been issued an Environmental Compliance Certificate (ECC) (ECC No. 9102-050-215C) by the Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR) in accordance with the Revised Procedural Manual for DENR Administrative Order No. 30 Series of 2003 (DAO 03-30). Accordingly, ATI Batangas, Inc. and the Philippine Ports Authority regularly submit a semi-annual ECC Compliance Monitoring Report (ECC-CMR). The regular monitoring imposed by the ECC adequately addresses the land, air and water impacts of the operation of the Batangas Port. The social impacts are addressed through the Social Development Plan incorporated into the ECC, which includes and effective Information, Education and Communication (IEC) Plan and a beneficial Social Development Program

(SPD) among the employees/workers, host barangay, and affected communities.

The Monitoring Report shows that for the period January to June 2017, all conditions in the ECC and the Environmental Management Program (EMP) are complied with, as summarized in ***Table 3.34***.

TABLE 3.34: SUMMARY OF MAJOR ECC-CMR FINDINGS

Condition/Requirement/Commitment	Compliance Status & Summary of Action Taken
Compliance with ECC	All conditions in the ECC are complied with.
Compliance with EMP	All conditions in the EMP are complied with.
Implementation of appropriate and effective environmental impact remedial actions in case of exceedances	ATIB already purchased a multi-function meter to ensure proper monitoring of illumination, noise, temperature and humidity in areas.
Complaints management	No complaints received.
Realistic and sufficient budget for conducting the environmental monitoring and audit activities	With allotted budget for environmental monitoring activities.
Accountability – qualified personnel are charged with the routine monitoring of the project activities in terms of education, training, knowledge and experience of the environmental team	The proponent of the Port Development Project is the Philippine Ports Authority (PPA). The Port Management Office of Batangas has designated Suzie Huelgas as their Environmental Specialist. ATI Batangas, Inc., on the other hand, is in charge of the Batangas Port operations as the port operator for PPA. Elmer B. Villanueva is designated as ATIB's Pollution Control Officer.

Furthermore, the following findings are notable:

- Compliance Status: Based on the above-mentioned data, the company is complying with the ECC conditions and with the EMP. The company's continued compliance to its ISO 14001 Certification serves as proof that the company's environmental compliance is consistent.
- Environmental Quality Status: While there are no environmental analysis required in the PPA ECC and the ATIB ECC, the ATIB regularly monitors compliance to applicable environmental regulations.
- Environmental Management Plan Status: The Company is complying with all activities pertaining to the environmental management plan.

A copy of the latest ECC Compliance Monitoring Report is presented in the annex (see ***Annex G***).

Social Impacts

The major social impact of the Batangas Port Phase II project is the displacement of a total of 96 families that were relocated to Brgy Balete. An extensive discussion of the results and findings of the survey of the affected families is presented in ***Annex H.***

Figure 3.18 shows the position of the relocation site relative to Batangas Port.

FIGURE 3. 18: THE RELOCATION SITE RELATIVE TO THE BATANGAS PORT

Of the total of 96 families relocated, only 21 families still reside at the

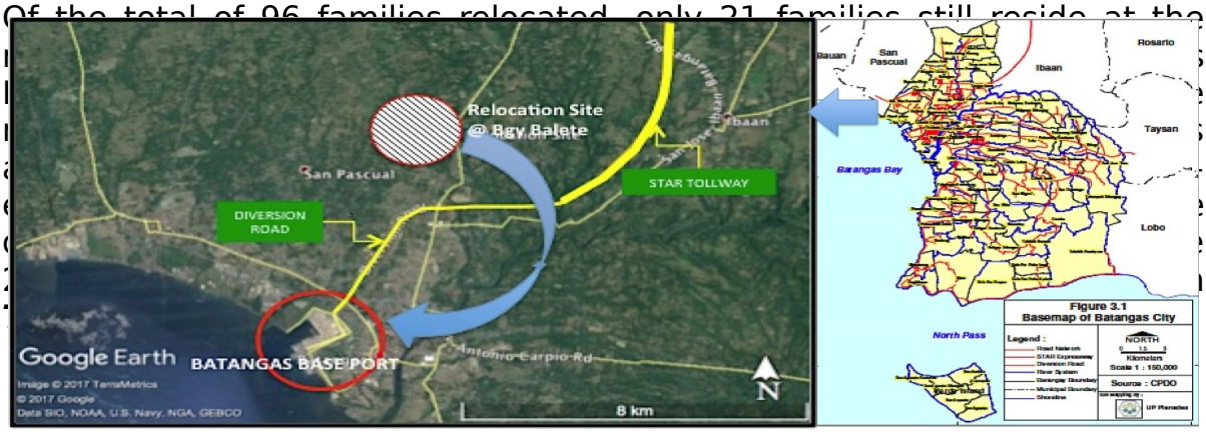


TABLE 3. 35: SOCIO-ECONOMIC CONDITIONS WITH THE PROJECT

Parameters	Better (%)	Worse (%)	Same (%)	No Response (%)
Water supply	62	0	38	0
Power and communications	81	0	19	0
Access to schools	14	53	33	0
Access to health facilities	0	71	29	0
Access to other basic services	0	81	19	0
Access to places of work	52	10	24	14
Monthly income	33	19	33	15

Majority of the respondents believe that as a result of the implementation of the project the relocation site offers better facilities for water supply (62% of respondents) and electrification (81%) compared to the conditions without the project at the previous site. However, in terms of access to schools, health facilities and other basic services, more than 50% of respondents say that access to these basic services are farther away compared to their previous place of residence. With respect to access or distance to workplaces, around half of the respondents say that the places of work have become nearer to their area of residence. However, in terms of level of income, only 33% say that their monthly incomes have increased. On the other hand, 19% of the respondents say that their family income level has decreased and 33% say that their income level is the same as before they were relocated. Indeed, some families have decided to go back to their previous domicile at the port area due to the lack of suitable livelihood activities at the relocation site.

The sources of income of the relocated families changed significantly after their relocation into the new site. There was a shift in the source of livelihood from fishing – the source of income for nearly half of the families – to employment, owning small retail business ("sari-sari store") and other services after relocation. The distance of the relocation site to the fishing area must have been a main consideration of families in shifting to sources of livelihood other than fishing. Of the ten families who were engaged in fishing, 8 of them abandoned fishing and shifted to other sources of livelihood.

The absence of work or the difficulty of having livelihood activities within the vicinity of the relocation site forced many families to go back to the port area. While electricity and water supply are available at the relocation site, the lack of livelihood opportunities far outweighed the presence of better amenities. Accordingly, many have decided to move back to Sta. Clara where they are able to engage in fishing as a source of income. Due to lack of livelihood, these families could not pay for the use of available amenities in the relocation site and hence had to go back to the seaside barangay.

The relocated families also gave their perceptions on the overall impact of the Batangas Port Project Phase II in terms of the resulting road condition, quality of the air and surrounding sea, cleanliness of the surrounding and other parameters. These are summarized in ***Table 3.36***.

TABLE 3.36: PERCEPTIONS OF THE OVER-ALL IMPACT OF PORT PROJECT PHASE II (BRGY BALETE)

Parameters	Better (%)	Worse (%)	Same (%)	No response (%)
Road condition	85	10	5	0

Quality of sea	10	52	38	0
Air quality	24	57	19	0
Cleanliness of surroundings	5	38	57	0
Security	10	71	19	0
Socio-economic conditions	0	43	43	14
	In-Migration (%)	**Out-Migration (%)**	**No Migration (%)**	**No response (%)**
Population	38	0	72	0

Only “road or traffic conditions” received an overwhelming rating of “better than before” from the relocated families. On the quality of water and air, majority of respondents feel that these have deteriorated. In addition, over 70% of respondents believe that the security of the area has deteriorated, 43% feel that the socio-economic conditions have worsened, and another 43% consider the situation to have not changed.

In the case of the 8 families that had returned to Brgy Sta Clara near the Batangas Port, their perceptions on the impacts of the port project are summarized in ***Table 3.37***.

TABLE 3. 37: PERCEPTION OF THE OVER-ALL IMPACT OF PORT PROJECT PHASE II (BRGY. STA. CLARA)

Parameters	Better (%)	Worse (%)	Same (%)
Road condition	13	25	62
Quality of sea	0	62	38
Air quality	0	38	62
Cleanliness of surroundings	0	38	62
Security	62	25	13
Socio-economic conditions	13	50	37
	In-Migration (%)	**Out-Migration (%)**	**No Migration (%)**
Population	87	0	13

In terms of road condition and traffic flow, only 13% of the respondents say that traffic flow has improved while over 60% feels that traffic flow is the same as before the project was implemented. In terms of air and sea water quality, none of the affected families think that air and water quality has improved after the implementation of the project. Over 60% of the respondents say that the quality of the sea water has become worse. In the case of air quality and the cleanliness of the surroundings, majority say that they have not changed. In terms of livelihood or economic conditions of families, half say that they are now in a worse condition than prior to the port project.

In general, there is great disappointment that the government has not fulfilled its commitment to issue the Certificate of Award for the assigned lots to the respective benefactors. Many beneficiaries have not yet

received these award certificates of the lots in Brgy Balete. Moreover, familes re dissatisfied with the relocation site because of its distance from their work place (fishing). Further, the relocation plan included a provision that work/business opportunities inside the Batangas Port will be available for affected families. However, families claim there have not been work and/or business opportunities inside the Batangas Port. Furthermore, only a few families were able to avail of the trainings/seminars because of limited slots and for those who were able to avail of these trainings, there was no assistance in terms of seed capital to be able to actually engage in small business activites. Hence, the absence of work or the difficulty of having livelihood activities within the vicinity of the relocation site prompted families to return to the port area. Hence there is a general feeling among afftected families that Batangas Port Phase II Project has not improved the socio-economic conditions of families affected by the Project.

Based on information provided by the PPA, the preparation of the needed documents to effect the turn-over of the relocation area to the City of Batangas is still underway. Once completed, the award of certificates to the beneficiaries will be made.

During discussions with ATI, it was informed that the firm conducts regular/annual (sometimes twice a year) social outreach programs for families adjacent to the BCT, particularly Brgy Sta Clara. These activities include medical missions, donations on school supplies and small appliance such as electric fans, among others.

4 ECONOMIC RE-EVALUATION AND FINANCIAL REVIEW

4.1 METHODOLOGY

The objective of this re-evaluation is to assess the performance of the Port of the Batangas Phase II (or BCT) against the objectives the Project was designed to achieve as spelled out in the Feasibility Study conducted 1995. This section therefore presents first, the results of the economic viability evaluation for the project as presented in the said Feasibility Study, and second, the results of the present economic re-evaluation.

The re-evaluation is conducted to assess the economic viability of the project given that it is already operational. The re-evaluation proceeds by taking the actual cost of implementation of the project and the actual period of implementation, forecasting the operating and maintenance cost based on actual annual costs, forecasting the future traffic volumes of BCT based on historical traffic, and finally forecasting benefits based on the new traffic forecasts and the benefits identified by the Feasibility Study.

The methodology follows the methodology prescribed by the NEDA-ICC. Costs are broken down into its foreign and local components, shadow pricing is applied to foreign components and unskilled labor, taxes are excluded as economic costs, and prices are in constant prices.

4.2 ECONOMIC VIABILITY OF THE PROJECT PER FEASIBILITY STUDY

4.2.1 Inputs into 1995 Feasibility Study

The inputs that went into the 1995 Feasibility Study include the following:

- Port Capacities of Manila North Harbor and South Harbor at the time of Study (1995)

Shipping statistics for foreign cargo at the South Harbor and MICT indicate that waiting time for the past four years was 6.5 hours and gradually approaching the limit of container handling capacity. By 1995, the current berth utilization or current occupancy rate of the foreign container cargo berths was already at 78%. The Feasibility Study further assumed a “do-nothing scenario” for MICT and South Harbor in terms of port capacity and efficiency.

- Projected Foreign Container Traffic

By 2005, total foreign container cargo for Manila and Batangas Ports will be 16.5 million tons, and will increase at an annual rate of 6%. Of this total volume, 40% or 6.6 million tons will be passing through Phase II of Batangas Port, and this volume will grow at an annual rate of 7.2 %.

- Project Costs and Implementation Schedule

The implementation of Phase II was estimated to cost PhP 5,554 million and was to be implemented for a period of 43 months starting in September 1989 up to March 2002.

- Operations and Maintenance Costs

The projected annual operating and maintenance costs for the Project was estimated based on the following assumptions: (a) maintenance costs per year: 0.6% of cost for civil works and 4% of cost for equipment. The operating cost per container berth was assumed to be USD 10 million per year.

4.2.2 Expected Benefits of the Project

The implementation of the Phase II Development of Batangas Port was expected to result in:

- reduction in vessels' waiting time due to the increase in port capacity,
- net savings in land transport cost;
- net employment generation during construction and operation,
- potential increase in cargo handling productivity, and
- potential increase in industrial activity at the hinterland of Batangas Port

One the Project's quantified benefits was the expected reduction in vessel waiting time due to increase in port capacity. The project generally aimed to mitigate the problems in Manila Harbor which were expected to arise in the near future due to insufficient berthing facilities. Thus, the major economic benefit of the project was the expected reduction in vessel waiting time at the Manila Harbor including MICT, if the project was not implemented for operation at the beginning of the next century.

In 1994, the average container vessel waiting time at MICT where more than 75% of foreign container cargoes were handled in the Harbor was six to seven hours per vessel. It was projected that the annual increase of foreign container cargoes would be about 0.7 million tons, hence additional vessels would be required to keep average waiting time at 6 hours per vessel.

From the estimation of benefits, an annual cost savings will amount to around USD 82 million. The estimated total benefits for the project for the period 2001 to 2030 is projected to be USD 2,490 million.

The Project also had direct and indirect unquantified benefits. Unquantified direct benefits included savings in cargo transport costs due to diversion of cargo from Manila Ports to Batangas Phase II. An indirect benefit considered by the Study but not quantified was net employment generation during construction and operation.

In sum, the implementation and operation of the Project was estimated to yield an EIRR of 22.9%.

4.3 ECONOMIC RE-EVALUATION OF THE PROJECT

4.3.1 Actual Project Cost and Implementation Schedule

This re-evaluation uses the actual cost and actual implementation of Phase II of Batangas Port. The cost of the Project is PhP 8,749 million. Implementation actually started in September 1989 and was completed in December 2007.

The actual cost of implementing Phase II is converted to its economic equivalent by using a methodology approved by the ICC. The resulting cost of developing Phase II is PhP 8,147 million.

4.3.2 Annual Operating and Maintenance Costs

This evaluation assumes that there is no international cargo facility at Batangas Port before the construction of Phase II.

Annual levels of operating and maintenance costs for the with-project scenario are based on actual expenses and then projected using growth rates.

A severe limitation of this re-evaluation is that actual data for the last five years on operating and maintenance costs, which are to be provided by PMO Batangas and ATI, are not yet available. However, during discussions with ATI, the Consultant was informed that repair and maintenance works for the port (berthing facilities) are not required expectedly for the first nine (9) years of operations, and that the repair and maintenance works suggested by the Feasibility Study will start on the tenth year of operation. On the tenth year of operation, the annual cost of repair and maintenance of port facilities is then estimated using the parameters used by the Feasibility Study, i.e., for civil works, 0.6% of cost and for equipment, 4% of cost. For the cost of personnel services and other operating costs, actual costs for Phase II is estimated at 15% of the total of these costs (for 2016) for the base port as provided by the PPA PMO. These costs are then assumed to increase by 3% per year due to increase in operations.

4.3.3 Projected Cargo Throughput for Batangas Container Terminal

Future cargo throughput for BCT is estimated based on historical traffic for both the Manila Ports and BCT. It is believed that while there has been some degree of diversion of cargo from Manila to Batangas, the rate of diversion is expected to grow in the next few years and then will stabilize.

This "diversion" is largely due to the relocation of industries to CALABARZON and the migration of cargo from industries located at the Region from Manila Ports to BCT.

The traffic forecasts then for BCT is estimated in relation to the projected international cargo volumes for both the Manila Ports and BCT as a whole. Cargo volumes for BCT are then estimated using an assumed diversion rate.

Historical Traffic for Manila Ports and BCT

Table 4.1 below shows the annual volume of the combined traffic of the Manila Ports and BCT.

TABLE 4.1: INTERNATIONAL CARGO THROUGHPUT MANILA PORT AND BCT (MT)

Year	(A) Manila South + MICT			(B) BICT			(A)+(B)		
	Total	Import	Export	Total	Import	Export	Total	Import	Export
2010	22,769,121	16,983,962	5,785,159	8,742	8,239	503	22,777,863	16,992,201	5,785,662
2011	22,741,162	16,570,436	6,170,726	41,139	16,691	24,448	22,782,301	16,587,127	6,195,174
2012	23,913,243	17,710,574	6,202,669	56,343	47,852	8,491	23,969,586	17,758,426	6,211,160
2013	24,384,870	17,831,574	6,553,296	97,112	80,734	16,378	24,481,982	17,912,308	6,569,674
2014	23,339,645	17,035,984	6,303,661	782,190	654,528	127,662	24,121,835	17,690,512	6,431,323
2015	23,829,242	17,923,600	5,905,642	973,932	749,296	224,636	24,803,174	18,672,896	6,130,278
2016	26,630,573	20,903,758	5,726,815	1,185,510	949,854	235,656	27,816,083	21,853,612	5,962,471
2017				1,087,460	870,570	216,890	1,087,460	870,570	216,890

The combined cargo throughput for Manila Ports and BCT increased by an average annual rate of 3.4% during the period 2010 to 2016. However, from 2014 to 2016, cargo volumes increased by 7.4% per year. While BCT started operations in 2008, and the ATI contract became effective in 2010, the percentage of cargo handled by BCT was less than 1% of the total cargo. Starting in 2014, the share of BCT increased steadily from 3.24% of total cargo in 2014 to 4.26% in 2016.

TABLE 4.2: SHARE OF BCT TO TOTAL CARGO

YEAR	BCT/MANILA PORTS + BCT		
	TOTAL	IMPORT	EXPORT
2010	0.04%	0.05%	0.01%
2011	0.18%	0.10%	0.39%
2012	0.24%	0.27%	0.14%
2013	0.40%	0.45%	0.25%
2014	3.24%	3.70%	1.99%
2015	3.93%	4.01%	3.66%
2016	4.26%	4.35%	3.95%

Projected Traffic for BCT

As discussed above, to come up with the projected traffic for BCT, the combined foreign cargo traffic for Manila Ports and BCT is first estimated. The total volume is projected using an annual growth rate of 8% throughout the period (until 2040) and a percentage of exports over total of 27%, (actual for 2015 and 2016 is 23%.). the following shows the results for select years.

TABLE 4.3: PROJECTED FOREIGN CARGO, BCT AND MANILA PORTS (MT)

Foreign Cargo	2020	2025	2030	2040
Import	25,579,385	37,584,509	55,223,974	119,224,418
Export	9,460,869	13,901,120	20,425,306	44,096,703
Total	35,040,254	51,485,629	75,649,280	163,321,121

The projected cargo throughput is then estimated for BCT by assuming that the import traffic will grow from a share of 6% in 2018 to 15% in 2025. This share will then be constant at 15% from 2015 onwards. For exports, BCT share will be 6% in 2016 and will increase to 25% in 2025 and will remain constant from then on. The resulting cargo forecasts for BCT for select years is presented by ***Table 4.4*** below.

TABLE 4.4: PROJECTED CARGO VOLUMES IN BATANGAS CONTAINER TERMINAL (MT)

Foreign Cargo	2020	2025	2030	2040
Import	2,046,351	5,637,676	8,283,596	17,883,663
Export	1,135,304	3,475,280	5,106,326	11,024,176
TOTAL	3,181,655	9,112,956	13,389,923	28,907,838

4.3.4 Benefits of the Project

- Reduction in Vessel Waiting Time

This re-evaluation likewise considers reduction on cost of vessel waiting time. This type of benefit accrues to vessels that use the Manila Ports if there is no other port (without-project scenario). It is assumed that these vessels are those now using the BCT, hence they are the vessels which have been diverted from the Manila Ports. The cost of waiting is USD1000 dollars as assumed by the Feasibility Study. The results of the recalculations show that in 2015 this amounts to PhP6.49.4 million and will increase to PhP274 million in 2030.

- Reduction in Trucking Costs

Due to migration of cargo from the Manila Ports to the BCT, there was and will be a reduction in trip lengths for trucking services. It is estimated that on the average, the reduction in trip length is 20 km. This re-evaluation has considered only the reduction in fuel costs as a benefit. Based on studies by the DPWH, the fuel consumption per kilometer travelled (including time costs due to congestion) by a fully loaded truck is 2.5 liters. Considering the price of diesel fuel at PhP 40 per liter, this savings in fuel cost amounts to PhP 2.62 million in 2010 and will amount to PhP 3,347 million in 2030.

- Reduction in CO_2 Emissions

The reduction in trip lengths will likewise result to reduction in CO_2 emissions by the cargo trucks. Studies have shown that fully-loaded trucks emit about 0.033 metric tons CO_2 per 20-km of distance travelled. Further, this CO_2 emissions have been valued as a social cost with a value of USD 220 per metric ton (Source: a study from www.greenbiz,com). In 2010 the value of reduction in CO_2 emissions amounts to PhP 0.15 million and this will amount to PhP 0 million in 2030.

- Employment Generated During Implementation and Operation of the Project

The implementation of the project generated around 800 man-days of skilled labor and about 2,800 man-days of unskilled labor

- Benefits to National and Local Governments

The benefits to national and local governments include: increase in remittances to national government by PPA Batangas due to additional revenues generated from increased port traffic; VAT remittances to government, and import and export duties collected by the Bureau of Customs. In particular the BOC, Distirct Office at Batbagas Port collected a total of PhP 82.8 billion in 2015, the collections increasing to PhP115.9 billion in 2017.

The economic viability calcualtions however, included only the first 3 benefits discussed above.

4.3.5 Economic Viability of Phase II

Using the above estimates on costs and benefits, this re-evaluation suggests that the economic internal rate of return (EIRR) is 9.2%. ***Table***

4.5 shows the annual streams of costs and benefits used in the calculation of the EIRR.
In relation to the viability of the Project as then concluded by the Feasiblity Study, this re-evaluation has estimated a less viable scenario for the BCT. While considering actual traffic volumes for the Manila ports and BCT for the period 2014 – 2016, cargo traffic projections have been correspondingly adjusted resulting in lower volumes for BCT.

The annual benefits streams show that the reduction in trucking costs due to reduction travel distances and travel times contributes the biggest benefit as a result of implementation and operation of the project, contributing 87% of the total benefits generated by the project.

TABLE 4.5: ECONOMIC INTERNAL RATE OF RETURN, AMOUNTS IN PHP MILLION

Year	COSTS			BENEFITS				NET BENEFITS
	Capital*	O & M	Total	Reduction in vessel waiting costs	Reduction in Trucking Costs	Reduction in CO2 Emissions	Total	
2003	195.18		195.18	0.00	0.00	0.00	0.00	(195.18)
2004	1,049.59		1,049.59	0.00	0.00	0.00	0.00	(1,049.59)
2005	1,049.59		1,049.59	0.00	0.00	0.00	0.00	(1,049.59)
2006	2,353.26		2,353.26	0.00	0.00	0.00	0.00	(2,353.26)
2007	2,353.26		2,353.26	0.00	0.00	0.00	0.00	(2,353.26)
2008		7.61	7.61	0.00	0.00	0.00	0.00	(7.61)
2009		7.84	7.84	0.00	0.00	0.00	0.00	(7.84)
2010		8.08	8.08	0.04	2.06	0.15	2.25	(5.82)
2011		8.32	8.32	0.09	4.17	0.31	4.57	(3.74)
2012		8.57	8.57	0.30	11.96	0.89	13.15	4.58
2013		8.82	8.82	0.57	20.18	1.49	22.25	13.43
2014		9.09	9.09	5.15	163.63	12.12	180.90	171.81
2015		9.36	9.36	6.49	187.32	13.87	207.68	198.32
2016		9.64	9.64	8.97	237.46	17.58	264.02	254.38
2017		9.93	9.93	8.91	217.64	16.12	242.67	232.74
2018		10.23	10.23	14.50	328.95	24.36	367.81	357.58

2019		10.54	10.54	30.64	648.89	48.05	727.59	717.05
2020		133.77	133.77	40.07	795.41	58.90	894.38	760.62
2021		137.78	137.78	57.47	1,073.81	79.52	1,210.79	1,073.02
2022		141.91	141.91	68.84	1,214.89	89.96	1,373.70	1,231.79
2023		146.17	146.17	93.47	1,562.58	115.71	1,771.76	1,625.59
2024		150.55	150.55	116.39	1,848.48	136.88	2,101.75	1,951.19
2025		155.07	155.07	150.62	2,278.24	168.71	2,597.56	2,442.49
2026		159.72	159.72	170.41	2,460.50	182.20	2,813.12	2,653.39
2027		164.52	164.52	192.41	2,657.34	196.78	3,046.53	2,882.02
2028		169.45	169.45	216.84	2,869.93	212.52	3,299.29	3,129.84
2029		174.53	174.53	243.94	3,099.52	229.53	3,572.99	3,398.45
2030		179.77	179.77	274.00	3,347.48	247.89	3,869.37	3,689.60
2031		185.16	185.16	307.30	3,615.28	267.72	4,190.30	4,005.13
2032		190.72	190.72	344.17	3,904.50	289.14	4,537.81	4,347.09
2033		196.44	196.44	384.98	4,216.86	312.27	4,914.11	4,717.67
2034		202.33	202.33	430.12	4,554.21	337.25	5,321.58	5,119.25
2035		208.40	208.40	480.01	4,918.55	364.23	5,762.79	5,554.39
							EIRR	**9.22%**
							BCR @ 10%	**0.87**
							NPV @ 10%	**1,529.97**

4.4 SUMMARY OBSERVATIONS

Project Cost and Implementation Schedule. The actual cost of implementing the project was almost equal to the cost (in terms of yen) as estimated during the planning period. However, there were significant delays in its implementation, from the planned period of 43 months to 112 months. This correspondingly delayed the realization of benefits due to the project.

Projected Cargo Throughput for BCT. While the volumes projected for the Greater Capital area (including Batangas) during the planning stage were close to the actual traffic volumes, at least until year 2016, the projected share of Batangas (40% by year 2005) was not realized. By 2016, the

share of Batangas Port is estimated at 4.3% of the total containerized foreign cargo for Manila Ports and BCT combined. This may be due to delays in the operations of BCT.

The economy of CALABARZON has grown in terms of economic output (GRDP) and the manufacturing sector has been the main contributor to this output. The region has grown as the center of industrial zone of the country. However, this growth has been largely limited to industries catering for the domestic market. The growth of the export industry has been sluggish compared to those catering for the domestic market. While the BCT is now available to support the plans of the Region for further industrialization, the future level of operations of BCT will also depend on the growth of the Region's industrial sector.

Economic Viability of the Project. The economic viability of the BCT remains in question despite quite aggressive forecasts for its cargo traffic. However, while one of the objectives then of BCT as set out during the planning stage, was to support the development plans of CALABARZON towards industrialization, this kind of support remains difficult to quantify. And as long as this benefit remains unquantified, the economic viability of BCT wil remain underestimated. Nevertheless, the prospect is bright for a continuing, though perhaps gradual, increase in BCT's economic viability as the country's overall economy continues to grow rapidly.

5 CONCLUSIONS, LESSON LEARNED AND RECOMMENDATIONS

As stated in the Terms of Reference, the overall objective of the current study is "to assess the gains and benefits of the Batangas Port Development Project Phase II in relation to the policy of shifting cargoes from the port of Manila." Based on the findings of this study, the Batangas Port Phase II Project is evaluated using the criteria of relevance, effectiveness (impact), efficiency and sustainability; and the following conclusions, lessons learned, and recommendations are made.

5.1 EVALUATION RESULTS

As stated in the Inception Report, project assessment will consider, whenever relevant or applicable, the evaluation criteria such as relevance, efficiency, effectiveness (impact) and sustainability of the project. The agreed evaluation criteria are presented in ***Table 5.1***.

TABLE 5.1: EVALUATION CRITERIA

Evaluation Criteria	Description

1. **Relevance.** The extent to which the project results are in line with the priorities and policies of the target groups. Relevance assesses the usefulness of activities and outputs delivered to the target group.	Evaluate relevance to development needs during appraisal and to present, and consistency with development policies.
2. **Effectiveness (Impact).** The extent to which the project objective and expected accomplishments have been achieved. A project is considered effective when its activities produce the desired results	Compare planned and actual figures to measure effectiveness of the project as to its impact to the economy, society and natural environment.
3. **Efficiency.** The extent to which human and financial resources were used in the best possible way to implement activities, deliver outputs and achieve objectives/ outcomes.	Compare planned and actual, in terms of project output, term/period, and cost. Based on the results of each comparison, rate the overall efficiency of the project.
4. **Sustainability.** The likelihood that the benefits of the project will continue in the future.	Evaluate sustainability based on financial aspects (like assets, liabilities, profits and budget), consider technical capacity, and operation & management system.

Source: Adapted from the United Nations Evaluation Criteria for the Evaluation of Projects

5.1.1 Relevance

Relevance refers to the extent to which the project results are in line with the priorities and policies of the target groups. It involves the assessment of the usefulness of activities and outputs delivered to the target group. The evaluation for relevance involves the development needs of the BCT at the time of appraisal and at present, and consistency with development policies at the national and regional levels.

National Level

At the time of the appraisal, the Medium-term Philippine Development Plan (MTPDP) 1993-1998 was promoting investment in the maritime sector to encourage the movement of people and the distribution of goods. It was also moving the Philippines toward maritime sector development to improve the efficiency and safety of transport services.

In the Philippine Development Plan for the period 2017-2022, the Government expresses its recognition of the improvements in infrastructure quality and operational efficiency of the port system and encourages the utilization of the Batangas and Subic ports. Thus, the Government commits to encourage the optimum utilization of existing ports.

Regional Level

The Development Plan for Region IV-A for the period 1993 – 1998 envisioned the transformation of CALABARZON into one of the industrial areas of the country. The Region was expected to become the driving force of further industrialization not only in the region but in the whole country as well. The major role of the CALABARZON was to attract foreign and domestic investments, which would contribute substantially to employment and increase export earnings for the county.

Batangas City was identified as the Regional Agri-Industrial Center (RAIC) because of its strategic location and direct linkages to the Region's mainland and urban provinces. The provision of basic infrastructure such as the proposed international port at the Port of Batangas and alternative national roads connecting Batangas and Manila was expected to attract investments in the region. In the short-to-medium term, Batangas will receive all port-oriented industries and be built into a center for heavy industries.

The Batangas Container Terminal then started operations in 2008. During the period 2009 – 2016, the economy of the Region performed better (than the previous period) growing at an annual rate of 6.1%. It grew at an almost equal pace with the economy of the country as a whole, the GDP of which grew at an annual rate 6.3%. The Region contributed about 17% to the country's GDP during this same period.

Particular	Annual Growth Of GDP	Contribution to GDP
Philippines		
2002-2008	5.40%	–
2009-2016	6.30%	–
Calabarzon		
2002-2008	3.70%	12.40%
2009-2016	6.10%	16.80%

More specifically, the industry sector of the Region exhibited a growth rate of 6.3%, besting the two other sectors, agriculture and service sectors. Moreover, the manufacturing sub-sector contributed 85% of the output of the industry sector. Industrial parks and ecozones started to develop within the Region and since then the Region has become an industrial area of the country. The BCT has provided and will continue to provide the shipping needs of these industries.

5.1.2 Effectiveness

Effectiveness is assessed based on the extent to which the project objective and expected accomplishments have been achieved. A project is considered effective when its activities produce the desired results.

Comparison of actual data at the present time and at the time of appraisal is made to measure the effectiveness of the BCT Project.

Based on the FS in 1995, the objectives of the Project are: (a) to develop the Port of Batangas into a major international container terminal to complement the Port of Manila which is necessary for sustainable economic growth and balanced national development; and (b) to provide employment opportunities and increase in productivity of unemployed and less privileged individuals in Batangas City.

We now assess the BCT's effectiveness using both quantitative and qualitative indicators.

Quantitative Indicators

Based on the FS, the traffic forecasts then for BCT is estimated in relation to the projected international cargo volumes for both the Manila Ports and BCT as a whole. Cargo volumes for BCT were then estimated using an assumed diversion rate of 40% of Manila Ports cargoes.

The forecast and actual volumes of cargo handled in 8 years after completion in 2010 are presented in ***Table 5.2***. This project's level of achievement in terms of targets for volume of cargo handled is relatively low, however, cargo traffic starting 2013 significantly increased.

TABLE 5.2: COMPARISON CARGO TRAFFIC AT BATANGAS PHASE II (IN METRIC TONS)

Year	Export		Imports		Total	
	Appraisal	Actual	Appraisal	Actual	FS	Actual
2010	3,268,200		20,517,345		23,785,545	-
2011	3,501,634		22,088,710		25,590,344	-
2012	3,747,907		23,746,501		27,494,408	-
2013	4,007,725	16,342	25,495,470	80,680	29,503,194	97,022
2014	4,281,833	127,506	27,340,632	652,136	31,622,464	779,642
2015	4,571,017	224,618	29,287,278	749,036	33,858,294	973,654
2016	4,876,106	235,656	31,340,989	949,854	36,217,095	1,185,510
2017	5,197,975	216,890	33,507,654	870,570	38,705,630	1,087,460

Historically, the actual combined cargo throughput for Manila Ports and BCT increased by an average annual rate of 3.4% during the period 2010 to 2016. However, from 2014 to 2016, cargo volumes increased by 7.4% per year. While BCT started operations in 2008, and the ATI contract became effective in 2010, the percentage of cargo handled by BCT was less than 1% of the total cargo. Starting in 2014, the share of BCT

increased steadily from 3.24% of total cargo in 2014 to 4.26% in 2016. These are shown in ***Tables 5.3*** and ***5.4***.

TABLE 5.3: INTERNATIONAL CARGO THROUGHPUT MANILA PORT AND BCT (MT)

Year	(A) Manila South + MICT			(B) BICT			(A)+(B)		
	Total	Import	Export	Total	Import	Export	Total	Import	Export
2010	22,769,121	16,983,962	5,785,159	8,742	8,239	503	22,777,863	16,992,201	5,785,662
2011	22,741,162	16,570,436	6,170,726	41,139	16,691	24,448	22,782,301	16,587,127	6,195,174
2012	23,913,243	17,710,574	6,202,669	56,343	47,852	8,491	23,969,586	17,758,426	6,211,160
2013	24,384,870	17,831,574	6,553,296	97,112	80,734	16,378	24,481,982	17,912,308	6,569,674
2014	23,339,645	17,035,984	6,303,661	782,190	654,528	127,662	24,121,835	17,690,512	6,431,323
2015	23,829,242	17,923,600	5,905,642	973,932	749,296	224,636	24,803,174	18,672,896	6,130,278
2016	26,630,573	20,903,758	5,726,815	1,185,510	949,854	235,656	27,816,083	21,853,612	5,962,471
2017				1,087,460	870,570	216,890	1,087,460	870,570	216,890

TABLE 5.4: SHARE OF BCT TO TOTAL CARGO

Year	BCT/Manila Ports + BCT		
	Total	Import	Export
2010	0.04%	0.05%	0.01%
2011	0.18%	0.10%	0.39%
2012	0.24%	0.27%	0.14%
2013	0.40%	0.45%	0.25%
2014	3.24%	3.70%	1.99%
2015	3.93%	4.01%	3.66%
2016	4.26%	4.35%	3.95%

While the volumes projected for the Greater Capital Area (including Batangas) during the planning stage were close to the actual traffic volumes, at least until year 2016, the projected share of Batangas of 40% by year 2005 was not realized. By 2016, the share of Batangas Port was estimated at only 4.3% of the total containerized foreign cargo for Manila Ports and BCT combined. This might have been partly caused by delays in the operation of BCT.

The economy of CALABARZON has grown in terms of economic output (GRDP) and the manufacturing sector has been the main contributor to this output. The region has grown as one of the industrial centers of the country. However, this growth has been largely limited to industries catering for the domestic market. The growth of the export industry has been sluggish compared to those catering to the domestic market. While the BCT has been made available to support the plans of the Region for further industrialization, the future growth of the level of operations of BCT depends to a large extent on the magnitude of the growth of the Region's industrial sector.

There was a shift in cargoes from the Manila Ports to the Batangas Container Terminal as a result of the cargo traffic congestion at the Manila Ports as shown by the fact that the share of BCT to total cargo (BCT + Manila Ports) increased dramatically from only 0.24% and 0.40% in 2012 and 2013, respectively, to 3.24% in 2014. This increase in BCT's share of total cargo was maintained and even grew gradually in the succeeding years to 3.93% in 2015 and 4.26% in 2016.

Despite some shift in cargo traffic, the Batangas Container Terminal, which has an annual capacity of over 350,000 TEUs, is still fully capable of handling more ships and cargoes even as its utilization level has continued to increase. In 2016 it booked a container throughput at nearly 160,000 TEUs, which further went up to almost 198,000 in 2017. It recorded quay production of 29-31 gross moves per crane hour (GMPH), and yard utilization of up to 38%. Truck turnaround time averaged 30 minutes (26 to 42 minutes) upon gate entry. In anticipation of future growth, planning for expansion has commenced starting with the extension of its crane rails and yard, to be followed by the deployment of two more quay cranes and four additional rubbertired gantry cranes, and bringing the capacity to over 450,000 or even up to 600,000 TEUs.

It is projected that there will be more cargo shifting from Manila to BCT in the near future. Moreover, due to further expansion of the export industry of the Laguna and Batangas Provinces, the share of BCT on the export cargo will increase steadily from 5% to about 25% by year 2030. Total cargo throughput will increase by 25% per year from 2017 to 2025, at a slower rate of 5% per year during the period 2025 -2030.

Nevertheless, the Manila Ports will continue to be an attractive and preferred destination for international container cargoes because of the following attributes: availability of service providers, forwarders and shipping lines; reliable shipping schedule and acceptable cargo acceptance/release; accessibility with less cost and cheaper rates; nearer location of port to consignees, importers and warehouses; and transaction and release of goods are easier owing to the presence of specialized Customs staff. Consequently, the international cargo throughput in Manila Ports continued to increase from 22.8 million MT in 2010 to 26.6 million MT in 2016. Imports and exports at the Manila Port were found to be mostly going to NCR/Metro Manila, secondly to Cavite, third to NCR North, and the remaining portion to Laguna, Rizal and Batangas, and a very small portion to Southern Tagalog. This pattern is mainly due to the fact that imports, which are mainly for domestic consumption, constitute the bigger portion of cargo throughput. Hence these imports are mostly bound for the NCR where a substantial portion of the population reside.

Finally, the Batangas Port Development Phase II Project has provided a re-estimated EIRR of 1%, which is way below the estimated EIRR of 22.9% in

the original Feasibility Study but higher than the EIRR of negative 8.1% in the JICA Impact Assessment Report.

Qualitative Indicators

Environmental and Social Impacts

The adverse environmental impacts of port operations are minimal, and the Batangas Container Port continues to comply with its ECC and EMP conditions and requirements. However, there is continuing dissatisfaction from the affected and relocated families resulting primarily from the absence of work or the difficulty of having livelihood activities within the vicinity of the relocation site. There is also great disappointment that the government has not fulfilled its commitment to issue the Certificate of Award for the assigned lots to the respective benefactors and its promise to provide work or business opportunities around and inside the Batangas Port.

Survey of Relocated Households

An important component of the Phase II Development was the relocation of families living within the vicinity of the project site. These families had their residences in areas to be cleared to give way to the construction of Phase II. Aside from being relocated to a new site, the families were provided training on livelihood activities and other forms of benefits. Face-to-face survey was conducted to understand the extent that the programs set out for them actually benefitted them.

There is continuing dissatisfaction from the affected and relocated families resulting primarily from the absence of work or the difficulty of having livelihood activities within the vicinity of the relocation site. There is also great disappointment that the government has not fulfilled its commitment to issue the Certificate of Award for the assigned lots to the respective benefactors and its promise to provide work or business opportunities around and inside the Batangas Port.

Focus Group Discussions

Focus group discussions were used to learn more about opinions on a designated topic, and then to guide future action. The group's composition and the group discussion are carefully planned to create a non-threatening environment, so that participants feel free to talk openly and give honest opinions. Since participants are actively encouraged to not only express their own opinions, but also respond to other members and questions posed by the leader, focus groups offer depth, nuance, and variety to the discussion that would not be available through surveys. Additionally, because focus groups are not only directed but also expressive, they can yield a lot of information in a relatively short time. In

short, focus groups are a good way to gather in-depth information about a group's thoughts and opinions on a topic.

Key Informant Interviews

Interviews were conducted of government agencies that have first-hand knowledge about the planning, implementation and operation of Phase II of Batangas Port. These included the PPA PMOs of Batangas and Manila, the operators of Phase II and MICT of Manila, and officials of the Local Government of Batangas City. Interviews were also conducted among relevant personnel of the Department of Trade and Industry as well as with organizations that use the Batangas Port. In addition to qualitative information and opinion on the Port Project, data and statistics were made available by the various agencies such as traffic volumes, the number of industries located in the region, and other relevant information.

5.1.3 Efficiency

Efficiency is assessed by the extent to which human and financial resources are used in the best possible way to implement activities, deliver outputs, and achieve the desired objectives and outcomes. This is determined by comparing planned and actual project outputs, terms, and costs, and based on the results of the comparison, rate the overall efficiency of the project.

Project Outputs

In comparison to the planned scope of work of BCT based on the 1995 Feasibility Study, the actual project output deviated slightly as follows:

Item	Planned	Actual
Civil Works		
Container Berth	2 Berths: 450 m	As planned
	Water depth: 15 m	
Dredging	Water depth: 13 m, 4.5 M m^3	Water depth: 13 m, 4.1 M m^3
	Land excavated: 200,000 m^3	Land excavated: 330,000 m^3
Reclamation	Phase II: 800,000 m^3	Gen. cargo berth: 700,000 m^3
	Phase IV: 2.4 million m^3	Container terminal: 2.1 M m^3
Pavement works	Total Pavement: 17 ha	Total Pavement: 16.7 ha
	Container yard: 15 ha	Container yard: 15 ha
Berth of domestic berth for Phase 1	3 Berths	As planned
Attaching a boarding bridge with the ferry dock for Phase 1	1 Set	As planned
Terminal buildings, electricity, water line, sewerage, and facilities	1 Set	As planned

Item	Planned	Actual
for waste disposal		
Flyover construction1	Extension: 650 m	Extension: 824 m
Additional items	N/A	Installation of cargo handling machinery and port security system

Based on JICA's Impact Assessment Report, the variations made on port facilities from project appraisal to project completion are as follows:

a. Dredging works increased due to actual land shape and geology;
b. The amount of reclamation and pavement works for the container terminal slightly decreased due to land acquisition limitations that were less than planned;
c. Fly-over construction work became longer than the initial plan taking into account the actual land shape;
d. Installation of cargo handling machinery;
e. Installation of port security system called the International Ship and Port Facility Security (ISPS) in compliance with International Maritime Organization (IMO) regulation on 2002 following the IMO adoption of a new regulation in the 1974 International Convention for the Safety of Life at Sea (SOLAS).

Project Costs

As shown in ***Table 5.5***, the project cost of BCT (as planned) is JPY 19.441 billion while the actual project cost is JPY 17.595 billion. Thus the actual cost in terms of Yen currency is 10% lower than the planned cost due to the appreciation of the yen. However, in terms of Peso currency, the actual project cost increased by about 30% compared to the planned cost, partly due to the acquisition of additional cargo handling and TPSS equipment.

TABLE 5.5: PROJECT COST: PLANNED VS. ACTUAL

Project Cost	At Time Of Appraisal		Completion	
	JPY	PHP	JPY	PHP
Foreign	14,555	4,159	14,526	6,475
Local (GOP)	4,886	1,396	3,069	1,381
Total Cost	19,441	5,555	17,595	7,856

Note: The exchange rate was JPY 3.5 per one PHP in the initial plan and JPY 2.24 per one PHP (weighted average rate)

Implementation Period

The project was supposedly to be undertaken for a period of three (3) years and seven months (43 mos) from the time the loan agreement (L/A) was signed in September 1998 until the time civil engineering work was completed in March 2002. However, it took more than 9 years for the project to be completed in December 2007.

Item	Planned	Actual
Total Project Duration	Sep 1998 – Mar 2002 (43 mos)	Sep 1998 - Dec 2007 (112 mos)
Loan Agreement	Sep 1998	Sep 1998
Bidding Process	-	-
Land Acquisition	Sep 1997 - Dec 1998 (16 mos)	Sep 1997 - Sep 2001 (25 mos)
Construction Works	Apr 1999 - Mar 2002 (36 mos)	Apr 1999 - Dec 2007 (105 mos)

The reasons for the delay in the implementation of the project are: (a) problems in land acquisition due to resistance of the tenants and informal settlers to parcellary survey of the project site; and (b) change in the layout of the flyover on the access road after the bidding resulting in the extension of construction period.

5.1.4 Sustainability

Sustainability is the likelihood that the benefits of the project will continue in the future. This is evaluated based on organizational structure, technical capacity, financial aspects, and operation & management system.

PPA awarded the operation and management of BCT to a private company, Asian Terminal Incorporated (ATI). The contract was effective for 25 years and was signed in March 2010. The details of delegated operation were defined in the Terms of Reference (TOR), which was attached to the contract, stating how to operate (cargo handling work, related operations, and other services at port), maintain, promote, and take any other action regarding the facilities. ATI was to pay the PPA a fixed fee and a variable fee linked to the sales amount every year.

According to ATI, personnel who are hired to handle cargo (e.g., crane operators) undergo training to meet the required skills. Thus, there are no specific problems with structural aspects of operation and maintenance.
Also, ATI as port operator, is responsible for the maintenance and expansion of the port facilities at BCT. The operation and maintenance expenses are low as the facility is quite new.

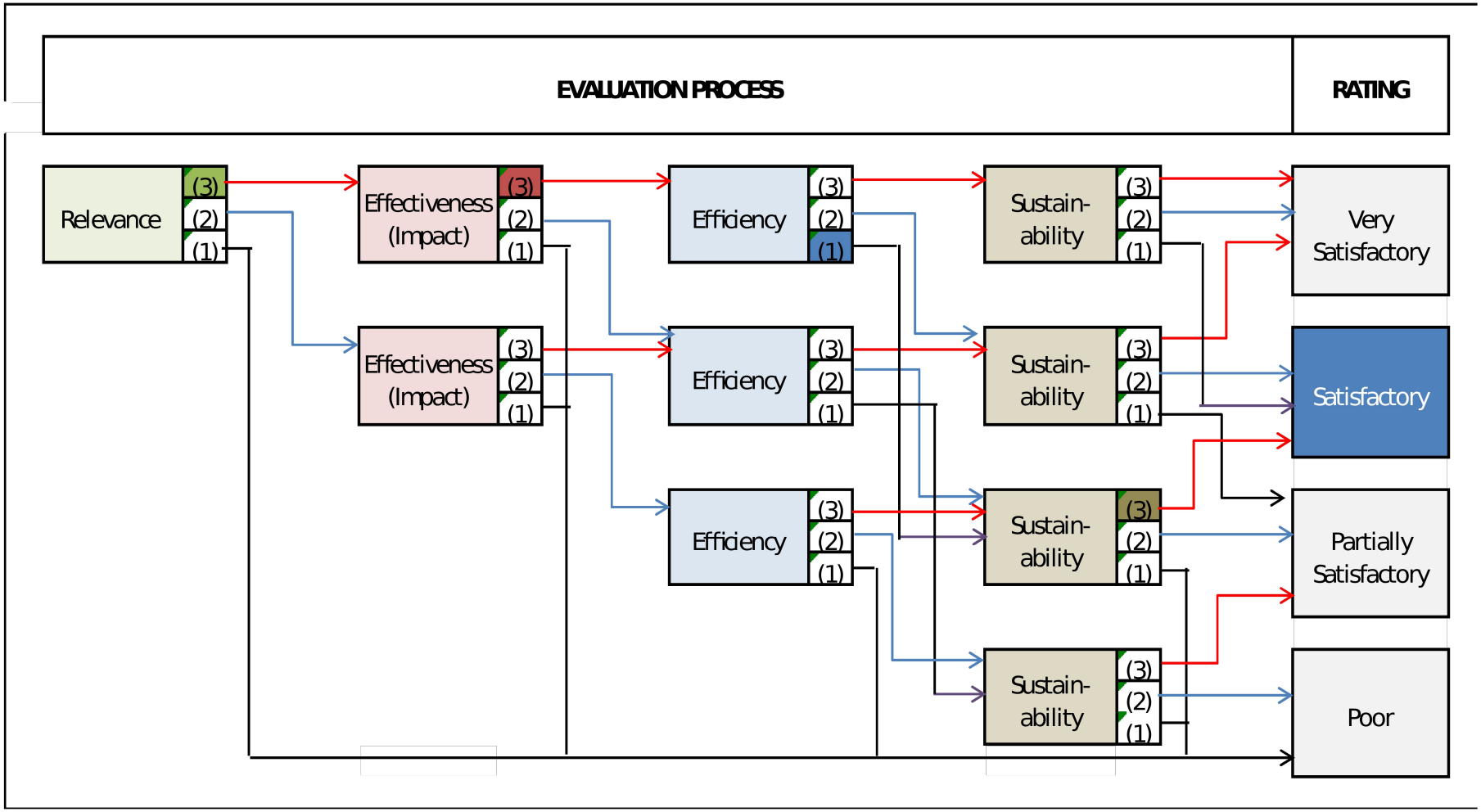
5.1.5 Rating and Evaluation

Summarized in ***Table 5.6*** are the ratings using the four (4) evaluation parameters discussed above.

TABLE 5.6: RATINGS USING THE FOUR EVALUATION CRITERIA

Evaluation Criteria		Description	Points Allocated		Remarks/Notes
1)	***Relevance***				
	The extent to which the project results are in line with the priorities and policies of the target groups. Relevance assesses the usefulness of activities and outputs delivered to the target group.	Evaluate relevance to development needs at appraisal and at present, and consistency with development policies.	Consistency with needs/policies	(3)	The rating is 3 considering that the project is consistent with the development needs and policies of the government
			Partial problem in consistency with needs/policies	(2)	
			Serious problem in consistency with needs/policies	(1)	
2)	***Effectiveness (Impact)***				
	The extent to which the project objective and expected accomplishments have been achieved. A project is considered effective when its activities produce the desired results.	Compare planned and actual figures to measure effectiveness of the project.	80% or more of the original plan	(3)	The rating is 3 though the target cargo volume has not been realized, the performance of the BCT starting 2014 to 2017 significantly increased.
			50% or more, but less than 80% of the original plan	(2)	
			Less than 50% of the original plan	(1)	
3)	***Efficiency***				
	The extent to which human and financial resources were used in the best possible way to implement activities, deliver outputs and achieve objectives/ outcomes.	Compare planned and actual, in terms of project output, term, and cost. Based on the results of each comparison, rate the overall efficiency of the project.	**1. Output**		The rating is 1 since there is a change in output. The rating for project period and cost should be taken into consideration.
			2. Project Period		
			100% or less of the original plan	(3)	
			More than 100%, but 150% or less of the original plan	(2)	
			More than 150% of the original plan	(1)	
			3. Total Project Cost		
			100% or less of the original plan	(3)	
			More than 100%, but 150% or less of the original plan	(2)	
			More than 150% of the original plan	(1)	
			4. Overall Efficiency Rate the overall efficiency based on the sub-ratings of "Project Period" and "Cost".		
			"aa" (6 points)	(3)	
			"ab, ba, ac, ca, or bb" (4～5 points)	(2)	
			"bc, cb, or cc"(2～3 points)	(1)	
4)	***Sustainability***				
		The likelihood that the benefits of the project will continue in the future. Evaluate sustainability based on financial aspects, consider	Highly sustainable	(3)	The rating is 3
			No major problem	(2)	
			Major concern at evaluation	(1)	

Evaluation Criteria		Description	Points Allocated		Remarks/Notes
		technical capacity,and operation and management system			
5)	***Overall Rating***				
		Perform an overall rating	Refer to flow chart		Satisfactory


EVALUATION PROCESS
RATING
Relevance
(3)
(2)
(1)
Effectiveness (Impact)
Effectiveness (Impact)
Efficiency
Efficiency
Efficiency
Sustain-ability
Sustain-ability
Sustain-ability
Sustain-ability
Very Satisfactory
Satisfactory
Partially Satisfactory
Poor

5.2 CONCLUSIONS

Objective 1: Assess if there was a decrease in port congestion in Manila International Container Port as an effect of the transfer of some containerized cargo in Batangas Port.

- It is evident that the Manila Truck Ban in 2014 resulted in cargo traffic congestion at the Port of Manila as shown by the following data: (a) the average ship's waiting time at MICT increased from only 1 day in 2012 and 2013 to 6 days in 2014; and (b) the average ship's waiting time returned to the usual 1 day in 2015 and 2016 after the Manila Truck Ban was lifted.

- There was a shift in cargoes from the Manila Ports to the Batangas Container Terminal as a result of the cargo traffic congestion at the Manila Ports as shown by the fact that the share of BCT to total cargo (BCT + Manila Ports) increased dramatically from only 0.24% and 0.40% in 2012 and 2013, respectively, to 3.24% in 2014. This increase in BCT share of total cargo was maintained and even grew gradually in the succeeding years to 3.93% in 2015 and 4.26% in 2015.

- The congestion at the port of Manila which resulted into some shifting of container cargo to the BCT was caused primarily by the truck ban imposed by the City of Manila on 4 Feb 2014 limiting the operating hours of container trucks plying the city streets. This ban was subsequently lifted on 13 Sep 2014 by Manila Mayor Joseph Estrada. Then on 16 Sep 2014, President Benigno Aquino issued EO 172 declaring the ports of Batangas and Subic as extensions of Manila ports during times when there are port congestion and other emergency cases to be determined by the PPA.

- It is projected that there will be more cargo shifting from Manila to BCT in the near future. The share of BCT on the export cargo will increase steadily from 5% to about 25% by year 2030. Total cargo throughput will increase by 25% per year from 2017 to 2025, at a slower rate of 5% per year during the period 2025-2030.

- Nevertheless, the Manila Ports will continue to be an attractive and preferred destination for international container cargoes because of the following attributes: availability of service providers, forwarders and shipping lines; reliable shipping schedule and acceptable cargo acceptance/release; accessibility with less cost and cheaper rates; nearer location of port to consignees, importers and warehouses; and transaction and release of goods are easier owing to the presence of specialized Customs staff. Consequently, the international cargo throughput in Manila Ports continued to increase

from 22.8 million MT in 2010 to 26.6 million MT in 2016. Imports and exports at the Manila Port were found to be mostly going to NCR/Metro Manila.

Objective 2: Measure performance of the Batangas Port in handling foreign cargo in terms of capacity and accessibility.

- Despite some shift in cargo traffic, the Batangas Container Terminal, which has an annual capacity of over 300,000 TEUs, is still fully capable of handling more ships and cargoes even as its utilization level has continued to increase. In 2016 it booked a container throughput at nearly 160,000 TEUs, which further went up to almost 198,000 in 2017. It recorded quay production of 29-31 gross moves per crane hour (GMPH), and yard utilization of up to 38%. Truck turnaround time averaged 30 minutes (26 to 42 minutes) upon gate entry. In anticipation of future growth, planning for expansion has commenced starting with the extension of its crane rails and yard, to be followed by the deployment of two more quay cranes and four additional rubber tired gantry cranes, and bringing the capacity to over 450,000 or even up to 600,000 TEUs.

Objective 3: Measure the growth of heavy industries in the Batangas City-Bauan area and other industries in the Province of Batangas.

- The impact of the growth and presence of heavy industries near the Batangas Container Terminal is not very significant since most of these heavy industries have their own ports and majority of their shipments are made in bulk rather than in containers.

Objective 4: Measure the growth in the local and regional economy

- The economy of CALABARZON has grown in terms of economic output (GRDP) particularly from the period 2002 - 2008 to the period 2009 – 2016. The manufacturing sector has been the main contributor to this output. The region has grown as the center of industrial zone of the country. However, this growth has been largely limited to industries catering for the domestic market. The growth of the export industry has been sluggish compared to those catering for the domestic market. The operation of BCT is ready to support further industrialization of the Region.

Objective 5: Identify and assess the environmental and social impacts of the project as well as other benefits and gains (both planned and

unplanned) and impact (intended and unintended) of the project to the beneficiaries.

- The adverse environmental impacts of port operations are minimal and the Batangas Container Port continues to comply with its ECC and EMP conditions and requirements. However, there is continuing dissatisfaction from the affected and relocated families resulting primarily from the absence of work or the difficulty of having livelihood activities within the vicinity of the relocation site. There is also great disappointment that the government has not fulfilled its commitment to issue the Certificate of Award for the assigned lots to the respective benefactors and its promise to provide work or business opportunities around and inside the Batangas Port.

- The BCT was utilized for handling non-containerized cargoes (particularly the CBUs) during the time when volume of containerized cargoes was still low, however, as the volume of container cargoes increased, handling of CBUs were transferred to Phase I.

Other Tasks: Re-evaluate the economic viability of the Project

- A re-evaluation of the economic viability of the project indicate that the EIRR of the project is estimated at 1% which is below the EIRR (of 22.9 %) of the Project as estimated during the planning stage but is higher than the EIRR of negative 8.1% as estimated by the JICA Impact Assessment Report.

- Another finding is that it takes some time for industries to shift from the Manila Ports to BCT, hence the delayed realization of throughput at the BCT. Based on consultations with ATI, industries have contracts with shipping lines and forwarders, hence industries could not shift immediately from Manila Ports to BCT. However, it is expected that transfer to BCT has started and more is expected in the near future.

5.3 LESSONS LEARNED

- In the social aspect, an important lesson learned is the need to properly plan and implement the relocation of families affected by the project giving due importance and priority to maintaining their sources of livelihood, if possible, or providing them acceptable alternative sources of livelihood. It is evident from the findings of this study that providing the affected families with decent housing and amenities such as running water and electricity is not sufficient.

Even more important is providing them acceptable sources of livelihood through, among others, keeping them close to their usual places of work (e.g., close to the sea if fishing is their source of livelihood) or providing them with appropriate training to enable them to find alternative employment or sources of income.

- In planning for major port projects and selecting their location, an important lesson learned is to have a parallel or simultaneous plan to develop the port's hinterland to ensure that there will be sufficient demand for the services of the proposed port. Relying on the possibility of cargoes being shifted from other existing ports to the proposed new port may not be a sufficient or appropriate strategy to make the proposed port project economically or financially feasible. Developing its own hinterland (e.g., establishment of industrial parks and location of manufacturing facilities, commercial establishments, and/or agro-industrial industries), which will use the port facilities for import and export of parts, goods and products, should accompany the development of new major ports.

- In preparing the Terms of Reference of particular studies, it would be useful to carefully consider the number of manpower and the duration needed to effectively undertake the Study taking into consideration the response time, preparation and coordination with relevant agencies.

5.4 RECOMMENDATIONS

- Expansion/improvement of BCT's port and cargo handling facilities should be implemented in the future to meet the increasing usage demand of BCT by industries in Batangas and Laguna.

- Likewise, road and bridges, and other related infrastructures/facilities should also be improved/exnpanded to address worsening congestion in the area.

- PPA and LGU to encourage the port operator to implement a continuing program to provide appropriate employment or source of income to the affected families. The assistance to relocated families should not stop with the completion of the project. There should be continuous monitoring of capacities of affected families to engage in income generating activities. If qualified, members of affected families should be given priority to jobs within the port; and

continuing assistance such as training for skills most suitable or needed by the port as well as the commercial and industrial establishments in the area should be provided. This could form part of the port operator's corporate social responsibility program.

- NEDA or PPA to conduct a study to determine appropriate measures to further enhance the volume of cargoes handled by the Batangas Container Terminal, in particular, to increase the volume of exports from its hinterland in order to reduce the number of container return empties. While the BCT's share of total imports increased from 3.70% in 2014 to 4.35% in 2016, the exports increased only from 1.99% in 2014 to 3.95% in 2016. One area that may be looked into, among many others, is the possibility of increasing exports of fresh, semi-processed and/or processed agricultural products from the area.

- DOTr accelerate the implementation of PNR's plan to develop a freight train system that will improve the accessibility of the Batangas Port as well as the Port of Manila to the Southern Tagalog and Bicol regions.

- Port Operator/PPA to intensify the promotion of the Batangas Container Terminal through appropriate IEC activities and providing transparency in and easy access to relevant port data and services including, among others, 24-hour web-based integrated truck dispatching, appointment, and booking system to improve the logistics chain.

- The port operator to enhance the attractiveness and competitiveness of the Batangas Container Terminal by implementing various appropriate measures including, but not limited to, increasing available well-trained personnel, expanding cargo handling, equipment, berth, and container yard capacity, improving logistics-, port-, and customs-related services and processes, and facilitating the growth of freight forwarders, consolidators, brokers, truckers, and other logistics services providers in the area.

- Finally, discontinue the policy of shifting cargoes from the Port of Manila to the Batangas Container Port (if indeed there was a formal policy) and promote instead a policy of open competition among the concerned port operators on the basis of efficiency, cost-effectiveness and reliability of service alongside a policy to enhance

the volume of imports/exports from within the hinterland of the Batangas Container Terminal through, among others, promoting growth and relocation of industries and commercial establishments in the area.