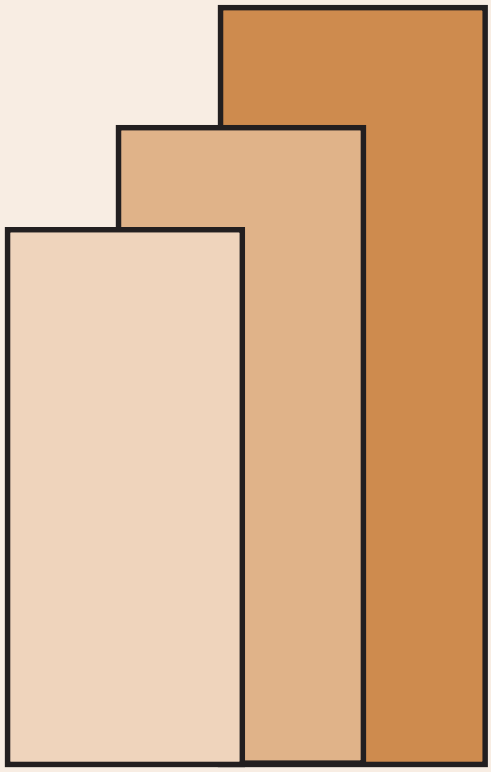
Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

A System-wide Study of the Logistics Industry in the Greater Capital Region

Epictetus E. Patalinghug et al.

DISCUSSION PAPER SERIES NO. 2015-24



The *PIDS Discussion Paper Series* constitutes studies that are preliminary and subject to further revisions. They are being circulated in a limited number of copies only for purposes of soliciting comments and suggestions for further refinements. The studies under the *Series* are unedited and unreviewed.

The views and opinions expressed are those of the author(s) and do not necessarily reflect those of the Institute.

Not for quotation without permission from the author(s) and the Institute.

March 2015

For comments, suggestions or further inquiries please contact:
The Research Information Staff, Philippine Institute for Development Studies
5th Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: (63-2) 8942584 and 8935705; Fax No: (63-2) 8939589; E-mail: publications@pids.gov.ph
Or visit our website at http://www.pids.gov.ph

A SYSTEM-WIDE STUDY OF THE LOGISTICS INDUSTRY IN THE GREATER CAPITAL REGION

Epictetus E. Patalinghug
Gilberto M. Llanto
Alexis M. Fillone
Noriel C. Tiglao
Christine Ruth Salazar
Cherry Ann Madriaga
Ma. Diyina Gem Arbo

Philippine Institute for Development Studies
REVISED FINAL REPORT
January 2015

Abstract

The Port of Manila, the largest seaport in the country, has been recognized as the most widely used port in the Greater Capital Region with utilization rate of 71.6% compared to only 2.3% and 6.1% utilization of Batangas and Subic Ports, respectively (NEDA, 2012). The ports of Batangas and Subic were developed in order to accommodate excess traffic in the port of Manila and promote growth and development in CALABARZON and Central Luzon. However, port users still opt to operate in Manila Port. This leads to the congestion of Manila Port and the underutilization of the other two ports in the Greater Capital Region. The situation was intensified during the implementation of the recently lifted Manila truck ban. The study recognizes that issues and problems still persist in the logistics sector even after the regulation was put off. To address these, the study employs a system-wide approach to analyze the whole logistics industry in the Greater Capital Region. The first part of the study reports the findings of the focused group discussions and key informant interviews with shippers, freight forwarders, logistics service providers, and truckers regarding their port usage. The latter part discusses the rail option model that looks into the revival of the rail system in transporting goods to and from the ports. The study also gives a crude approximation of the economic cost of the seven-month truck ban. In addition, it provides a review of existing policies in the Philippine logistics sector, discussions among concerned agencies, other study recommendations, as well as lessons from other countries. Ultimately, the study provides an extensive list of short, medium and long-term measures to decongest Manila Port and to address the underutilization of Batangas and Subic Ports. The list is complemented with a dynamic timeline of the proposed measures and actions with their corresponding implementing agencies.

Keywords: infrastructure, logistics industry, truck ban, port congestion, port utilization, rail connectivity, PNR, Manila Port, Batangas Port, Subic Port

CONTENTS

Abbreviations iii
List of Tables vi
List of Figures viii
Executive Summary x

I. Introduction 1
II. Objectives 2
III. Methodology 2
IV. Review of Literature 3
V. Regulatory Environment 13
VI. Analysis of Findings from Survey and Focused Group Discussion 16
a. Shippers/Locators Survey Results 16
b. Quantifying the Cost and Time Delay of Shipment 21
c. Train Option Scenario 22
d. Effect of the Truck Ban on Shippers/Locators 24
– *In the News: Appoint Port Czar to End Congestion* 25
e. Survey Results from Freight Forwarders and Logistics Services Providers 26
f. Surveys, Key Informant Interviews, and Focus Group Discussion of Freight Forwarders and Logistics Services Providers 35
– *Concepts in Context: Defining Port Congestion* 36
g. Truckers Survey Results 38
VII. Rail Connectivity of Economic Zones and Ports 46
a. Historical Background of the Rail Network in the Country 46
b. Recent Rail Experience for Freight Transport 50
VIII. Scenario Modeling of Freight Transport Through the PNR Network 52
a. Major Assumptions 52
b. The Rail Option Modeling Framework 56
c. Summary of Data Used in the Modeling 57
d. Scenario Modeling and Discussion of Results 63

– *In the News: Multiple Problems Cause Congestion at Busiest U.S. Port Complex* 63
– *In the News: Retailers Call On Obama to Ease West Coast Container Crisis* 65
e. Conclusion 68
IX. Estimating the Economic Effects of Port Congestion 70
– *In the News: Japan Automakers Turn to Airlifts as Port Row Hits US Production* 71
X. Planning Ahead of Capacity: The Bangkok Experience 72
XI. Analysis Toward a Desirable Policy Direction 75
a. On the Policy Regarding Container Traffic Coming from or Going to the South and North of Metro Manila 75
b. On the Proposed Policy to Put a Cap on the Manila Port Capacity 78
c. Other Issues 82
XII. Conclusions and Recommendations 90
a. Short-Term Measures 90
b. Medium-Term Measures 91
c. Long-Term Measures 92
XIII. Proposed Measures and Actions and Their Timelines 92
References 94

ABBREVIATIONS

AISL	Association of International Shipping Lines
ATI	Asian Terminals Inc.
BLT	Bureau of Land Transportation
BOC	Bureau of Customs
BOT	Board of Transportation
CALABARZON	Cavite-Laguna-Batangas-Rizal-Quezon Region
CFS	Container Freight Station
CICD	Calamba Inland Container Depot
CPC	Certificate of Public Convenience
CTAP	Confederation of Truckers Association of the Philippines
DOF	Department of Finance
DOTC	Department of Transportation and Communications
DPWH	Department f Public Works and Highways
DTI	Department of Trade and Industry
EDC	Export Development Council
EDSA	Epifanio de los Santos Avenue
E2M	Electronic to Mobile Customs Project
EO	Executive Order
FCL	Full Container Load
FGD	Focused Group Discussion
GCR	Greater Capital Region
GDP	Gross Domestic Product
GRT	Gross Register Tonnage
GVW	Gross Vehicle Weight
HSH	High Standard Highway
ICD	Inland Container Depot
ICTSI	International Container Terminal Services, Inc.
INFRACOM	Committee on Infrastructure
IPCS	Integrated Philippine Customs System
JFCCI	Joint Foreign Chambers of Commerce and Industry
JICA	Japan International Cooperation Agency

LCL	Less Container Load
LGU	Local Government Unit
LTC	Land Transportation Commission
LTFRB	Land Transportation and Franchising Regulatory Board
LTO	Land Transportation Office
MARINA	Maritime Industry Authority
MICP	Manila International Container Port
MICT	Manila International Container Terminal
MIS	Management Information System
MM	Metro Manila
MMDA	Metro Manila Development Authority
MMUTIS	Metro Manila Urban Transport Integration Study
MOA	Memorandum of Agreement
NCC	National Competitiveness Council
NCTS	National Center for Transportation Studies
NEDA	National Economic and Development Authority
NLEX	North Luzon Expressway
NSW	National Single Window System
OD	Origin to Destination
ODA	Official Development Assistance
PAT	Port Authority of Thailand
PCCI	Philippine Chamber of Commerce and Industry
PCU	Passenger Car Unit
PD	Presidential Decree
PEZA	Philippine Economic Zone Authority
PIDS	Philippine Institute for Development Studies
PNR	Philippine National Railway
POM	Port of Manila
PPA	Philippine Ports Authority
PPP	Public Private Partnership
PSB	Philippine Shippers Bureau
RA	Republic Act
ROW	Right of Way
SBITC	Subic Bay International Terminal Corporation

SBMA	Subic Bay Metropolitan Authority
SLEX	South Luzon Expressway
TEUs	Twenty-Foot Equivalent Units
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UVVRP	Unified Vehicular Volume Reduction Program
VDT	Vehicle Distance Travelled
VHT	Vehicle Hour Travelled

LIST OF TABLES

Table 1 Descriptive Information on Shippers Respondents 16

Table 2 Quantifying the Time Delay of Cargo Releasing Due to the Truck Ban 22

Table 3 Rail Option Scenario 22

Table 4 Shippers/Locators Preferred Location of an Inland Freight Terminal 23

Table 5 Descriptive Information on Freight Forwarders and Logistics Services Providers Respondents 27

Table 6 Descriptive Information on Truckers Respondents 38

Table 7 Truckers Port Usage 41

Table 8 Highlights of the PNR Development 47

Table 9 Trip Generation Percent Growth Estimates of MMUTIS (1999) and JICA (2010) 52

Table 10 Occupancy Factors of Vehicles Types 53

Table 11 Cargo Demand Generation 55

Table 12 Passenger Car Unit (PCU) Equivalents 55

Table 13 Average Loading by Type of Truck 56

Table 14 Truck OD (Large Zones), JICA (2010) 60

Table 15 Commodity OD (Large Zones), JICA (2010) 60

Table 16 Estimated Truck Trips Per Day (2020), JICA (2010) 61

Table 17 Estimated Truck Trips Per Day (2030), JICA (2010) 62

Table 18 Estimated Traffic Volume of Private and Public Vehicles as well as Trucks During Peak Hour and Off-Peak Hour Periods Under Different Scenarios 66

Table 19 Estimated Traffic Characteristics During Peak Hour and Off-Peak Hour Periods Under Different Scenarios 67

Table 20 Comparison of Average Travel Speed Along Truck Routes and All Roads 68

Table 21 Specifics of the Laem Chabang Port 74

Table 22 New Storage Rates 76

Table 23 Greater Capital Region Ports' Annual Capacity: 2013 79

LIST OF FIGURES

Figure 1 Usual Mode of Service by Shippers/Locators 17

Figure 2 Type of Goods Shipped 18

Figure 3 Port Used by Shippers/Locators 19

Figure 4 Important Considerations When Choosing a Port for Shippers 20

Figure 5 Ports Currently Being Used by Shippers/Locators 20

Figure 6 Satisfaction Rating of the Port Under Study by Shippers/Locators 21

Figure 7 Preferred Location of an Inland Freight Terminal by Shippers/Locators 23

Figure 8 Important Considerations to Use the Train Through an Inland Terminal 23

Figure 9 Effect of the Truck Ban on the Shippers/Locators 24

Figure 10 Outsourcing of Trucking Services 27

Figure 11 Country of Origin 28

Figure 12 Country of Destination 29

Figure 13 Commodity Type of Outgoing Shipments 30

Figure 14 Commodity Type of Incoming Shipments 31

Figure 15 Decision Maker 32

Figure 16 Ports Used by Freight Forwarders and Logistics Services Providers 32

Figure 17 Important Considerations When Choosing a Port for Freight Forwarders and Logistics Services Providers 33

Figure 18 Satisfaction Rating of Manila Port by Freight Forwarders and Logistics Services Providers 34

Figure 19 Satisfaction Rating of Batangas Port by Freight Forwarders and Logistics Services Providers 34

Figure 20 Satisfaction Rating of Subic Port by Freight Forwarders and Logistics Services Providers 35

Figure 21 Outsourcing of Services by Truckers 39

Figure 22 Commodities for Outgoing Shipment Based on Truckers' Survey 40

Figure 23 Commodities for Incoming Shipment Based on Truckers' Survey 40

Figure 24 Important Considerations When Choosing a Port for Truckers 41

Figure 25 Satisfaction Rating of Chosen Port By Truckers 42

Figure 26 Flow of the Effects of Various Policies 44

Figure 27 Extent of the PNR Network at Its Peak 49

Figure 28 Estimated and Projected Passenger Trips of MMUTIS (1999) and JICA (2010) 52

Figure 29 Temporal Distribution of Vehicular Traffic at Cordon Stations 53

Figure 30 Hourly Trips Generated in Metro Manila 54

Figure 31 Rail Option Modeling Framework 57

Figure 32 Location of Economic Zones 64

Figure 33 Comparison of Average Travel Speeds Along Truck Routes During Peak and Off-Peak Hours Under Different Scenarios 69

Figure 34 Timing and Phasing of PNR Rehabilitation and Opening of ICDs, Ports, and Ecozones 89

Figure 35 Timeline of Proposed Measures and Actions and Their Implementing Agencies 93

EXECUTIVE SUMMARY

Introduction

The Port of Manila, the largest seaport in the country, is operating at almost full capacity, given the current growth in trade volume. This puts pressure not only on the roads within Manila Port Area, but also along major roads in Metro Manila brought about by port traffic. Recognizing the detrimental effect of such congestion in the streets, the City of Manila imposed a truck ban on February 4, 2014 which would limit the operating hours of container trucks plying the city streets. The truck ban 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. Coupled with LTFRB's policy banning trucks without franchise from operating in the port, the truck ban led to a reduction in the number of trucks available for hauling and an increase in trucking cost. In addition, port congestion raised port costs and shipping line charges. On September 13, 2014, the City of Manila 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 DPWH construction projects remains.

This study analyzes the issues and problems that gave rise to the congestion of the Manila Port and the underutilization of the Batangas and Subic Ports.

Methodology

First, the study uses the survey and focused-group-discussion approach to investigate the factors that affect the decision of shippers, freight forwarders, logistics services providers, and truckers on their choice of port and their satisfaction ratings of their chosen port. Second, the study employs network and freight demand models to determine the optimal freight movement in the Ports of Manila, Batangas, and Subic. And finally, the study uses the rail option modeling framework to look at the use of the rail system to transport goods in and out of the ports.

Findings from Survey and Focused Group Discussion

a. Shippers/Locators Survey Results

A total of 17 respondents answered the questionnaire, both online and face-to-face interview. Forty-one percent (41%) of the respondents use both full container load (FCL) and

the less container load (LCL) while 29% use only the LCL. Sixteen out of seventeen are in the manufacturing business and the type of goods they manufacture varies: electronic products, automobile parts, industrial tape, mineral fuels, furniture, and industrial machinery. Ninety-four percent (94%) of the shippers use the Manila Port and the reasons cited for using this port are: it is commonly used destination by shipping companies, proximity of the port to their warehouses, and the availability of carriers. Shippers and locators provide highest satisfaction rating for the port currently used on the following attributes: availability of service providers, shipping companies and forwarders; followed by reliable shipping schedule; and acceptable cargo acceptance/release. Most of the respondents are open to the use of the rail option to ship their goods to or from the port.

b. Survey Result from Freight Forwarders and Logistics Services Providers

A total of 19 respondents answered the questionnaire. Seventy-nine percent (79%) of the respondents outsource their trucking services while 21% have their own trucking services. The former were negatively affected by the increase in trucking rates when the truck ban was implemented. Twelve out of nineteen respondents import commodities from China. U.S. and Singapore are the second and third country of origin, respectively. China remains to be the top export destination followed by Japan and the U.S.. Ten out of nineteen ship out electronic products, followed by furniture, industrial machinery, telecommunication equipment, and electrical machinery. Twelve out of nineteen import industrial machinery and equipment, followed by electronic products, telecommunication equipment, and electrical machinery. Thirty-nine percent (39%) reveal that both the consignee and the shipper agree on which port to use for the shipment. The most frequently used port is the Port of Manila because of the availability of shipping lines; 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. The respondents rated "efficient cargo acceptance/release" as the most important attribute, and "less stringent traffic regulation" as the least important attribute. Respondents were, on average, satisfied with the "scope/wide area of coverage" of the Port of Manila, but were dissatisfied with the "no red tape" attribute because of their problems with BOC procedures. For the Batangas Port, participants were satisfied with the "convenient road condition" and "less stringent traffic regulation" and were dissatisfied with "frequent shipping schedule," "availability of allied services providers", and "sufficient cargo handling facilities" attributes. For the Subic Port, respondents were satisfied

with “convenient road condition,” but dissatisfied with “frequent shipping schedules” and “less travel time” attributes.

c. Truckers Survey Results

A total of 20 respondents were interviewed. A majority of the respondents complain against the truck ban, LTFRB policies, MMDA and City of Manila traffic enforcers, and shipping lines’ habit of using the port as a container yard for empty containers. The port congestion increased the price of trucking services but reduced the number of turn-around. In addition, truckers were complaining of fees and charges imposed to them, even without the truck ban 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.

Rail Connectivity of Economic Zones and Ports

The revival of the PNR network from Bicol region to La Union can provide a convenient and alternative way to travel and ship cargo in the Luzon area. From 1997-2003, , ICTSI operated a rail-based transport system between MICT and CICD. This was, however, terminated since the trains could not run at the desired speed and be punctual because of the deteriorating conditions of the PNR rail tracks. Furthermore, it required long turnarounds and waiting times because only one train set was in operation. The current level of freight traffic through Batangas is too small to consider it a major source of potential base traffic for freight railway. In 2014, the average speed in road segments designated as truck routes during peak hours is 5.2 kph compared with the average speed of 16.57 kph for all other roads. Simulation results show that only 4.17 % of the estimated volume of truck freight would be shifted to rail transport during peak and non-peak hours. The use of rail freight has a negligible effect on the improvement of travel speed along the roads in the GCR.

Impact of the Port Congestion

Survey results indicate that the cost of shipping at 20-ft or a 40-ft container by truck doubled after the truck ban. Likewise, port congestion led to time delay in cargo releasing. The economic cost of the port congestion during the seven-month period that the Manila Truck Ban was in effect is estimated at PhP 43.85 billion due to BOC revenue decrease, output and productivity losses, and vehicle operating costs.

Recommendations

The following are the recommendations of the study:

a. Short-Term Measures
   - Issue a policy statement putting a cap on capacity of Manila ports and to instruct that cargoes bound for or coming from the south of Manila should call on the Batangas Port and those bound for or coming from the north of Manila should call on the Subic Port.
   - Urge ICTSI to revive the PNR rail freight operation to its inland container depot in Calamba, Laguna during off-peak hours.
   - Roll out the 24-hour web-based integrated truck dispatching, appointment, and booking system to improve the logistics chain.

b. Medium-Term Measures
   - To facilitate the diversion Manila port traffic to Subic and Batangas ports, there is a need to increase the number of BOC/PPA personnel and expand the cargo handling equipment, berth and container yard capacity of the Batangas port.
   - Adopt a rationalization plan for future port development and investment programs for ports in the GCR.
   - Create an inter-agency Land Identification and Acquisition Committee to conduct identification and inventory of potential port relocation or expansion sites.
   - There is a need for a gradual rehabilitation and improvement of the PNR line so that it can be used to move empty, unclaimed, and abandoned containers to an inland container yard.

c. Long-Term Measures
   - Draft a multi-modal transport and logistics development plan for the country with special emphasis on the interconnectivity within the Manila-Sorsogon-Leyte-Surigao corridor.
   - Design and construct a new and large deep sea port at the location site identified by the multi-modal transport and logistics development plan.
   - Implement the investments plan for new rail, maritime, port, airport, and road infrastructure to link our ports to the global supply chains.

A System-Wide Study of the Logistics Industry in the Greater Capital Region

Epictetus E. Patalinghug, Gilberto M. Llanto, Alexis M. Fillone, Noriel C. Tiglao, Christine Ruth Salazar, Cherry Ann Madriaga and Ma. Diyina Gem Arbo[1]

I. Introduction

The Port of Manila, the largest seaport in the country, has been recognized as the most widely used port in the Greater Capital Region (GCR). In 2012, the volume of foreign container traffic in Manila Port grew by 6.7%, a marked increase from 3% growth rate in 2011. Consequently, the operations of trucker associations, which are engaged in the delivery of cargoes, intensify. Recognizing the detrimental effect of such congestion in the streets of Metro Manila, the City of Manila recently imposed a truck ban which would limit the operating hours of container trucks plying the city streets. However, during the discussion among the officials of the DPWH, PPA, BOC, trucker associations and shippers, it was noted that there is an apparent mismatch in the operating hours of the concerned stakeholders, to wit: the BOC and the container yard operators, as well as the warehouses of retailers, distributors and suppliers which are supposed to receive the cargoes essentially start operations when the truck ban already takes effect. Given this situation, the local government of Manila softened its stance on the truck ban and allowed the trucks to traverse the streets from 10 AM to 3 PM. The concerned stakeholders were then given six to eight months to address the said issue; otherwise, the local government of Manila will re-impose the total truck ban during the day, i.e., from 5 AM to 9 PM.

To provide a brief background, the Batangas Port was established to support industrial trade between CALABARZON and the rest of the country and help decongest the Manila Ports. The Subic Port, on the other hand, was developed to promote growth in Central Luzon. However, based on the 2012 statistics on foreign container traffic volume as reported by the NEDA, the utilization rate of the Batangas and Subic ports remained very low at 2.3% and

[1] Epictetus E. Patalinghug is Professor Emeritus of Economics and Finance, Virata School of Business, University of the Philippines-Diliman; Gilberto M. Llanto is the President of the Philippine Institute of Development Studies; Noriel C. Tiglao is Associate Professor, National College of Public Administration and Governance, University of the Philippines-Diliman; Alexis M. Fillone is Associate Professor, College of Engineering, De La Salle University-Manila; and Christine Ruth Salazar, Cherry Ann Madriaga, and Ma. Diyina Gem Arbo are project research associates, respectively.

6.1%, respectively; whereas the utilization rate of Manila Port was recorded at 71.6%. Noticeably, despite the efforts to encourage the utilization of the Batangas ports (e.g. lower port charges at the Batangas and Subic Ports), majority of the foreign shippers still opt to use the Manila Ports.

This study will look into the entire logistics industry in the GCR through a system-wide approach that would consider the situation of the ports and port operators, customs, truckers and warehousing, among others.

II. Objectives

The objectives of this study are the following:

1. To analyze the issues and problems that gave rise to the congestion of the Manila Port and the underutilization of the Batangas and Subic Ports through a logistics system-wide approach that would consider the situation of the ports and port operators, customs, truckers, and warehousing, among others;
2. To make specific urgent recommendations (i.e., can be implemented within the year) to decongest Manila Port and address the underutilization of Batangas and Subic Ports;
3. To recommend other action plans, policies, programs and projects to address such problems that are doable within the:
    a. short-term
    b. medium-term (2017-2019)
    c. long-term (2020 and beyond)

III. Methodology

The first phase of this study investigates which factors affect the decision of shippers, freight forwarders, logistics services providers, and truckers on their choice of ports. This phase employs survey-interview approach as well as focused-group-discussion approach to achieve its objectives. Specific questionnaires are designed for shippers, freight forwarders, logistics services providers, and truckers, respectively. The questionnaire for shippers requires information on mode of service, types of goods shipped, usage of port, and important attributes for choosing a port, among others. The questionnaire for freight forwarders, logistics services providers, and truckers requires information on fleet characteristics, freight

characteristics, commodity characteristics, usage of port, important attributes for choosing a port, among others.

The second phase of this study uses a rail option model to look at the use of the rail system to transport goods in and out of the ports. One key aspect of this rail system revival is the location of an inland container terminal that could consolidate the freight to be moved by rail to and from the port.

IV. Review of Literature

Metro Manila is the most populous region in the country with inhabitants reaching roughly 12 million. It is the center of business and commerce and the economic and political capital of the Philippines. To sustain the increasing demands and needs of the metropolis, there has to be a stable flow of goods and services, whether sourced locally or in the global market. Particularly, cargo ferried by land and sea in a complex logistics network is arguably the lifeblood of the metropolis. The economy of Metro Manila, and the Philippines as a whole, is greatly affected by this logistics network and has been and is continuously a point of discussion by a wide range of interest groups, from politicians, academics, economists, and those directly involved in the logistics and transportation industry.

The Port of Manila is the largest seaport in the Philippines, with three main port groups namely, the Manila North Harbor, the Manila South Harbor, and the Manila International Container Terminal (MICT), and is the most important shipping gateway for international trade in the country. It has a rich history with roots in pre-colonial trade with economies from across Asia, such as China, India, and Southeast Asian nations. The port would then become a valuable staging point for Spanish trade during their colonization of the Philippines. It consistently ranks as one of the busiest ports in the world accounting for approximately 2.7 million TEU international cargo traffic per year (JICA, 2013a). According to the Journal of Commerce (2013), the Port of Manila is the 38th busiest port in the world in 2012. The volume of foreign container traffic in the port increased significantly during that year and grew by 6.7 percent compared to the 3 percent growth rate in the preceding year. Shipping lines complete an average of 20 to 30 ship calls in the Port of Manila per week. With the amount of traffic to and from the country, cargo and passenger concentration in the National Capital Region rose, thereby further straining and congesting the already inefficient

transportation structure in and out of the Port of Manila as well as to other road networks (JICA, 2013a).

The congestion of the Port of Manila has become a major point of discussion among policy makers, government agencies, and stakeholders. Among the initiatives to aid in decongesting cargo traffic was the development of the Batangas and Subic Ports to complement the Port of Manila, through ODA loans from the Japan International Cooperation Agency (JICA), costing around Php15 billion. The Batangas port supports industrial trade between the Cavite-Laguna-Batangas-Rizal-Quezon (CALABARZON) region and the rest of the country. This was completed in December 2007. The Subic Port, with facilities from the former US Naval Base, was also developed to promote growth of the Subic Bay Freeport Zone and Central Luzon and is seen as an alternative to the Port of Manila and construction was finished in November 2009.

Nonetheless, data from the National Economic and Development Authority (NEDA) showed that the utilization rates of both the Batangas and Subic ports remained significantly low despite plans to encourage the use of these ports. According to the JICA (2013a) report, Batangas and Subic ports were utilized at a mere 4.2 percent and 5.6 percent, respectively, of their capacities. In contrast, the Port of Manila is continuously expanding, with the completion of Berth 6 in 2012. As a result, chances of distributing the economic gains to other provinces are lost (JICA, 2013a). Regardless of the efforts like lower port charges and further development of facilities, however, the majority of shippers and shipping lines still prefer to use the Port of Manila. There is a broad set of discussions to address the current situation of these ports. Among these are for the government to enact policies and regulations to decongest the Port of Manila and to maximize the potential of the ports of Batangas and Subic.

Concerns brought upon by various reports highlighted the need for long-term solutions to the problem of congestion. Among them, a report by the Oxford Business Group (2014) noted that the Batangas Port was still too small to sufficiently relieve congestion as this has only an annual capacity of 300,000 containers as opposed to the annual capacity of 3.8 million containers in the Port of Manila. It observed that the Subic Port was too far away and that use of the Port of Manila was still preferred by shipping companies. According to the Subic Bay Metropolitan Authority (SBMA), 450,000 containers out of the 2.8 million containers that pass through the Port of Manila are destined for Northern and Central Luzon.

Use of the Subic Port, therefore, would significantly reduce port and traffic congestion in the Port of Manila. Solutions to these problems were highlighted as necessary as the Philippine economy continues to grow (Oxford Business Group, 2014).

One way to discuss the current status of the port and shipping sectors in the Philippines is by analyzing the competition policies and regulatory framework that directly affect the industry. A Philippine Institute for Development Studies (PIDS) Discussion Paper published in 2005 entitled "Competition Policy and Regulation in Ports and Shipping" provided an assessment of the government policies and programs that promoted competition in these sectors. The paper gave a detailed analysis of the state of competition and regulation of ports in the Philippines at that point in time and detailed the many deficiencies as well as improvement measures that were needed to be addressed. The study also provided policy and regulatory reform recommendations that can be of important note for the purpose of this study.

The discussion paper noted how maritime transport is the most prominent means in facilitating the movement of commodities and people within and in and out of the country. It goes on to say that the inefficiency, which includes high costs, of the maritime transport system in the Philippines directly impedes domestic and international trade integration and directly hinders the productivity and competitiveness of exports and tourism. These inefficiencies were caused by "(a) inadequate port and vessel capacities, (b) ineffective ports management and administration; and (c) constraints arising from anti-competitive policies and regulation." Drastic steps are thus needed as the Philippines aims to become an international maritime hub such as Hong Kong and Singapore. The paper discusses how competition policy and changes in the framework can encourage private sector involvement, which will thus lead to modernization and value-added logistics services (Llanto, Basilio, and Basilio, 2005).

Port efficiency is a vital component of the maritime industry. An efficient port needs to serve as a streamlined point for both land and maritime transport routes as it reduces logistics costs and results in greater convenience as well as lower the costs of goods that may otherwise be passed to consumers. Findings in the discussion paper noticed how up to 40 percent of predicted maritime transport costs for coastal countries can be attributed to inefficient port infrastructure and that 46 percent of sea transport costs in the Philippines is attributed to cargo handling. The discussion paper is important to note as it details how the

port efficiency of the Philippines severely lags behind its Southeast Asian neighbors (Llanto, Basilio, and Basilio, 2005).

The discussion and analysis of the PIDS report showed how inefficiencies in Philippine ports hinder competitiveness and growth as a result of the high costs of shipping. Competition or the lack thereof is cited as one of the factors that impedes development. The report concludes that there is an absence of effective intra-port and inter-port competition among ports in the country. With the Philippine Port Authority (PPA) having the characteristic of being a highly centralized administrator, independent port authorities have limited options to compete. Recent private partnerships have brought about some improvements to competition but concessions are only awarded to selected private participants with the port sector still being dominated by the PPA. Efforts in privatizing some sectors of ports and operations have proven successful but more steps are needed to improve competitiveness and improve efficiency.

In a study by Santiago entitled "Reinventing the Philippine Port Sector: Strategies for Commercialization and Privatization," ten years prior to the PIDS report, he pointed out the same concerns, that the costs of shipping are relatively higher because of the inefficiencies, whether they be planning, management, operation, and regulation, in the country's ports. The report recommended the commercialization of the port through "the reconstruction of the port sector to separate the conflicting responsibilities of operation and regulation; phased deregulation that will entice competition and entrepreneurship in ports development and operation; spinning off autonomous regional port corporation; and widening the privatization net via port facility leasing, build-operate-transfer schemes, demonopolization of cargo handling services, and port tariff reforms." (Santiago, 1995).

Research in the field of transport studies in the Philippines has been spearheaded by the National Center for Transport Studies (NCTS) at the University of the Philippines. Important research in the study of urban goods movement, commodity flow, transport measures, as well as the effects of policies, specifically that of the truck ban, have been published by the institution. The data gathered through research can be used to assess past and current situations as well as trends in the transport and logistics industry useful for the analysis of this research.

Land transportation and cargo being hauled by land vehicles are dominant subject matters studied by the institution. Over the years, a number of studies have been conducted to discuss commodity flow, urban goods movement, and traffic patterns and how all of these can be directly affected by ports development. The vast majority of these is specifically focused in Metro Manila and also takes into account the Port of Manila being a major factor in shaping the environment of the industry as the country's premier logistics hub. Only a few recommendations to boost efficiency in the industry by looking for alternatives to the Port of Manila were mentioned but were not discussed in depth. A number of studies are dated with no study being a recent as five years, yet they yield insights and conclusions and recommendations that show that there has only been limited action as the years passed in addressing the problems of the industry and that there are still very common themes in problems that the industry faces today.

A study under the NCTS can give insight into the logistics industry in the Philippines by analyzing stakeholder's preferences on urban freight transport measures. One prominent consideration by the study was that the study area was set as Metro Manila due to its position as being the center of economic activities in the country (Sinarimbon, 2001). The study sought to determine the top priorities different stakeholders have with regard shipping industry and how these priorities ultimately shape the industry as a whole. The analysis for example determined that the primary concern for freight service carriers is for cost effectiveness while optimizing the quality of services. Those shipping freight such as those consigned to suppliers, retailers, and wholesalers take into consideration the shortest time goods reach the market while minimizing storage levels which results in frequent deliveries. Residents affected by the routes prioritize ease of access to and within the town in addition to the quality of life. The government on the other hand prioritizes regulations and how these can balance market forces and their effect on the society. The study showed, therefore, that government should design transport policies that are sustainable and should balance environmental, economic, and social concerns. The study concedes that the subject concerns a large number of stakeholders with competing priorities but that ultimately the solutions to these should be acceptable to all the stakeholders and should be for the overall benefit of Metro Manila (Sinarimbon, 2001).

Another study under the NCTS can give insight into the reason why the CALABARZON is a favorable location for manufacturing firms and takes into consideration

how the Port of Manila is an integral part of the logistics supply chain of manufacturing in the region. Though technical in its description with the use of technical concepts in the analysis, the study gives important insights as to how manufacturers are affected by the transport situation of the country. Chief among the concerns of manufacturers is how to boost efficiency in the transportation of goods from production facilities to distribution hubs. The Port of Manila was again taken into consideration as an important hub and one of the recommendations and points of concern was for the creation of infrastructure to boost efficiency (Tiglao, 1995).

With the increase of container traffic and the majority of container cargo offloaded in the Port of Manila, there was a subsequent increase of vehicular traffic significantly from cargo trucks in the City of Manila. The local government of Manila, which was concerned with the congestion of vehicular traffic in the city streets, imposed a truck ban limiting the operating hours of container trucks transiting the city. However, trucking associations and shippers as well as the Department of Public Works and Highways (DPWH), Philippine Ports Authority (PPA), and the Bureau of Customs (BOC) expressed apprehension to the policy as there was an apparent mismatch with the operating hours of the stakeholders. The stakeholders, from the Customs to container yard operators, and the warehouses of retailers, distributors, and suppliers, noted how their normal operating hours fell within the hours of when the truck ban took effect. The city government relented and allowed trucks to ply the streets of Manila at certain times during the day. The stakeholders were given a time period of six to eight months to address and adapt to the issue. There are wide ranging discussions as to the effects of the truck ban policy of the City of Manila. These discussions mostly directly focus on the economic impact of the truck ban.

With the majority of maritime cargo in the Philippines entering and leaving the Port of Manila, traffic congestion in the Manila's roadways became and continues to be a growing concern. The problem of efficient transport in the city streets has been a problem for the past few decades and the government had to make measures to address the situation. Since 1978 directive through Ordinance No. 78-04 by the Metro Manila Development Authority (MMDA) cargo trucks, which have gross vehicle weight (GVW) of more than 4,000 kilograms, were prohibited from traveling through the major thoroughfares within the metropolis during the peak travel hours from 6:00AM to 9:00AM and 4:00PM to 9:00PM except on weekends and holidays. A series of amendments have occurred over the years, with

the afternoon restriction revised to 5:00PM to 9:00PM, revision of the weight restrictions to vehicles with a GVW of 4,500 kg., and the "total ban" trucks plying Epifanio de los Santos Avenue (EDSA), Metro Manila's main arterial road (Garutsa, 1995). Studies have been conducted to examine the effects of the truck ban; the majority of these have been studies on the economic effects of the policy. The truck ban policy is a major factor in the discussion of the subject of congestion and efficiency of the transport, shipping and logistics industry in Metro Manila. The policy affects the environment of the transport and shipping industry and has been extensively studied in the decades since it was introduced. With the city government of Manila's recent policies to expand the scheme, discussions on alternatives to the Port of Manila and measures to decongest it arise and will be a subject to be heavily discussed and studied in the very near future.

In the early months of 2014, upon the introduction of the Manila City government of an expanded truck ban banning certain classes of vehicles from transiting the city from 5:00AM to 9:00PM, various stakeholders, interest groups as well as affected institutions were quick to show their apprehension to the policy. The city government eventually allowed a temporary concession for transport groups to transit between 10:00AM to 3:00PM. The policy remains a contentious issue and after a few weeks, institutions affected such as the BOC and the PPA would release information on the effects of the truck ban. According to the BOC, their two largest collection districts, the Port of Manila (POM) and Manila International Container Port (MICP), were significantly affected. Their initial report showed a significant decrease in number of container vans released during the first few days of the policy being implemented. During the first day of implementation, only four container vans, from the daily average of 2,150 container vans, were released from the MICP. Similarly, in the Port of Manila, no container vans were released on the first day, a huge contrast from the daily average of 1,200 container vans per day from the period of February 1 to 21, 2014 (Bureau of Customs, 2014).

According to the BOC, the POM and MICP account for about 48 percent of the total collections of the agency. It cited that as a result of the ordinance, there was a considerable decline in the revenue collection in the ports. There was a 27 percent reduction for the MICP, which was able to collect only Php262.6 million from a daily average of Php360 million. The POM similarly suffered, experiencing a 47-percent decrease in revenue collection, with an

average of Php134.4 million from the daily average of Php253 million before the policy was implemented.

During the onset of the controversial truck ban, a study by Citi Research economist Jun Trinidad—which was widely reported by media outlets—stated that the policy had concerning effects to the Philippine economy as a whole. The analysis stated that the truck ban policy could greatly affect approximately a million manufacturing jobs as a result of the lack of an alternative transport linkage between the economic zones of the CALABARZON and the Port of Manila. The report further stated that the Manila policy could cost the Philippine economy from Php61.2 billion as much as Php320 billion (US$1.4 billion to US$7.1 billion) and reduce the GDP by about 1 to 5 percent. The report noted that this would mostly affect non-technology export commodities which are an important component of the Philippine economy. It goes on to say that the benefits of such a truck ban would only amount to Php30 billion (US$664.5million) from the reduced emissions and traffic congestion in the city citing a JICA study on the effects of such a policy (Oxford Business Group, 2014).

The report noted that in getting the estimate for the truck ban's effect on about a million manufacturing jobs threatened by the truck ban, it assumed that the CALABARZON's manufacturing component contributes 34 percent of the country's total manufacturing employment. It also took into consideration the CALABARZON being the second most densely populated region in the Philippines and being an important industrial hub- thus a big contributor to the country's GDP. Delays and inefficiencies caused by the truck ban and limited transport options and infrastructure bottlenecks would greatly affect the manufacturing jobs in the region. Similarly, in estimating the effect on GDP, the researcher expanded the real value of the export commodities to include other non-tech exports. After obtaining the 3 year average ratio of the larger set of non-electronic exports to GDP, it applied the same percentages and took into account the goods produced in the industrial zones in the region (Oxford Business Group, 2014).

In a study in 2005, Tiglao, et al. assessed the effect of the truck ban and the Unified Vehicular Volume Reduction Program (UVVRP)[2] – both travel demand management

[2]In the study by Tiglao et al. (2005), the truck ban referred to the two types of truck ban restrictions: an all-day truck ban in EDSA from 6:00AM to 9:00PM during weekdays, and a peak-hour truck ban in 10 major thoroughf ares from 6:00-9:00AM and 5:00-9:00PM except Sundays and holidays. The truck ban applies to trucks with gro ss weight of more than 4.5 tons. On the other hand, the UVVRP, or 'Color Coding' is a restriction system based on the vehicle license plate numbers (adoption of the odd-even scheme implemented in 1995).

schemes adopted in Metro Manila – on the freight forwarding industry. The implementation of these schemes aims to ease traffic congestion in Metro Manila. A survey conducted for the study found that while a majority of car users were in favor of the traffic management scheme because of effectiveness in reducing traffic demand during peak hours, the freight forwarding companies were not as pleased. The implementation of the truck ban and restrictions imposed by the UVVRP were identified by freight forwarders to be two of the top major causes of delay in their deliveries. The freight forwarders likewise observed decrease in work hours and revenue.

The same study by Tiglao et al. (2005) also developed a traffic assignment model to assess the network effects of the truck ban and UVVRP restrictions. The model represented the existing road network and traffic management measures using a simplified link-and-node network system and input origin-destination (OD) tables. The findings supported the lifting of the truck ban (and continuous imposition of the UVVRP). Results of the transport model indicated that lifting of the truck ban would bring about positive and significant improvement in vehicle operating cost and time cost savings. This could have been the effect of the improvement in travel times, as the model assumed that trucks would be allowed to ply higher-capacity roads and more direct routes. The study then recommended measures that would benefit the freight forwarding as well as the trucking industry: proper rationalization of truck routes, and efficient use of high-capacity roads and more direct routes that connect the origin of goods to their intermediate and final destinations. A welcome development would be a recently proposed connector road between the North Luzon and South Luzon expressways which will encourage truckers and freight forwarders to detour from the inner roads of Metro Manila in transporting their cargos (Llanto, et al., 2013).

Various stakeholders such as the Joint Foreign Chambers of Commerce and Industry (JFCCI), Export Development Council (EDC), National Competitiveness Council (NCC), and Department of Transportation and Communication (DOTC) have mounting appeals to improve the utilization of the Batangas and Subic Ports as well as recommending to place a cap/ceiling for the Port of Manila after the completion of Berth 6 to control container capacity (JICA, 2013), although one concern with the placement of a ceiling is the government's concession contract for MICT with ICTSI. According to ICTSI's Quarterly Report (June 2014), the concession contract was:

> "extended in 2012 for another 25 years up to May 18, 2038, upon completion of agreed additional investments in port equipment and infrastructures, payment of upfront fees amounting to P670.0 million (US$16.4 million), and turnover and execution of Deed of Transfer of port facilities and equipment currently being used at MICT and part of committed investment under the original concession agreement, among others. Under the renewal agreement and for the extended term of the MICT Contract, ICTSI shall be liable and committed to: (i) pay the Philippine Ports Authority (PPA) a fixed fee of US$600.00 million payable in 100 advanced quarterly installments; (ii) pay annual fixed fee on storage and berthside operations of Php55.8 million (approximately US$1.3 million); (iii) pay variable fee of 20 percent of the gross revenue earned at MICT; (iv) upgrade, expand and develop the MICT, particularly the construction and development of Berth 7; (v) continuously align its Management Information System (MIS) with the MIS of the PPA with the objective towards paperless transaction and reporting system; and (vi) pay certain other fees based on the attainment of agreed volume levels."

Additional recommendations from the JICA (2013a) report as well as the "Roadmap for Transport Infrastructure Development for Metro Manila and its Surrounding Areas" include reinforcing policies, programs, and coordinative relations and systems in the development, operation, and investment planning of Manila, Batangas, and Subic Ports, reduce future expansion and investment programs for the Port of Manila, and encourage the use of Batangas and Subic Ports through promotion, marketing, and pricing strategies as well as constructing infrastructures and multimodal transport of the Subic-Clark-Manila-Batangas route.

If the current situation the capital is in now continues with lack of coordination from all the stakeholders and policymakers, the 2030 picture will be that of a terrible scenario as road networks become replete, adversely affecting the economic, social, and environmental aspects of Metro Manila as well as neighboring provinces, which would, in turn, damage the entire country (JICA and NEDA, 2014).

V. Regulatory Environment

The Philippine Port Authority (PPA) is the main regulator, operator, and developer of ports in the country. PPA was established in 1974 as a government corporation mainly tasked with the responsibility to undertake the planning and development of seaports in the country. It directly manages 114 ports (21 base ports and 93 terminal ports) in different parts of the country. Its regulatory activities include setting of rates for berthing, anchorage, docking, wharfage, ground handling, break bulk cargo handling, concessions, among others. PPA implements a one-port-one-handling-company policy, and this leads to a situation where cargo handling and ground handling services are controlled by monopolies in PPA-owned ports (unfortunately, LGU-owned ports have followed this practice too). Monopolies in port services are regulated by the terms and conditions provided in their contracts with PPA (Llanto, Basilio, and Basilio, 2005; Llanto et al., 2013).

The Philippine Shippers' Bureau (PSB) regulates freight forwarders and logistics services providers. Executive Order 514 established PSB as a regular bureau under the Department of Trade and Industry (DTI) in March 26, 1992 to promote and protect the common interests of Philippine exporters, importers, and other commercial users of water transport. In addition, it is tasked to undertake appropriate measures to develop trade through economical and efficient carriage of merchandise. The freight forwarding and logistics services sector is regulated through accreditation. PSB's accreditation process is intended to: (1) lay down the minimum standards and requirements for covered firms to conduct their business operations, (2) to upgrade the quality of services, capabilities and expertise of the covered firms, and (3) to curtail acts and practices inimical to the fast growth of the freight forwarding and logistics services industry. At any rate, this industry is not highly regulated. Prices, entry, and exit are mainly dictated by market forces (Llanto et al., 2013).

Regulation in maritime transportation is undertaken by the Maritime Industry Authority (MARINA) which is mandated to carry out effective supervision, regulation, and rationalization of the organizational management, ownership and operations of all transport utilities and other maritime enterprises. MARINA was created by PD 474 in 1974, and was attached to the Department of Transportation and Communication (DOTC) by virtue of E.O. 546 in 1979. Republic Act 9295 or the "Domestic Shipping Development Act of 2004" governs maritime transport industry competition. It empowers MARINA to regulate anti-

competitive behavior and to modify, suspend or revoke a license. Section 6 of R.A. 9295 restricts foreign vessels from transporting passengers or cargo between ports within Philippine territorial waters. MARINA is given the authority to grant special permit for foreign vessels when no domestic vessel is available or suitable to provide the needed shipping service. PD 1466 requires PSB to implement restrictions on both government and private cargoes. It requires that all government cargoes and those owned by private entities with government loan, credits, and guarantees must be loaded on Philippine-flagged vessels. PSB has the authority to waive this rule when no such vessels are available or suitable. In addition, R.A. 10635 (An Act Establishing the MARINA as the Single Maritime Administration Responsible for the Implementation and Enforcement of International Convention on Standards of Training, Certification and Watchkeeping for seafarers) of March 13, 2014 gives MARINA the mandate to consolidate all standards of training, certification, and watchkeeping (STCW) under one agency, and to comply with the government's obligations under international agreements and covenants.

Land transport services are regulated by Land Transportation Franchising and Regulatory Board (LTFRB) and Land Transportation Office (LTO) which perform functions such as franchising of public utility vehicles, registering motor vehicles, licensing of drivers and conductors, and enforcing traffic rules and regulations. R.A. 4136 (June 20, 1964) created the Land Transportation Commission (LTC), which was later, subdivided into the Board of Transportation (BOT) responsible for franchising of public utility vehicles, and the Bureau of Land Transportation (BLT) responsible for registration and operation of motor vehicles, and the licensing of owners, drivers, and conductors. E.O. 1011 (March 20, 1985) abolished BOT and BLT and established the Land Transportation Commission (LTC). E.O. 225 (July 25, 1987) abolished the LTC and created LTFRB (to handle the functions of the former BOT), and LTO (to handle the functions of the former BLT). Both agencies were put under the jurisdiction of the Department of Transportation and Communications (DOTC). LTFRB regulates routes and issuance of franchise to operate (e.g. Certificate of Public Convenience). It puts neither weight limits nor restrictions on equipment usage, rental of vehicles or fleet size provided that companies comply with requirements for franchise.

The Department of Public Works and Highways (DPWH) is tasked under R.A. 8794, enacted in 2000, to regulate vehicle weight limits. A truck is considered overloaded if it exceeds 13,500 kg load limit per axle, and if it exceeds the gross vehicle weight (GVW)

limit. DPWH is working with other agencies and stakeholders to synchronize weighing operations and to finalize the GVW limits for each vehicle type (Llanto, et al., 2013).

Customs services are provided by the Bureau of Customs (BOC), which has embarked on computerized customs processing system such as the Electronic to Mobile Customs Project (E2M) and the setting up of a National Single Window (NSW) system.[3] The former was aimed to create a faster end-to-end cargo clearance processing system, and the latter was aimed at simplifying import-permit system across different agencies. E2M system bogged down when there is a power failure and BOC resorts to manual release of import shipments. BOC proposes to change the E2M system with a new one called Philippine Integrated Customs System (IPCS). On the other hand, the full implementation of the NSW system is delayed due to procurement issues.

On February 4, 2014, the City of Manila issued Ordinance Number 8336[4] which aims to decongest the streets of Manila by preventing trucks with gross weight of 4.5 tons and above from plying the city streets from 5:00 AM to 9:00 PM. And a penalty of Php5,000.00 is imposed to violators of the truck ban. On February 24, 2014, the truck ban was modified by providing a five-hour window between 10 AM to 3 PM for loaded trucks for a period of six months; trucks carrying empty containers were not covered by the amendment. On May 12, 2014, the City of Manila extended the modified truck ban window from 10 AM-to-3 PM to 10 AM-to-5 PM. On June 9, 2014, the Metro Manila Council issued a resolution allowing cargo trucks to use an express lane on Roxas Boulevard 24 hours a day from Manila ports from Mondays to Sundays, except Fridays from June 10 to December 10, 2014. On August 18, 2014, the City of Manila opened a second 24-hours-a-day express lane on the stretch of Quirino Avenue and Osmeña Highway.

On September 1, 2014, the MMDA restricted cargo trucks to only a single lane on C5 Road to help ease traffic flow. On September 8, 2014, the MMDA implemented the "last mile" project that allows 3,000 trucks to move cargo that had long piled up at the ports and bring them finally to their warehouses up to September 22, 2014. The trucks with "Lastmayl" stickers are allowed to complete their journey during the hours covered by the truck ban in Manila and other cities.

[3] BOC has identified 40 agencies to be connected to the NSW, but 10 agencies remain to be connected. These agencies include National Statistics Office and the Bangko Sentral ng Pilipinas (see Llanto et al., 2013).
[4] It amends Ordinance Number 8092 called the Traffic Management Code of the City of Manila.

On September 13, 2014, Manila Mayor Joseph Estrada issued Executive Order No. 67 lifting the truck ban indefinitely.

And on September 16, 2014, President Benigno Aquino issued Executive Order No. 172 declaring the Ports of Batangas and Subic as extensions of Manila ports during times when there is port congestion and other emergency cases to be determined by the PPA.

VI. Analysis of Findings from Survey and Focused Group Discussion

(a) Shippers/Locators Survey Results

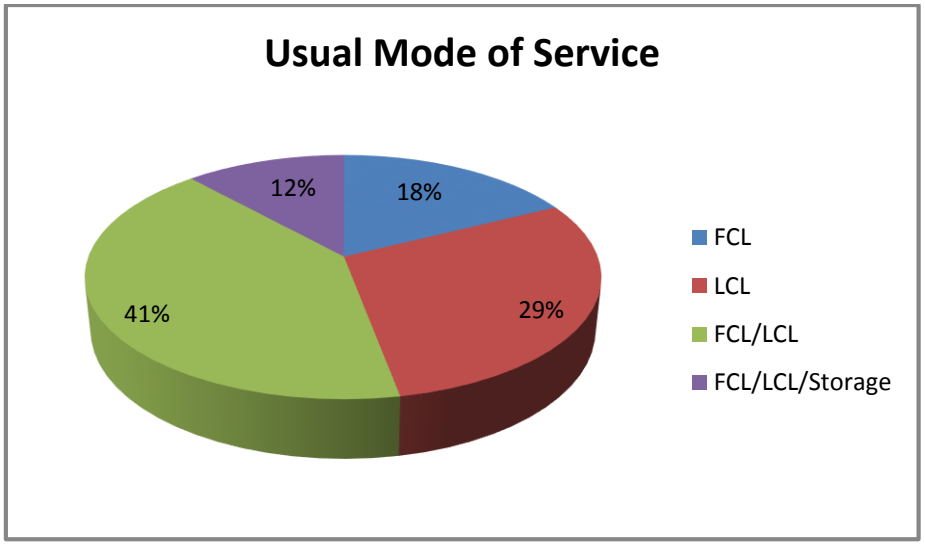
A total of 17 respondents were able to answer the questionnaire survey, both through online and face-to-face interview that was developed for this study. Furthermore additional information were gathered by interviewing personally the respondents who agreed to be interviewed especially about how the truck ban has affected their company's operation. Six males and eleven females who are mostly of managerial positions of their companies were the respondents. Table 1 shows the additional descriptive information of the respondents.

Table 1. Descriptive Information on Shippers Respondents

No. Samples	17
Gender	
-Male	6
-Female	11
Mean Age (years)	37.88
No. of Years in Position	7.53
No. of Years Company in Operation	15.50

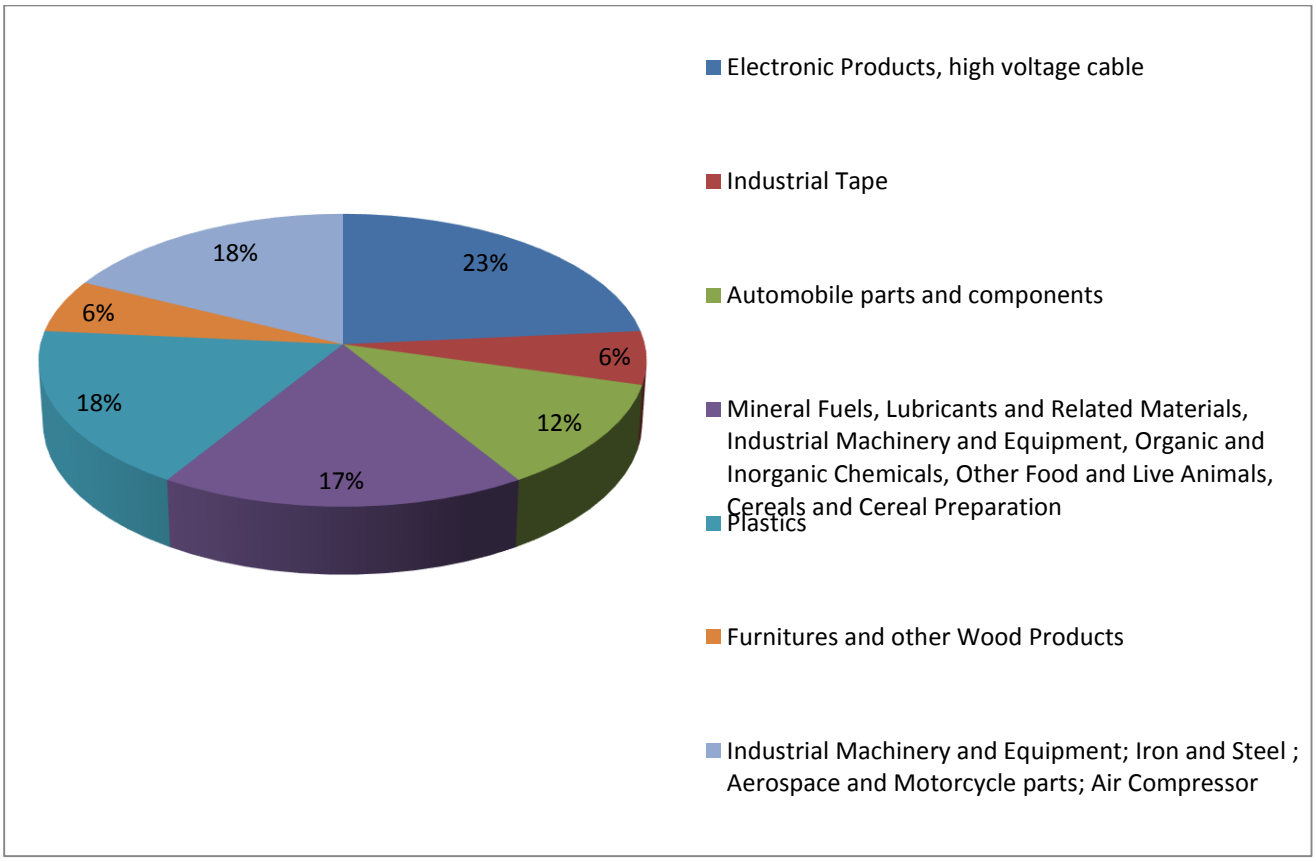
The highest percentage (41%) of the shippers interviewed use both the full container load (FCL) and the less container load (LCL) while 29 % use only the LCL. Three out of 17 (18%) use strictly the FCL and 2 out of 17 (12%) use all types of modes (FCL/LCL/Storage) of service (see Figure 1).

Figure 1. Usual Mode of Service by Shippers/Locators



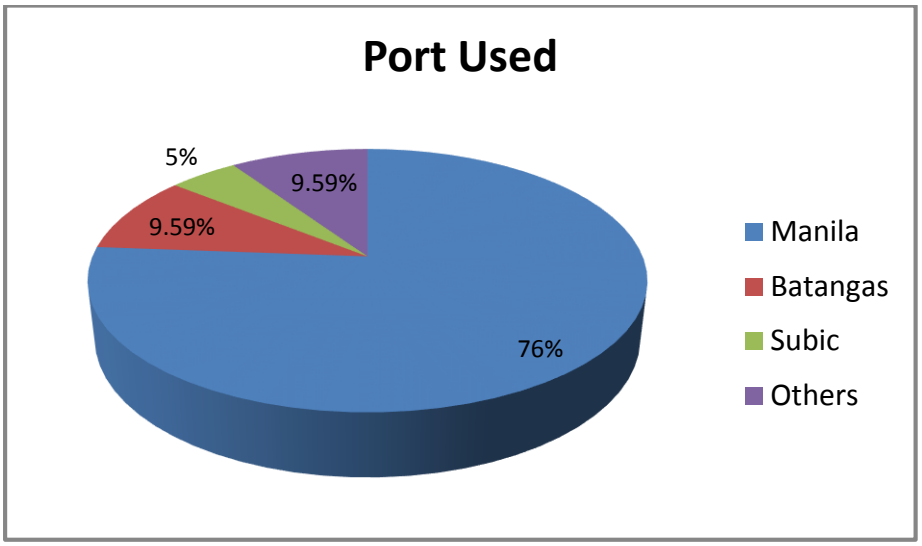
Sixteen out of the 17 shippers interviewed are in the manufacturing business and only was one involved in the airfreight business. However the type of goods they manufacture varies as shown in Figure 2. Since the respondents are free to check the type of goods they have shipped, these are composed fairly of a wide array of products.

Figure 2. Type of Goods Shipped



Ninety-four percent (16 out of 17) of the shippers use the Manila port for their shipment as shown in the Figure 3 below while two of the respondents have already used the Batangas port. Only one of the respondents has used the Subic port. Respondents use more than one port.

Figure 3. Port Used by Shippers/Locators



The reasons of several of the respondents why they are using the Manila port is because it is the commonly used destination by shipping companies, proximity of the Manila port to their warehouses, and the availability of carriers.

Regarding the following considerations on the level of importance shippers put in choosing a port for shipment where the following scales are used: 5 – Very Important; 4 – Important; 3- Neither Important/Unimportant; 2 – Not Important; and 1 – Definitely Not Important, the *Availability of Service Providers/Shipping Companies/Forwarders* came out as the most important consideration. This is followed by the *Wide Area Coverage*, and the *Affordable Rates*. The full listing and scores of other considerations are shown in Figure 4.

Figure 4. Important Considerations When Choosing a Port for Shippers

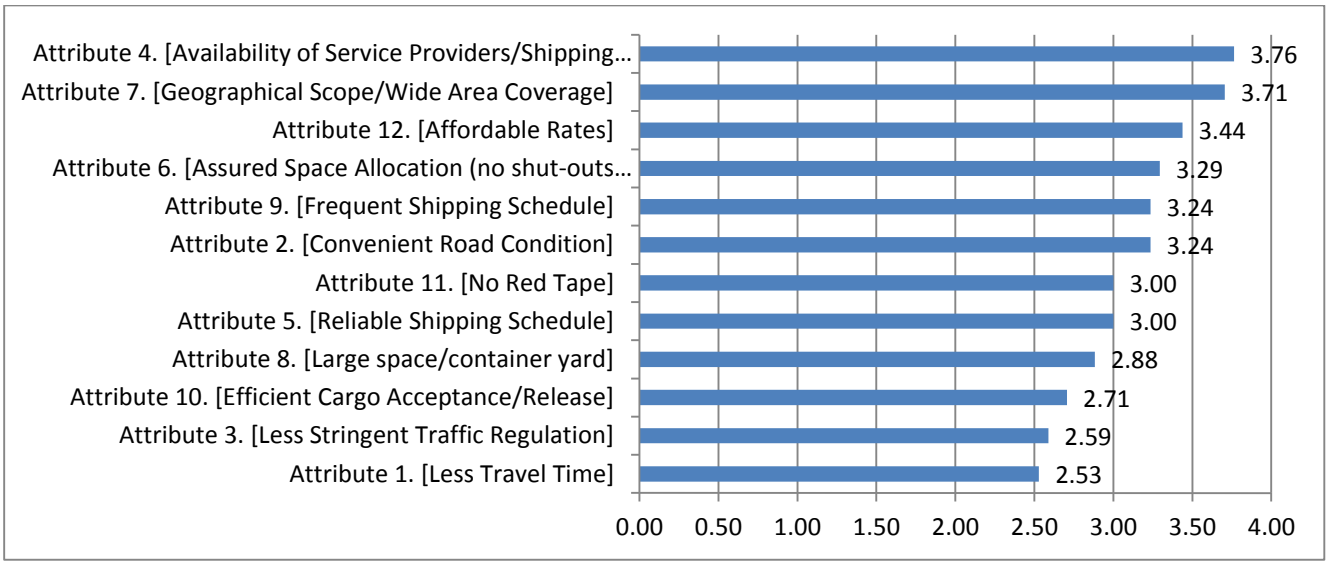
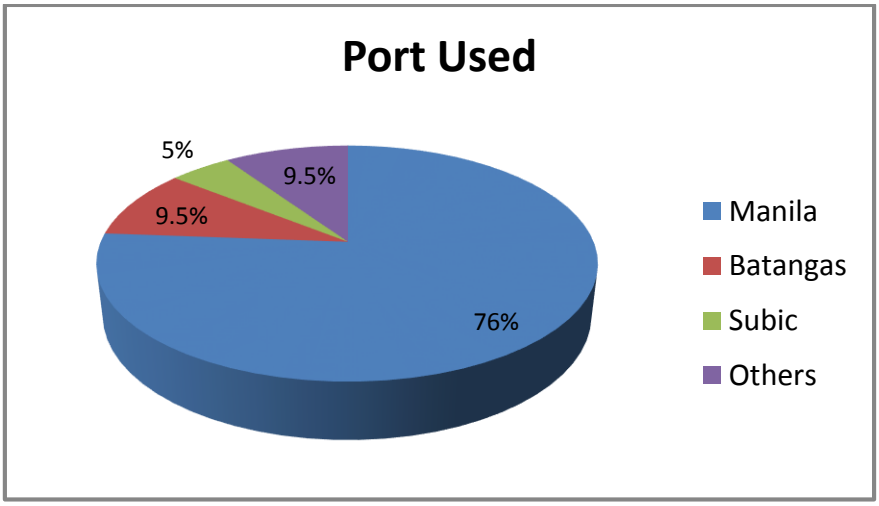


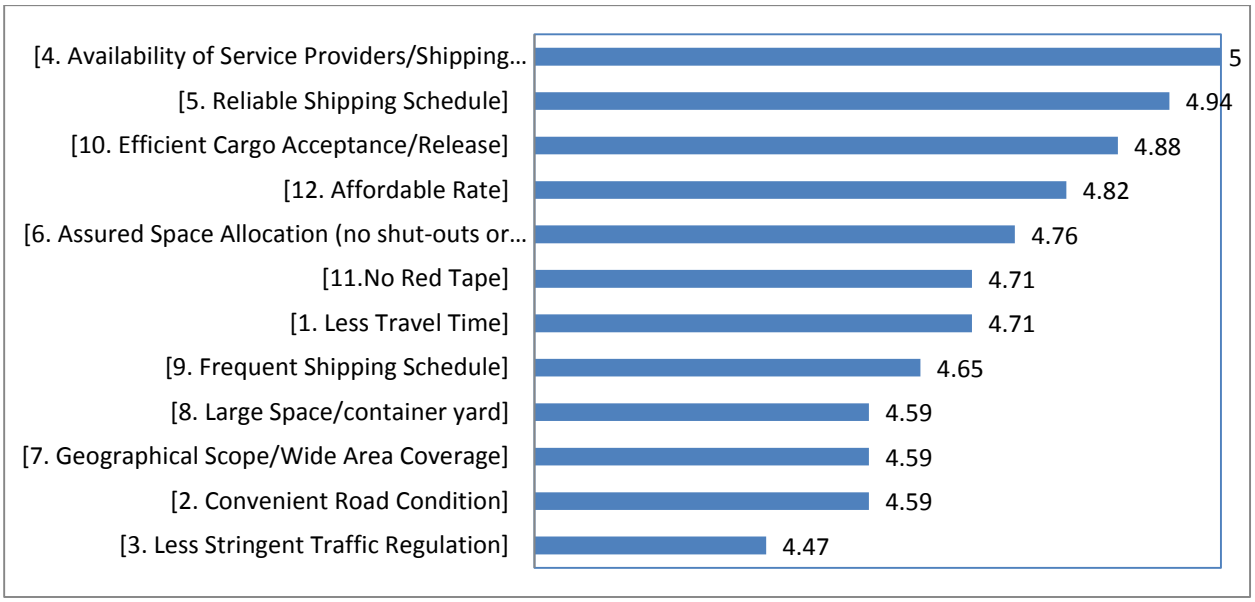
Figure 5. Ports Currently Being Used by Shippers/Locators



Focusing on the port currently being used by the shippers and locators (Figure 5), 16 of the 17 respondents indicated that they are using the Manila port, two of them only used Batangas port and only one use the port in Subic. It should be noted that the respondents could indicate multiple answers to this question. Since most of those who answered the questionnaire is using the Port of Manila, following the 5-point scale of rating the port, where 5 – Very Satisfied, 4 – Satisfied, 3 – Neither Satisfied/Dissatisfied, 2 – Dissatisfied, 1 – Very Dissatisfied, again the *Availability of Service Providers/Shipping Companies/Forwarders* has obtained the highest rating of 5 from the 17 samples interviewed. This is then followed by

Reliable Shipping Schedule (4.9) and *Efficient Cargo Acceptance/Release* (4.88). Please see Figure 6.

Figure 6. Satisfaction Rating of the Port Under Study by Shippers/Locators



(b) Quantifying the Cost and Time Delay of Shipment

In the revised questionnaire, the shippers/locators were asked to quantify the increase in cost of shipment by truck (say for a 20-ft and 40-ft containers) before and after the truck ban was implemented in the City of Manila. Of the seven respondents who answered the question, three out of seven mentioned that the truck rates doubled during the truck ban. One even mentioned that before the truck ban, the rate was Php18,000 and with the truck ban it was Php36,000. Only one indicated that the truck ban was insignificant to their operation. Other effects include production delay, shutdown due to non-arrival of imported materials, increase rental of forklifts, overtime cost and increase in warehousing fee.

Shown in Table 2 are the exact answers of the six respondents who responded to the question regarding the delay incurred in the release of their cargo due to the truck ban. It can be seen that there is quite a big variation in their answers after the truck ban and given that before the truck ban, there is also a wide variation in the amount of time their cargo stays at the port before being released. This wide variation in the releasing of cargo may be due to the fact that there are no specific rules and regulations on how long should a cargo stay at the

port after clearing the customs and there should be some form of charges on overstaying cargoes at the port thereby minimizing the number of cargoes staying at the port.

Table 2. Quantifying the Time Delay of Cargo Releasing due to the Truck Ban

Before the Truck Ban	**After the Truck Ban**
1 month	2 to 3 months
1 day	more than a week
3 to 4 days	7 to 10 days
1 week	2-3 weeks
3 days	1 week
	1 month delay

(c) Train Option Scenario

The opinion of respondents regarding whether they are willing to use the train option to move their goods in and out of the port when it is available at this time, Table 3 below shows that nine out of 17 are willing to use the train option while 7 out of 17 are not sure whether they will use the train. Those who are not sure would like to know first the cost of freight by train as well as the security and safety measures when shipping their goods through the trains. Only one indicated that they will not use the train.

Table 3. Rail Option Scenario

Will Use the Rail Option if it is Available Today	No. of Respondents
Yes	9
Not sure	7
No	1
Total	17

Since most of the respondents who were interviewed and responded to the online questionnaire are currently located in Laguna, eight of them would like the inland terminal to be served by trains located in Laguna as shown in Table 4. Multiple answers were also allowed in this question.

Figure 7. Preferred Location of an Inland Freight Terminal by Shippers/Locators

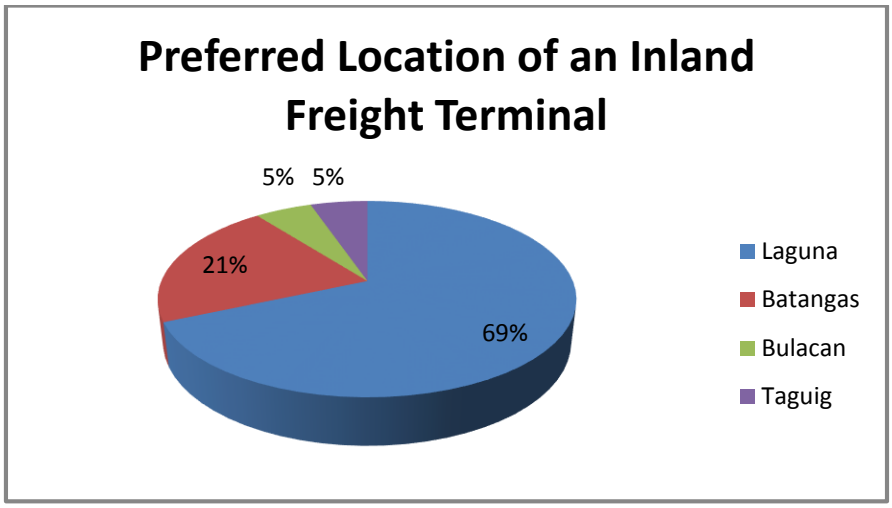
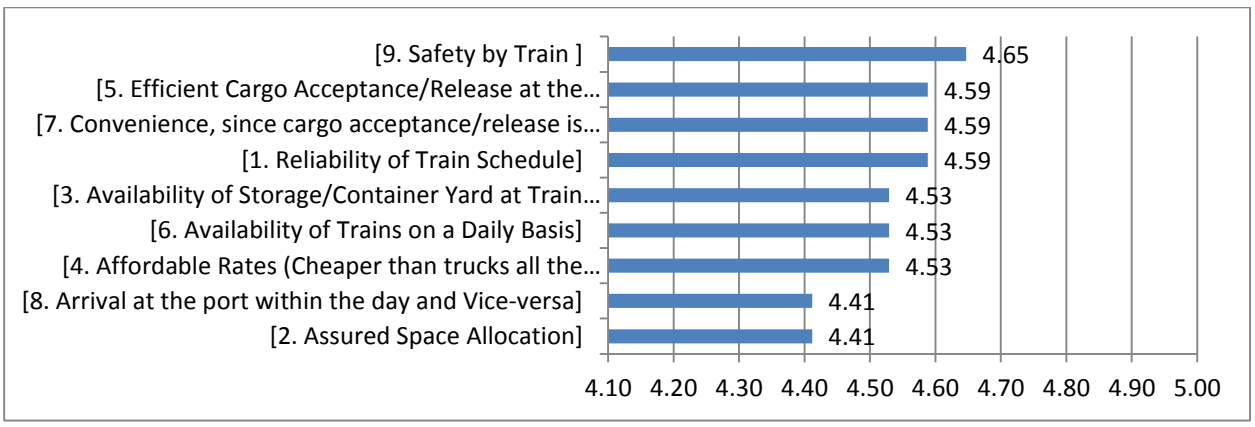


Table 4. Shippers/Locators Preferred Location of an Inland Freight Terminal

Location	No. of Respondents	Percent of Respondents
Laguna	13	76.5
Batangas	4	23.5
Bulacan	1	5.9
Cavite	1	5.9
Taguig	1	5.9

As shown in Figure 8, the top four most important considerations when using the train are the safety consideration, the efficient cargo acceptance/release at the inland terminal, the availability of storage/container yard at the train terminal, and the reliability of the train schedule. Nevertheless, all of the listed factors are considered important by the respondents with 4.41 or higher rating.

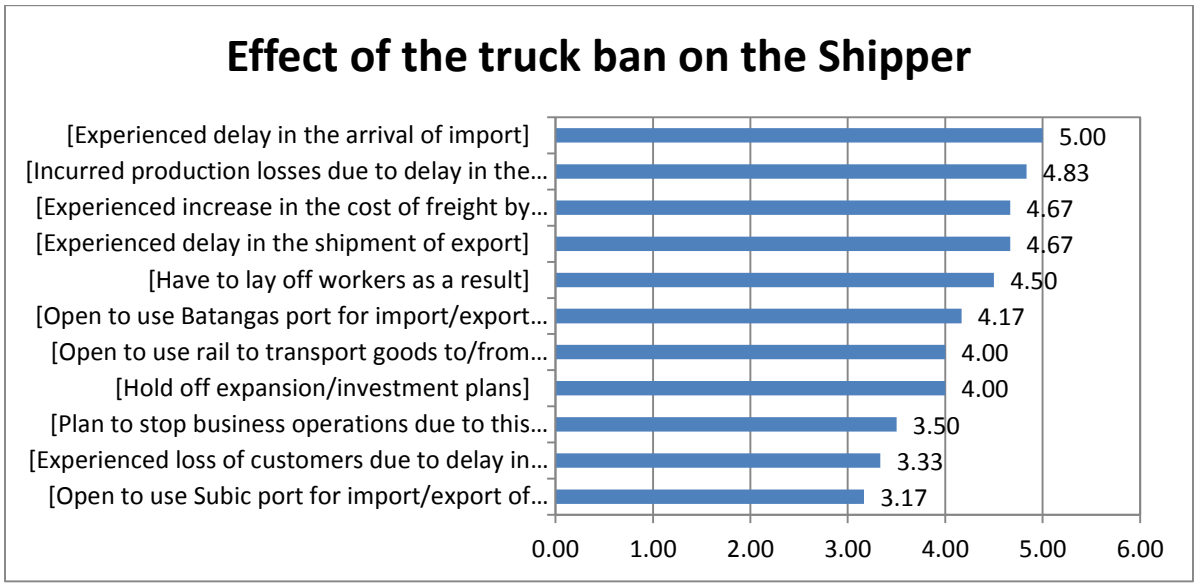
Figure 8. Important Considerations to Use the Train Through an Inland Terminal



(d) Effect of the Truck Ban on Shippers/Locators

In the revised questionnaire, six respondents answered the questions with regards to the effect of the truck ban on their Company's operation by responding to the following statements, using a 5-point scale, with 5 as Strongly Agree, 4 as Agree, 3 as Neutral, 2 as Disagree, and 1 as Strongly Disagree.

Figure 9. Effect of the Truck Ban on the Shippers/Locators



As shown in Figure 9 all the six respondents strongly agree that the truck ban made their company experience delay in the arrival of imports. The next major effect is that the company incurred production losses due to the delay in the arrival of shipment followed by the increase in the cost of freight as well experienced delay in the shipment of export.

The following additional concerns were mentioned by the respondents how the truck ban has affected their companies:

1. For those who are mostly importing, the arrival of their goods or raw materials has become unpredictable or inconsistent. This has affected their production operation since the raw materials to be used have not yet arrived. Another effect of delay in the production would be loss of clients who are waiting for the product to be produced since they may look for other producers of this product.

2. Given the truck ban problem that resulted in productivity losses, they are still maintaining the number of their workforce. However, expansion plans of the company will be delayed until such time that this issue is resolved.
3. For those that are purely shippers, the scenario that they are getting due to the truck ban is that this resulted to the limited supply of trucks or inadequacy in the availability of trucks. It seems that the shippers are at the mercy of truckers as to when they can bring their goods out of the port.

IN THE NEWS

'Appoint Port Czar to end congestion'

A GROUP of importers, exporters, brokers and other private stakeholders at the Port of Manila has urged the government to appoint a "Port Czar" to oversee efforts to decongest the port area.

This was among the suggestions posed by the Port Users' Confederation (PUC) to solve the problem once and for all.

Noemi Saludo, PUC chair emeritus, noted that while the Philippine Ports Authority (PPA) has assigned officials to oversee the day-to-day operations at the Port of Manila, there was no one tasked with decongesting it.

"We need a port czar because, as we can see, the present management of the PPA is busy with the management of the ports. But they are limited in handling port congestion," Saludo said at the sidelines of the first Port Summit held by the group in Manila.

"When people think of port congestion, they blame the truck ban which is also blamed for the gridlock major roads have experienced recently. But port congestion is more than that. We have to look at what's happening inside," she added.

The appointment of a port czar was just one of the dozens of recommendations threshed out in the daylong summit.

The recommendations focused on six key areas of port management: customs procedures and reforms, traffic management, port development, antismuggling initiatives, international shipping regulation and cargo terminal handling.

Saludo said that while the [lifting of the] truck ban had clearly eased port congestion in addition to the efforts of the Cabinet Cluster on Port Congestion, there were still a lot of problems which needed to be addressed.

"What we see as the two major problems that could still significantly decongest the port if solved are: first, the Bureau of Customs' (BOC) practices and how they can be more business-friendly, and second, empty containers," she added.

Traders and businesses have particularly complained about the BOC's lengthy investigation of suspicious freight containers.

"There was one trader whose shipment of wine was put on alert by the BOC this year. By the time he was cleared to take out the cargo, you couldn't drink the wine anymore because it was already sour," Saludo said.

According to her, the Customs and Tariffs Code which allows empty containers to stay inside the port for 150 days or five months does not help.

"The law should be amended to trim this grace period to about 30 or 60 days," she said.

Source: Nathaniel Melican, "Appoint Port Czar to End Congestion," *Philippine Daily Inquirer*, November 18, 2014, p. A16.

4. One recommendation is that there should be regular contact or forum where the shippers, truckers, freight forwards, concerned government agencies, LGUs, among others, can discuss and work together for the improvement of the industry (*see In the News: Appoint Port Czar to End Congestion*).

It should be noted that from the JICA Study (2010), some of the concerns and problems mentioned by economic-zone locators who were interviewed are similar to this study even without the truck ban at that time, especially high transport and hauling costs, as listed below.

- Poor Road Infrastructure - this includes insufficient road network and road traffic capacity, low load capacity of bridges, poor road condition/lack of road maintenance, etc.
- Lack of Traffic Management - this includes poor traffic rules/regulation enforcement, poor traffic management of congested areas, lack of facilities for traffic controls, etc.
- Lack of Road Safety Facilities - this includes lack of safety information and road safety signs and facilities, especially for accident-prone areas/safety black box, etc.
- High Transport and Hauling Costs - this includes high costs of fuels and truck maintenance, high toll fees at expressways, high shipping costs, etc.
- Few Options for Other Transport Modes - this includes less frequency of air and sea transport, high cost of shipping, delayed arrivals, etc.

(e) Survey Results from Freight Forwarders and Logistics Services Providers

A total of 19 participants answered the quick survey questionnaire. The primary goal of the survey is to analyze the issues and problems that gave rise to the congestion of the Port of Manila and the feasibility of utilizing Batangas and Subic Ports. Particularly, the participants were asked to answer the following: origins and destinations of goods/shipments, characteristics of outgoing and incoming shipments, attribute importance of ports, and performance of the Ports of Manila, Batangas, and Subic.

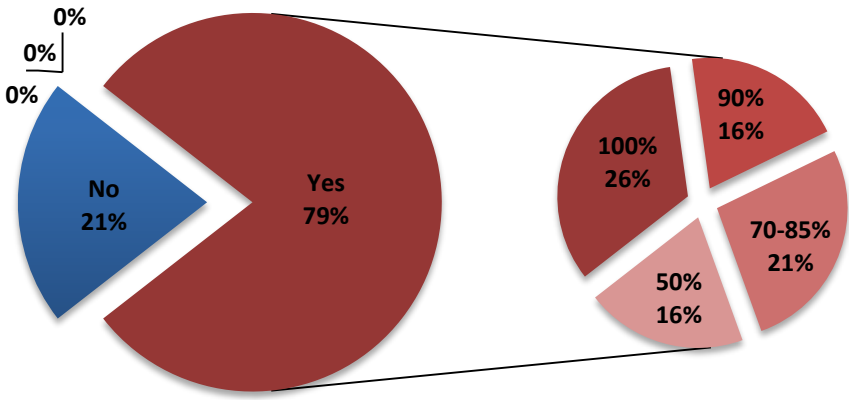
Of the 19 survey participants, 11 were male while eight were female and mostly are part of the top management with an average of eight years in position (see Table 5).

Table 5. Descriptive Information on Freight Forwarders and Logistics Services Providers Respondents

No. of Samples	19
Gender	
Male	11
Female	8
Mean Age (in years)	41.0
Average No. of Years in Position	8.0
Average No. of Years Company is in Operation	12.7

Based on the survey, 79 percent of the participants outsource their trucking services while the remaining have their own trucking services. Participants hire 50-100 percent of their trucking services from trucking companies. As such, most of them were negatively affected by the increase in trucking rates when the truck ban was implemented (see Figure 10).

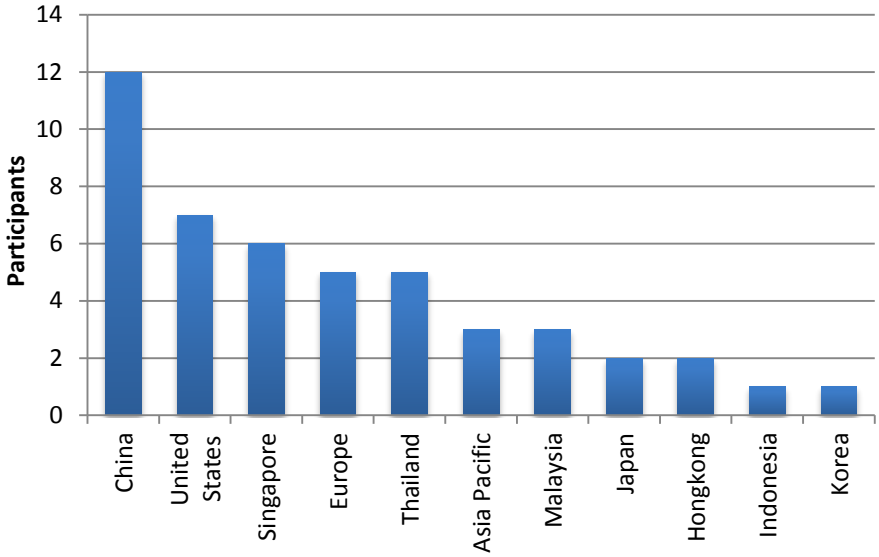
Figure 10. Outsourcing of Trucking Services



For the country of origin and destination questions, the participants were asked to enumerate the top three country origins and destinations of goods or shipments. Twelve out of the 19 participants import commodities from China. Second top country of origin is the United States with 7 out of 19 freight forwarders, followed by Singapore with 6 out of 19,

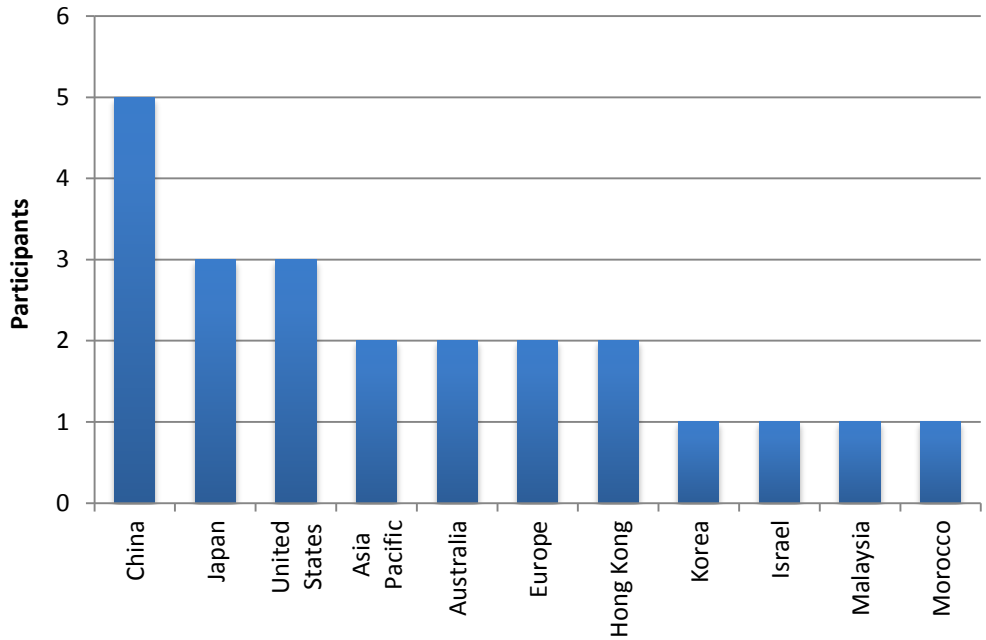
and then Europe, Thailand, Asia Pacific (no specific country), Malaysia, Japan, Hong Kong with 2 out of 19. One participant imported from Indonesia and Korea (see Figure 11).

Figure 11. Country of Origin



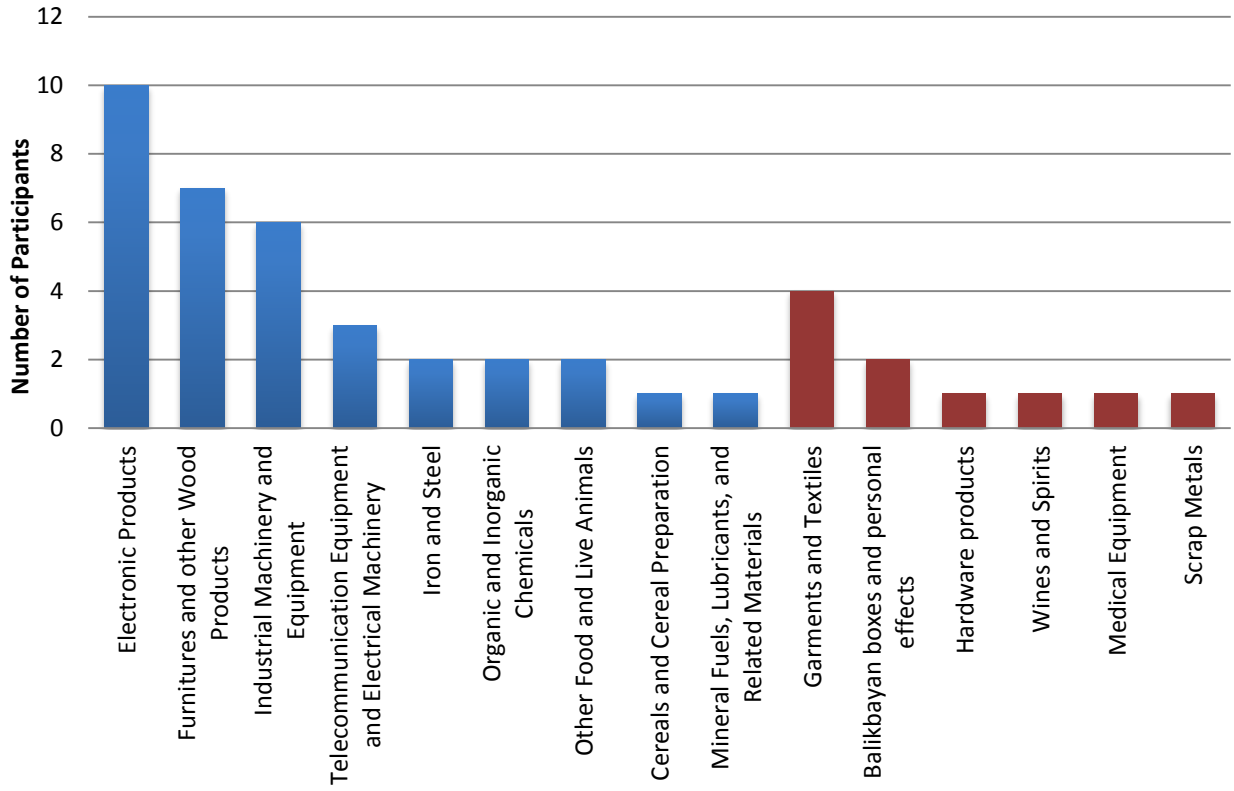
For exports, China remains to be the top country of destination with 5 out of 19 participants. This is followed by Japan and the United States with 3 out of 19, Asia Pacific (no country specified), Australia, Europe, and Hong Kong with 2 out of 19, and Korea, Israel, Malaysia, and Morocco with 1 out of 19 participants (see Figure 12).

Figure 12. Country of Destination



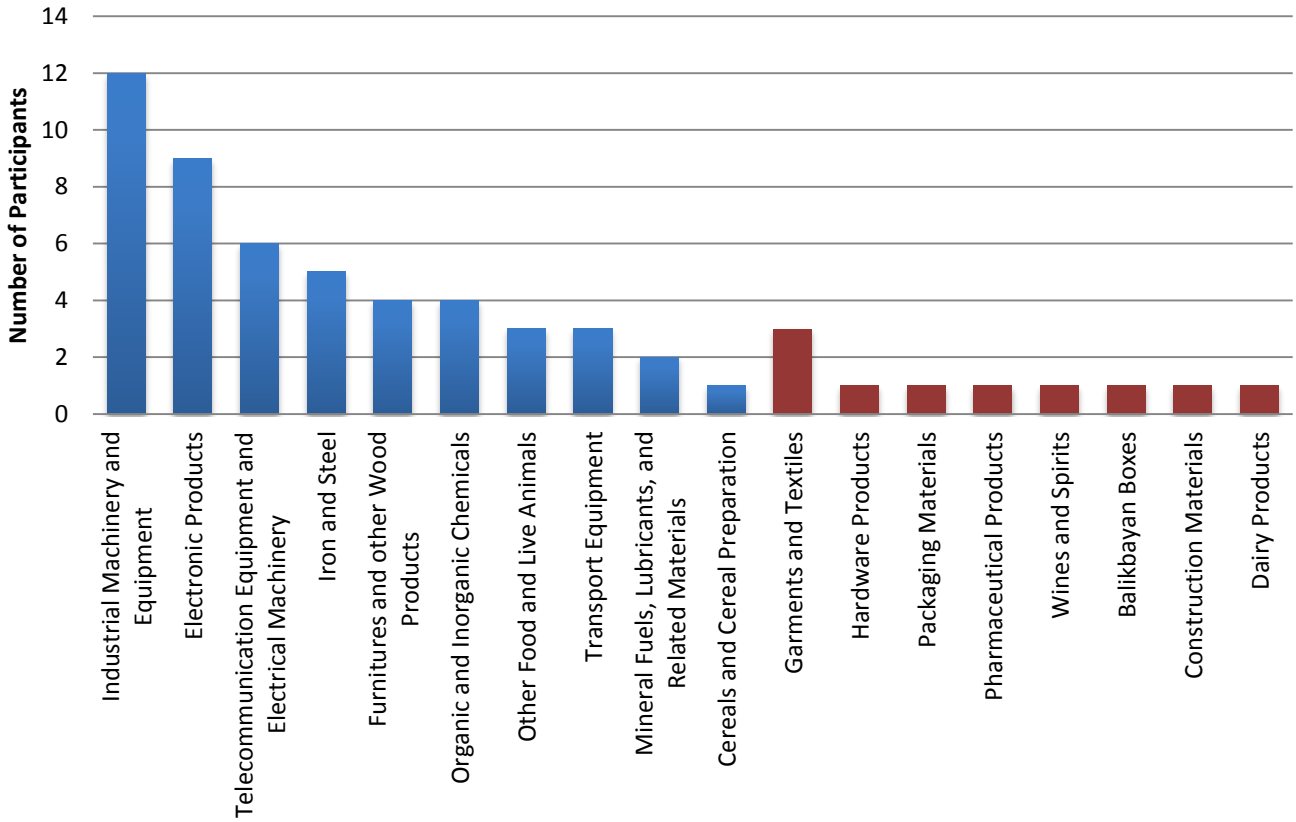
The participants were also asked to pick their top three commodity types of outgoing and incoming shipments from the list provided. The red bars indicate goods not included in the list (Others) but were still asked to specify. Based on the results 10 out of the 19 companies shipped out electronic products, followed by furniture and other wood products (7 out of 19), industrial machinery and equipment (6 out of 19), telecommunication equipment and electrical machinery, and iron and steel, organic and inorganic chemicals, other food live animals, cereals, and cereal preparation, and mineral fuels, lubricants, and related materials. Not part of the list but were enumerated include garments and textiles, hardware products, wines and spirits, medical equipment, and scrap metals (see Figure 13).

Figure 13. Commodity Type of Outgoing Shipments



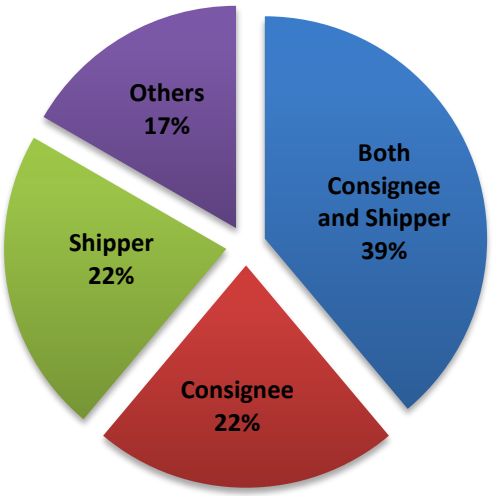
For incoming shipments, top commodity is industrial machinery and equipment with 12 out of 19 participants choosing this, followed by electronic products (9 out of 19), telecommunication equipment and electrical machinery (6 out of 19), iron and steel (5 out of 19), furniture and other wood products and organic and inorganic chemicals (4 out of 19), other food live animals and transport equipment (3 out of 19), mineral fuels, lubricants, and related materials, and cereals, and cereal preparation. Not part of the list but were enumerated include garments and textiles, hardware products, packaging materials, pharmaceutical products, wines and spirits, Balikbayan boxes, construction materials, and dairy products (see Figure 14).

Figure 14. Commodity Type of Incoming Shipments



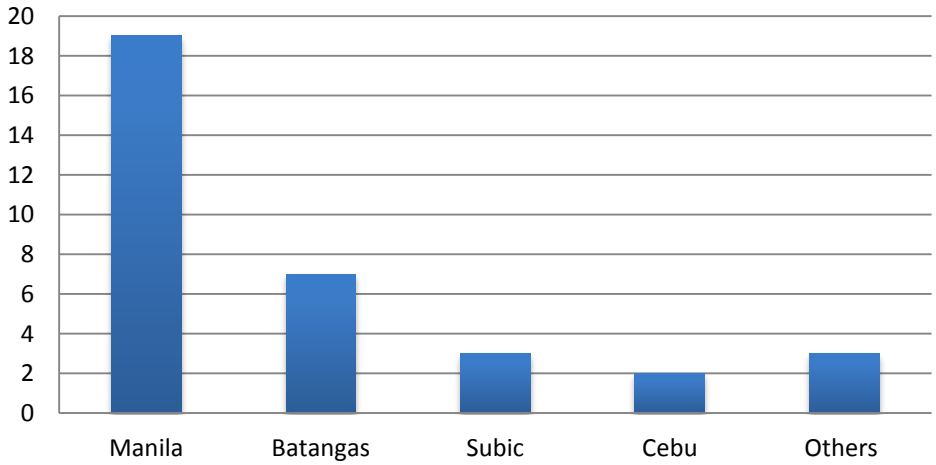
Participants were then asked to who makes the decision in choosing which port to use for the shipment. 39 percent said that both the consignee and shipper agree on the port choice, 22 percent each for shipper and consignee, while 17 percent answered others but did not specify the entity (see Figure 15).

Figure 15. Decision Maker



For port usage, all participants use the Port of Manila, 7 out of the 19 use Batangas, three use Subic, two use Cebu, and 3 out of 19 used other ports. According to the participants, the most frequently used port for shipments is the Port of Manila because of the availability of shipping lines, accessibility with less cost and cheaper rates, location of port is nearer to consignees, importers, and warehouses, and transaction and release of goods is easier owing to the presence of specialized Customs staff (see Figure 16).

Figure 16. Ports Used by Freight Forwarders and Logistics Services Providers

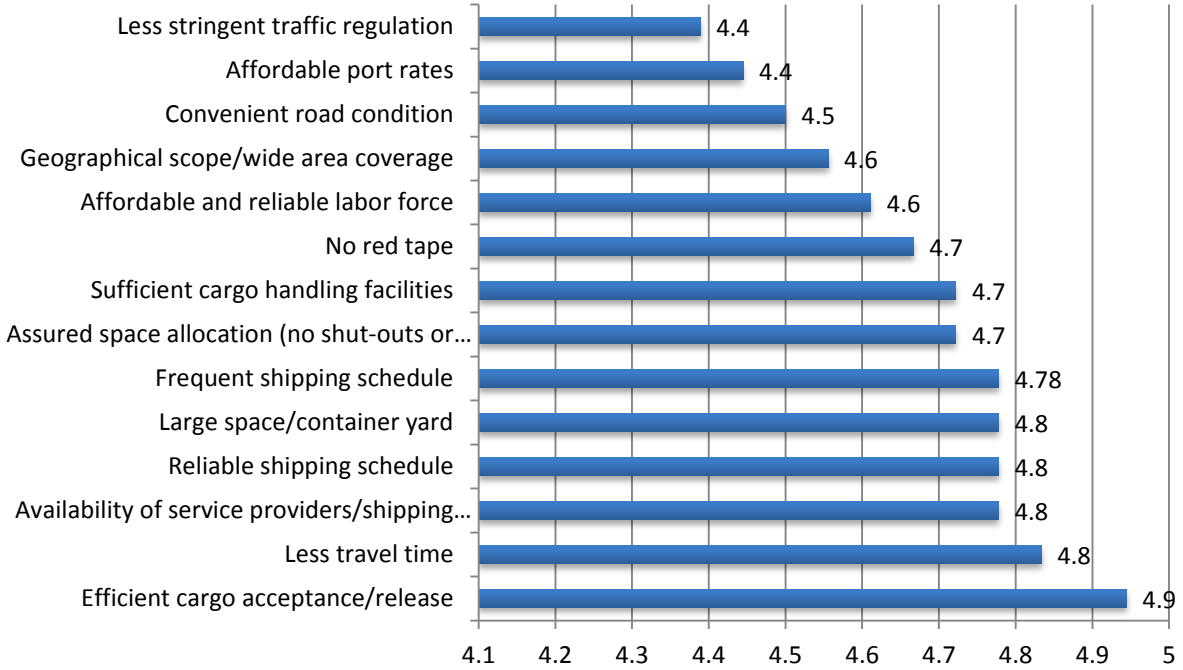


The participants were also asked to rate the following attributes in terms of their level of importance in choosing a port too use for shipment. the following scale was utilized: 5 –

Very Important (VI); 4 – Important (I); 3- Neither Important/Unimportant (NI/U); 2 – Not Important (NI); and 1 – Definitely Not Important (DNI).

Based on the survey results, participants rated all the attributes as, on average, important with the most important being the *Efficient cargo acceptance/release*, and the least important *Less stringent traffic regulation* (see Figure 17).

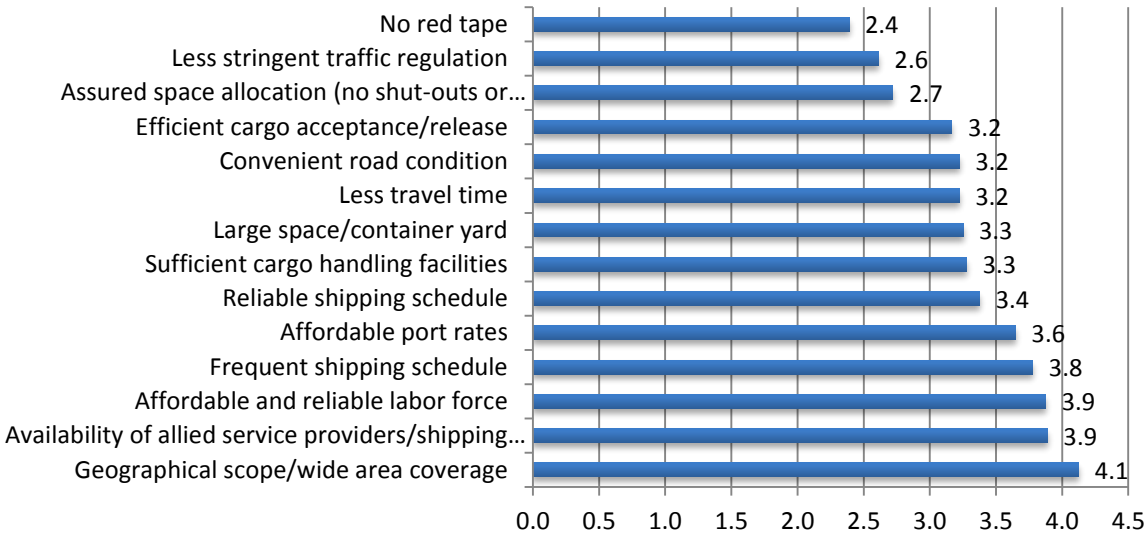
Figure 17. Important Considerations When Choosing a Port for Freight Forwarders and Logistics Services Providers



For the port satisfaction rating, participants were asked to rate the port on their level of satisfaction for each attribute using this 5-point scale: 5 – Very Satisfied, 4 – Satisfied, 3 – Neither Satisfied/Dissatisfied, 2 – Dissatisfied, 1 – Very Dissatisfied.

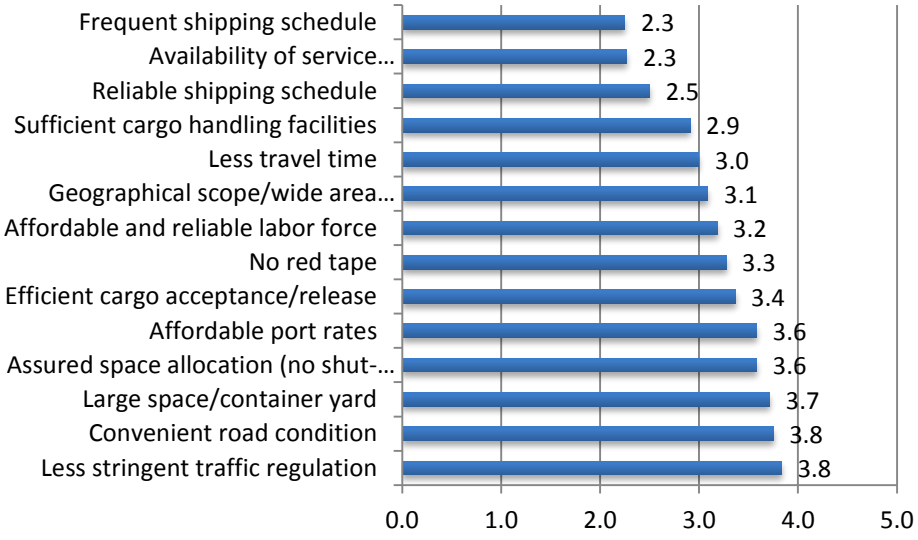
Based on the results, participants were, on average, satisfied with the *Geographical scope/wide area coverage* of the Port of Manila given its location but were dissatisfied with the *No red tape* attribute as there were too many Customs issues. Most participants are neither satisfied/dissatisfied with the performance of the Port of Manila (see Figure 18).

Figure 18. Satisfaction Rating of Manila Port by Freight Forwarders and Logistics Services Providers



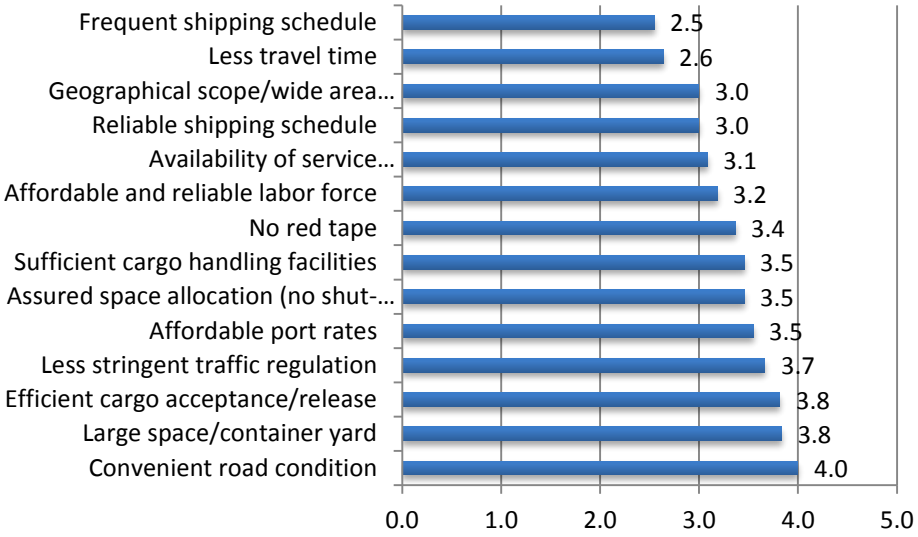
For the Batangas Port, participants were, on average, almost satisfied (3.8 score) with the *Convenient road condition* and *Less stringent traffic regulation* but dissatisfied (2.3 to 2.9) with the *Frequent shipping schedule, Availability of Allied Service Providers, Reliable shipping schedule, and Sufficient cargo handling facilities* attributes (see Figure 19).

Figure 19. Satisfaction Rating of Batangas Port by Freight Forwarders and Logistics Services Providers



For the Subic Port, participants were, on average, satisfied with the *Convenient road condition* but dissatisfied with the *Frequent shipping schedule and Less travel time* attributes (see Figure 20).

Figure 20. Satisfaction Rating of Subic Port by Freight Forwarders and Logistics Services Providers



(f) Surveys, Key Informant Interviews, and Focus Group Discussion of Freight Forwarders and Logistics Services Providers

A series of Focus Group Discussion (FGD) sessions were conducted on July 15 and 22, August 22, and September 10, 2014. A total of 25 people, from 21 companies and one from the Chamber of Customs Brokers, Inc. (CCBI) participated and identified the following issues and challenges being faced by the Port of Manila and the logistics system as a whole.

1. Port Congestion

The participants were one in expressing that the logistics system of the country is in a state of crisis today. Congestion at the Port of Manila was common in the past especially during the months starting from July up to December as imports are at its peak (*see Concepts in Context: Defining Port Congestion*). While this was the case, adjustments in the system were appropriately made and thus reliability and predictability of cargo movements were still achievable at acceptable level. On the contrary, the congestion at the Port of Manila triggered by the imposition of the daytime truck ban by the City of Manila is considered the worst in years. As a result of the daytime truck ban, the throughput of cargoes and containers taken

out of the port has drastically declined.[5] The piling up of cargoes at the port awaiting movement are aggravated by the accumulation of empty containers as truck containing empty containers are further banned from travel.

The port congestion situation has spilled over to the seaside as vessels have experienced long delays in off-loading cargoes as the container yard are operating beyond its rated capacity. Container depots outside of the port have also been operating at full capacity. This situation today is very serious as shipping lines calling at Manila Port have been turning down bookings from local importers/exporters and freight forwarders.

CONCEPTS IN CONTEXT

DEFINING PORT CONGESTION

Port congestion is the term used for situations where ships have to queue up and wait for a spot so they can load or offload. Ports only have a limited amount of dockage, and only so many cargo or container cranes. Ships usually have to wait in line to get to the cranes or the pier because there is a high demand on the limited resources of the port. The high traffic volume causes congestion.

The inadequacy of port capacity to cope with ship/cargo traffic to and from the port resulting in delays in working the vessel, handling cargoes beyond reasonable period.

The causes of congestion are the following: increased demand for container shipping, port constraints, poor management, strikes and other work-related problems, truck driver shortage, too many vehicles are being directed at a port, and the increasing number of giants ships which cause unloading problems at the port.

Policies to relieve port congestion include congestion pricing, expanded rail connections, establishment of off-dock container yard, and installation of high-speed gates that rely on optical character recognition, digital imaging and other technologies to speed truck processing and integrate truck/terminal operations.

Source: Thomas Ward, Port Congestion Relief: Attacking the Entire Chain (http://www.dmjmharris.com/media/4437.pdf)

This also disrupted the operations of other ports outside the country as cargoes and containers are being help up, specifically at Hong Kong, Singapore, and Kaohsiung.

2. Empty and Overstaying Containers

The participants point to the trade imbalance, particularly the large number of imports as compared to exports, as the main cause of congestion at the Port of Manila. This explains

[5] PPA Press Release, July 9, 2014: "Philippine total cargo throughput posted another increase in the first four months of the year but total container volume slid significantly due partly to the truck ban imposed by the City of Manila."

the accumulation of an overly large number of empty containers laying over at the container yard. Another issue is the large number of abandoned or overstaying loaded containers which is straining the already limited capacity of the container depots.

3. Lack of Container Depot Areas

There is a dire need to expand the capacity of holding areas for containers. As such, there is an urgent need to establish an expanded Container Freight Station (CFS) for the efficient handling and movement of containers in and out of the Port of Manila similar to the system in Singapore and Thailand. At the very least, the participants point to utilizing outlying areas near the Port of Manila as staging areas for empty containers. However, such areas are presently occupied by informal settlers.

4. Imposition of Truck Ban and Enforcement of Yellow Plates

The participants generally agree to the intention behind the imposition of the daytime truck ban by the City of Manila, as well as, the enforcement of yellow plates by LTFRB. However, the timing is just bad and the coordination among concerned agencies is severely lacking. There are also reports that other local government units are following suit and imposing their own versions of truck ban by requiring trucks to secure access stickers.[6]

5. Impact on Trucking Industry

As a result of the increased cost of truck operation, the trucking companies have imposed skyrocket rates that get passed on to freight forwarders and logistics services providers and subsequently to importers/exporters. The increased cost is due to confluence of related factors including increase in non-revenue hours waiting for cargo handling operations, limited working hours during the days but increased personnel costs due to nighttime operations. Additionally, there is a need to do several trips to locate container depots with available slots and the increasing transaction costs.

6. Utilization of Batangas and Subic Ports

The participants agree to the utilization of the Batangas and Subic Ports as a strategy to decongest the Port of Manila. However, there is a need to enhance the operational capacity of Batangas in terms of available personnel, cargo handling equipment, berth capacity and

[6] City of Parañaque has imposed a truck ban on trucks weighing more than 5 tons on city roads from 6 AM to 9 AM and from 4 PM to 8 PM Monday to Friday. The ban which was initially enforced on the city's secondary roads will be expanded to cover the city's major roads starting August 25, 2014. It applies to 10-wheel cargo trucks, trailer trucks, and transit mixers.

container yard capacity. Subic Port is fine but is quite far from Manila where majority of the port users are located.

(g) Truckers Survey Results

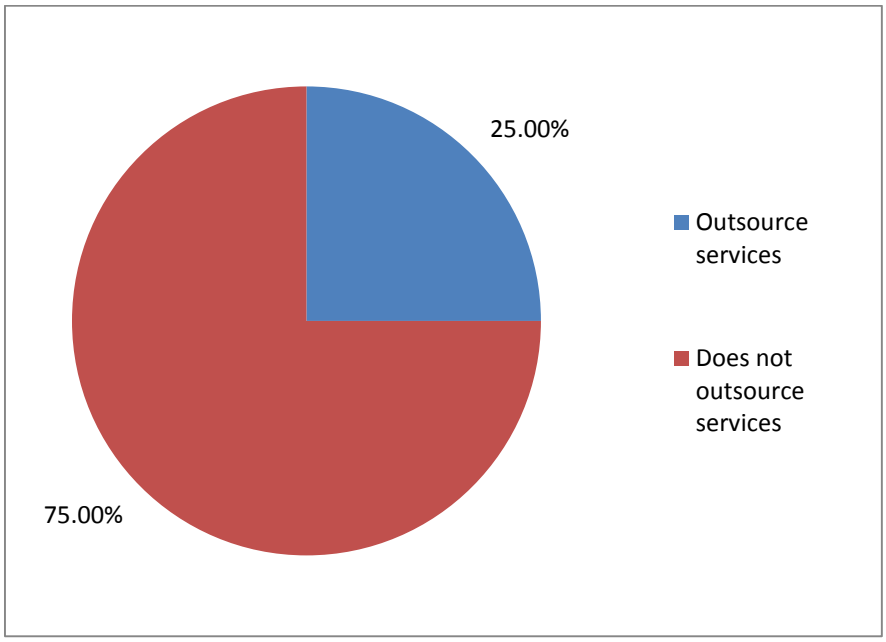
The respondents of the truckers' survey consist of a number of truckers listed in the Philippine Cargo Transport Directory, members of the Confederation of Truckers Association of the Philippines (CTAP and Mary Zapata, President of the Aduana Business Club. There were a total of 20 interviewed truckers, composed of 19 males and 1 female. Presented below is the descriptive information of the respondents (see Table 6).

Table 6. Descriptive Information on Truckers Respondents

Number of Respondents	20
Gender	
Male	19
Female	1
Mean Age (Years)	41.85
Number of Years in Position	12.53
Number of Years Company in Operation	16.13

Out of the 20 trucking companies represented by the respondents, 25% outsource the procurement of their services while the remaining 75% do not. The former subcontract about 50% to 90% of their trucking services (see Figure 21).

Figure 21. Outsourcing of Services by Truckers



Top commodities for the truckers' outgoing shipment include industrial machinery and equipment, iron and steel, and plastics. Their incoming shipment comprises of a large quantity of iron and steel, electronic products, transport equipment, industrial machinery and equipment and other commodities such as fast moving consumer goods, dry goods, ground nuts, and oil well drilling materials and survey equipment (see Figure 22 and Figure 23).

Figure 22. Commodities for Outgoing Shipment Based on Truckers' Survey

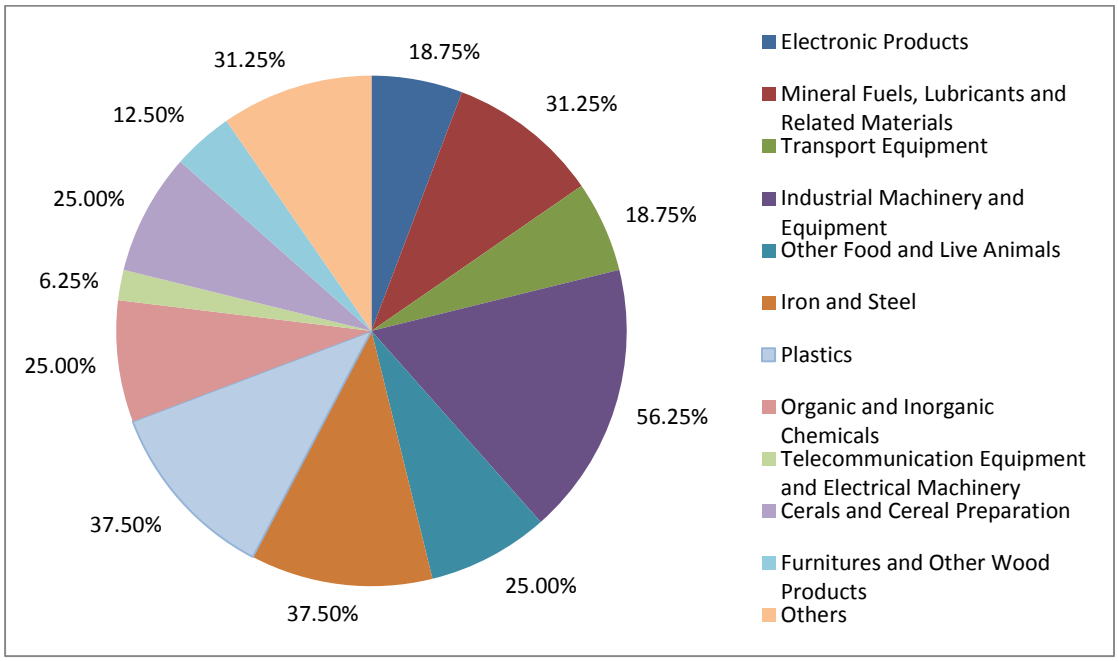
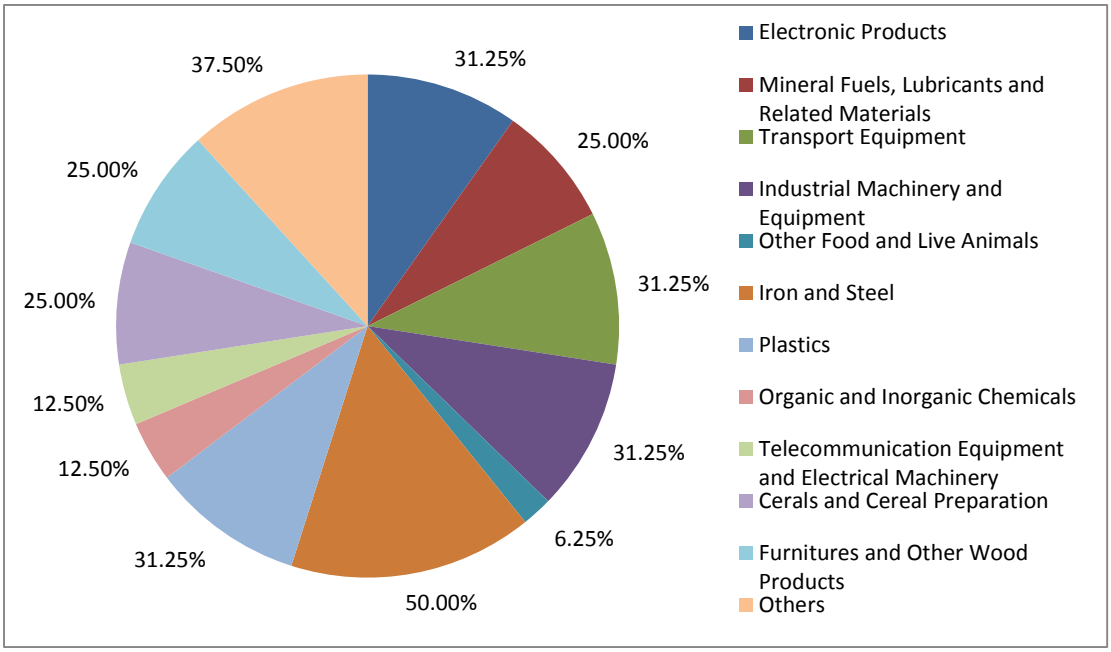


Figure 23. Commodities for Incoming Shipment Based on Truckers' Survey



Among the truckers interviewed, 69% let the consignee decide which port to use for shipment, 31% give the decision-making to the shipper and 13% leave it to the broker. All of the respondents prefer to use Manila port because of its proximity to their garage and to their

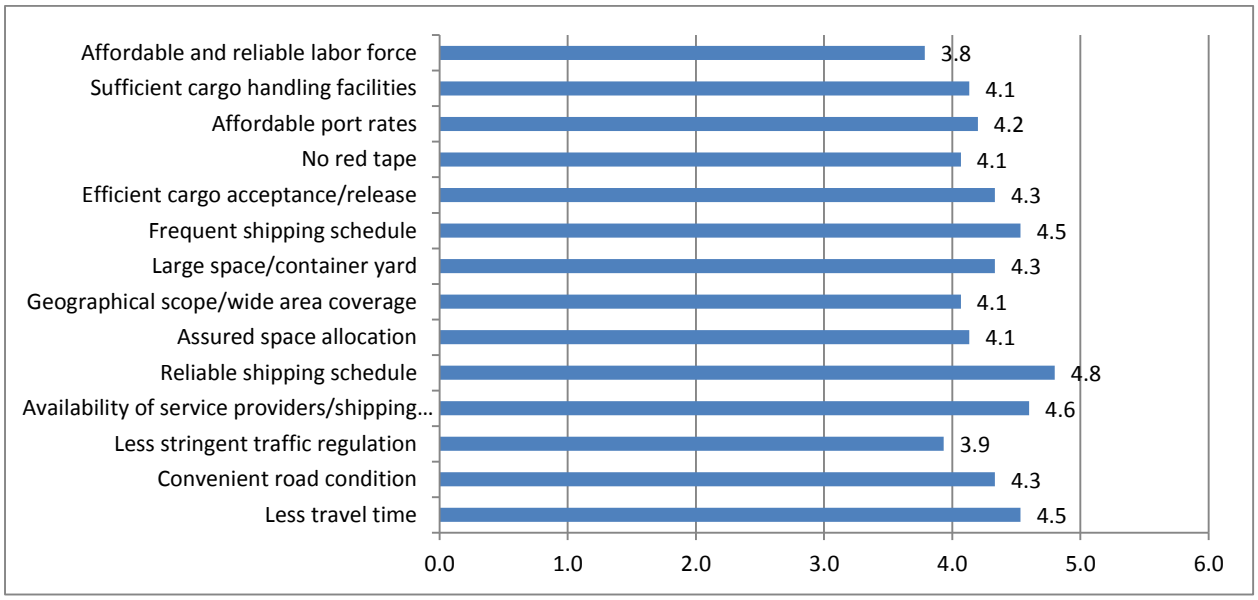
points of destination. Some of respondents use the Batangas port from time to time and none of them use Subic port (see Table 7).

Table 7. Truckers Port Usage

Manila	100%
Batangas	19%
Subic	0%

The respondents were asked to rate the level of importance of each attribute in choosing which port to use with the following scale: 5 – Very Important; 4 – Important; 3- Neither Important/Unimportant; 2 – Not Important; and 1 – Definitely Not Important. Figure 24 shows the average rating of each attribute. Truckers consider the reliability of shipping schedule, availability of service providers/shipping companies/forwarders, travel time and the frequency of shipping schedule as the most important attributes in choosing the port to use.

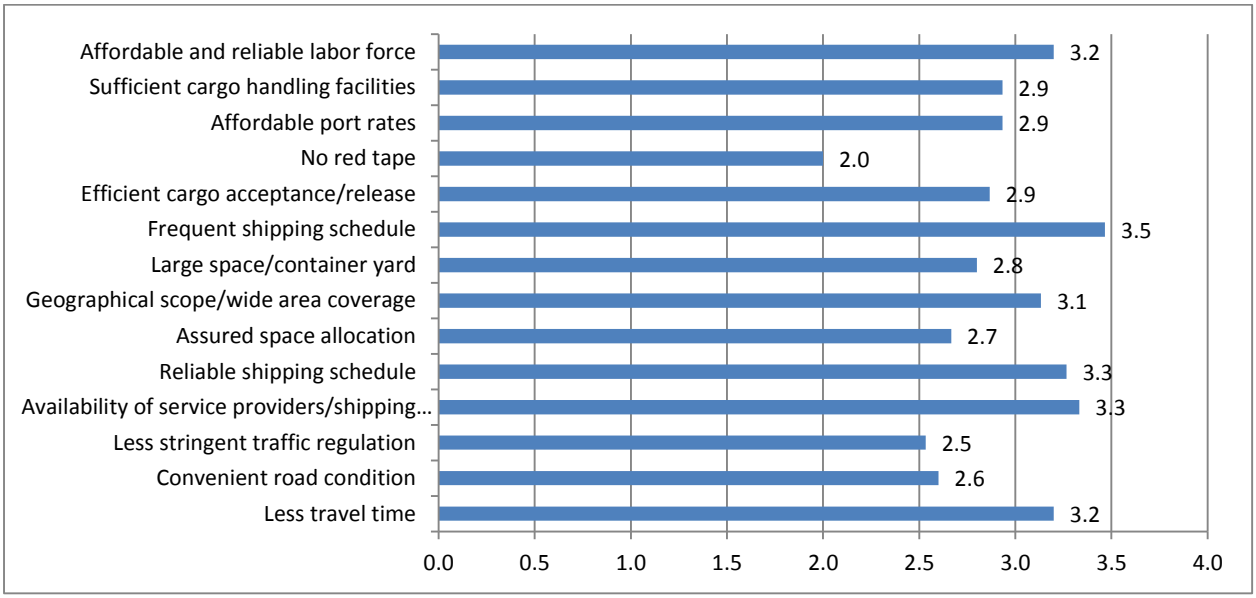
Figure 24. Important Considerations When Choosing a Port for Truckers



The scale used to rate the level of satisfaction of utilizing their chosen port is as follows: 5 – Very Satisfied; 4 – Satisfied; 3- Neither Satisfied/Dissatisfied; 2 – Dissatisfied; and 1 –Very Dissatisfied. Figure 25 shows that most of the attributes fall on the range of 3-

neither satisfied/dissatisfied to 2-dissatisfied. Nevertheless, the attributes with the highest ratings include frequency of shipping schedule, reliability of shipping schedule, availability of service providers/shipping companies/forwarders, affordable and reliable labor force, and travel time.

Figure 25. Satisfaction Rating of Chosen Port By Truckers



The problems being encountered by the country's logistics system include not only the effects of the recently lifted Manila truck ban but also of other policies that were simultaneously implemented by other government institutions such as the LTFRB and MMDA. Based on the focus group discussion with the truckers, it is the trucking sector that experienced the first-hand effects of the truck ban, the yellow plate requirement and the rent-seeking behavior of traffic enforcers (see Figure 26).

Manila truck ban has been lifted last September 13, 2014 when Mayor Joseph Estrada issued Executive Order 67 which allows trucks to use the streets of Manila at any time of the day.[7] In spite of the absence of the truck ban, the negative impacts of the policy to the logistics system remain. Port congestion which points to the shipping lines' habit of using the port as a container yard for empties continues to be an economic problem. It is important to note that the usage of the port as an empty container depot has been practiced even before the implementation of the truck ban. Port congestion was only aggravated by the inability to

[7]Executive Order 67, issued by Manila City Mayor Joseph Estrada

move out empties due to the constrained movement of trucks when the truck ban was still in effect.

Essentially, the shipping lines are mandated to operate their own container depot outside the port where their empty containers should be returned. However, recently, these shipping lines were not operating container depots that could accommodate the number of containers they keep. Thus, these shipping lines take advantage of using the port as a container yard. It is important to note that this has been practiced even before the implementation of the truck ban. Port congestion was only aggravated by the inability to move out empties due to the constrained movement of trucks when the truck ban was still in effect.

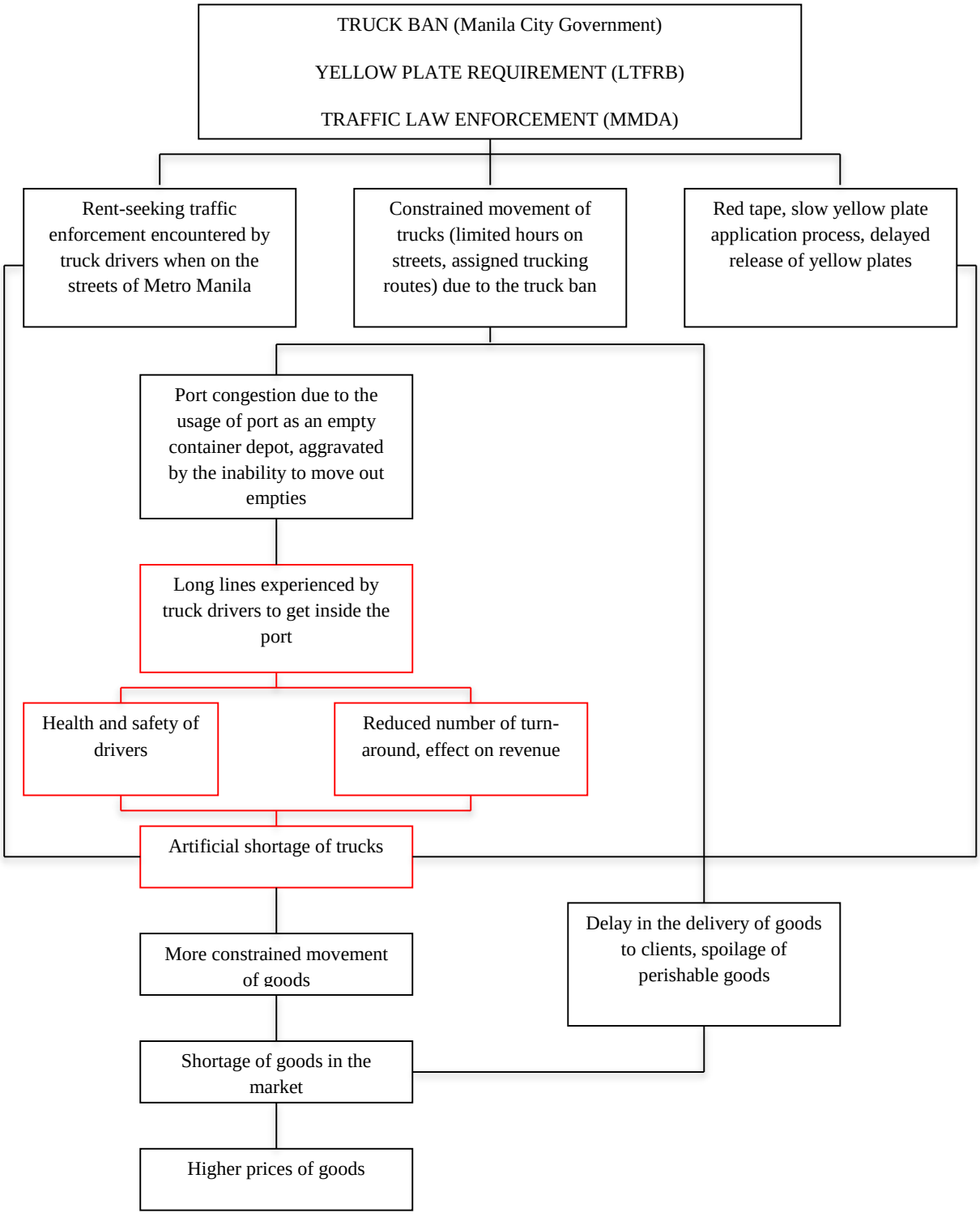
Additionally, it was cited that one of the reasons for the huge number of empties is the import-export imbalance. The country has had an unfavorable balance of trade since the early 2000s with a negative $7,853 million in 2013.[8] The only way to get rid of these empty containers aside from prohibiting the shipping lines from leaving their empties is to use it for the export of goods. Port congestion could have been mitigated during the period of effectivity of the truck ban if there had been a huge regular outflow of goods from the country.

Direct effects of the back-to-back implementation of policies to truckers during the mid-months of the year start from the long lines experienced by the truck drivers just to get inside the port gates. Before the truck ban, it only took a maximum of 2 days for trucks to enter the port but with the said policy, trucks stayed in long queues for at least 5 and at most 14 days. This posed health and safety concerns on the truck drivers and helpers who stayed aboard their trucks with no food and sleep. This in turn, resulted in the resignation of drivers and helpers.

[8] http://www.nscb.gov.ph/secstat/d_trade.asp

Note: Respondents composed of truckers listed in the Philippine Cargo Transport Directory, members of the Confederation of Truckers Association of the Philippines (CTAP) and Mary Zapata, President of the Aduana Business Club

Figure 26. Flow of the Effects of Various Policies



Small players in the trucking business shut down their operations as their revenues were negatively affected. The existence of long lines outside the port also reduced the number of turn-around for each truck. This scenario created an artificial shortage of trucks.

There was in effect a high demand for trucking services which increased the reservation price of clients from the usual Php7,000-Php9,000 per turn-around to thrice that amount.

Although there was an increase in the price of trucking services, big players were only left at the break-even point because of the reduced number of turn-around. The truckers were still able to earn Php21,000 on average per week with only one turn-around instead of three. Truckers also face a number of fees and charges which still exist even without the truck ban. Among these fees are 1) red tape or untaxed payment of Php3,000 to security guards just to exit the port after unloading containers, 2) container imbalance charge paid to the shipping lines that is reimbursed by the importer, 3) port congestion surcharge paid by the owner of goods or the consignee which also goes to the shipping lines. Other fees include emergency charges, storage fee, detention charge and terminal handling fee which are all paid even before the laden containers are cleared by the Bureau of Customs. These fees sum up to an approximate amount of Php60,000 for a 40-ft container.

Other problems that added up to the artificial shortage of trucks include the slow application process for yellow plates of the LTFRB and the rent-seeking behavior of traffic enforcers. Last June 27, the LTFRB released Resolution 05 s. 2014 or the 'no apprehension policy" for trucks for hire with green plates. The resolution provides for a one-month suspension (June 28-July 28, 2014) of Joint Administrative Order 2014-01, which imposes higher penalties and stiffer sanctions on traffic violations including colorum operations. LTFRB later extended the suspension until August 29, 2014 to give more time for truckers to franchise Provisional Authority (PA) and to apply for a Certificate of Public Convenience (CPC).[9] MMDA, on the other hand, asserted its regulating power and continued the crackdown of trucks even with the enactment of the resolution. Hence, trucks that operated during onset of the resolution still encountered corrupt law enforcers when plying the streets of Metro Manila. Also reported was the delay in the release of the yellow plates which further restricted the operations of trucks. In addition, truckers also faced the wrecking of trucks outside the assigned truck lanes conducted by the Traffic Management Group of the city of Manila. This group charged Php4,500 to claim each wrecked truck. The MMDA took over the traffic enforcement in the city of Manila after the truck ban has been lifted.

[9] http://www.ltfrb.gov.ph/media/Advisory.pdf

All of these led to a more constrained movement of goods. Truckers reported cases of delay in the delivery of goods to clients. Businesses, therefore, incurred production losses and interruptions that caused a temporary shortage of goods in the market. As a consequence, consumers suffered from the slight increase in the commodity prices during the latter part of the third quarter of the year. Further price increases may have been realized if the disruption in the supply chain continued until the last quarter, which is the peak-season of imports. The above-mentioned problematic scenarios and negative economic impacts may still persist even after the issuance of Executive Order 67.[10]

VII. Rail Connectivity of Economic Zones and Ports

As a potential component of long-term solutions, a study on the feasibility of reviving the rail connectivity of economic zones and ports was conducted. It starts with a discussion on the historical context of the railway development in the country, especially the Luzon Island and later provides an analysis of the issues, barriers, and considerations in integrating the railway system into the logistics industry again. It also recommends other action plans, policies, programs and projects (also identifying the instruments/mechanisms, responsible entities, and time frame) to address such problems that are doable within the:

a. Base year (2014)
b. medium-term (2014-2020)
c. long-term (2020-2030)

(a) Historical Background of the Rail Network in the Country

During the heydays of the Philippine National Railways (PNR) formerly known as the Manila Railway Company, during the Spanish era, a total of 1,140 kms of railroad were operational. As obtained from MMUTIS (1999) the chronology of railway network development, its network expanse and its eventual decline after World War II are summarized in Table 8 as follows:

[10] There is a Cabinet Cluster on Port Decongestion which consists of the PPA, BOC, DTI, DOF, DOTC, PEZA, MMDA, private sector: PCCI, truckers (CTAP), shipping lines, port operators.

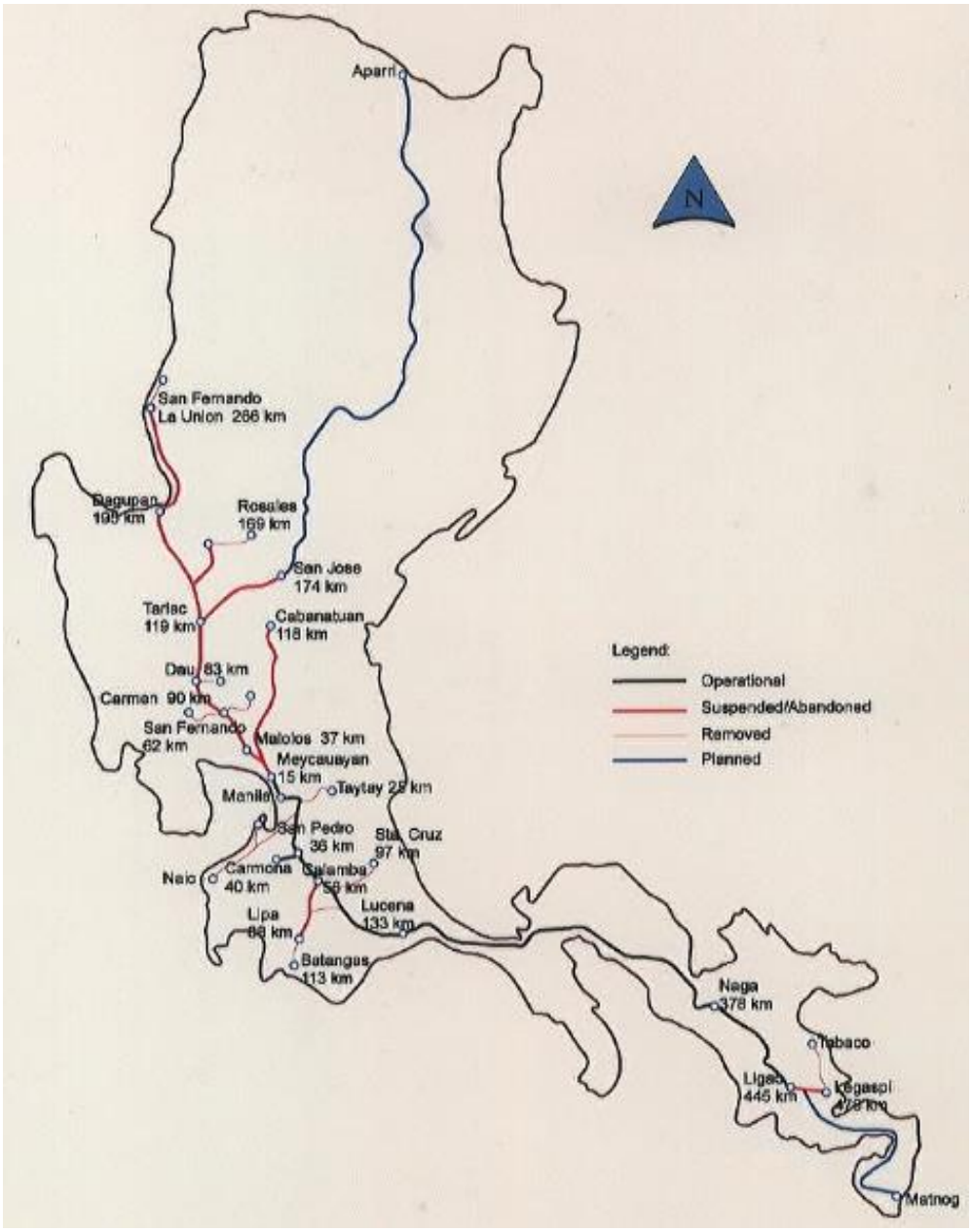
Table 8. Highlights of the PNR Development

Year	Highlight/Remarks
1946	Only a total of 452 km of rail network was operational due to war devastation
1954-56	Steam locomotives were replaced with diesel ones for modernization
1955	The Bacnotan branch line, with a distance of 20.34 km was opened
1964	The Philippine National Railways (PNR) was founded
1973	The San Pedro-Carmona branch line, with a distance of 4.0 kms was opened
1974	PNR reduced its railway operation from 1,059 km to 811 km due to damages caused by typhoons that hit the country
1975	The rehabilitation of the South Main Line started through a loan provided by the Asian Development Bank (ADB)
1983	PNR suspended its operation between Dagupan and San Fernando, La Union
1984	PNR abandoned the branch line between Guinobatan and Camalig, a distance of 18.5 kms
1986	PNR restored the branch line between Guinobatan and Daraga for long distance service. However, operations between Travesla and Legaspi were suspended due to weak railway
1987	PNR suspended its operation between Polangui and Travesla due to weak railway tracks
1988	PNR suspended its operation between Tarlac and Dagupan
1989	PNR suspended its operation between Malolos and Tarlac. PNR announced the METROTREN plan for commuter service
1990	The revitalization of the South Line Project started with financial assistance from the Overseas Economic Development Fund (OECF) of Japan
1991	PNR partially suspended the operation of the North Main Line due to Mt. Pinatubo's eruption
1996	Signed MOA between PNR and ICTSI in 1996 where the latter leased the track of PNR Main Line South for the short range railway cargo service between the Manila International Container Terminal (MICT) to the Calamba Inland Container Depot (CICD)
1997	The International Container Terminal Services (ICTSI) introduced a short range railway cargo transport service between Manila International Container Terminal (MICT) and the Calamba Inland Container Depot (CICD)
2003	ICTSI terminated the rail for freight service
2003	The Arroyo administration contracted the North Rail Project with the China National Machinery and Equipment Corp. (CNMEC) for an original contract cost of $421 million
2009	CNMEC increased the North Rail project contract price to $593 million
2011	The Aquino administration terminated the North Rail Project upon declaration as anomalous by the Supreme Court after legal questions and allegations of corruption hounded the project
2011	Bicol Express train service operations restored (September 2011)
2012	PNR adds more train trips to Bicol: Mayon Limited De Luxe and Mayon Limited Ordinary, running every Monday, Wednesday, and Friday, and every Tuesday, Thursday, and Sunday, respectively (March 2012)
2013	All operations going to the Bicol Region have been suspended (September 2013)
2014	PNR Charter extended for another 50 years and set to expire in 2064
2014	DOTC proposed the P271 billion North-South commuter rail project to NEDA, stretching 89.7 km from Malolos, Bulacan to Calamba, Laguna, using the existing PNR right-of-way through the greater Manila area (June 2014)

2014	ICTSI has indicated the incorporation of rail provisions into the new MICT yard to augment the 21-hectare Laguna ICD, linking the port to MICT by road and later on by rail for seamless transfer of cargo from the Ports of Manila to the economic zones in the South (September 2014)

What these historical events in PNR's history would indicate is that it is possible to revive the PNR Network in Luzon from as far as La Union to the Bicol Region given its existing right-of-way. With traffic congestion becoming prevalent not only due to private cars but also to truck traffic and with high investment cost in the construction of new expressway systems, a better alternative would be to revive the railway system that could provide a convenient way to travel for both people and goods especially in the Luzon Archipelago. Furthermore, it has been demonstrated by ICTSI that a short range railway cargo transport service is possible between the ports (especially the port of Manila) to the periphery by bypassing the congested roads of Metro Manila which is not going to get better but would only worsen in the coming years. There are indications that ICTSI is planning to revive the ICD in Laguna with rail provisions.

Figure 27. Extent of the PNR Network at Its Peak



Source: MMUTIS, 1999

(b) Recent Rail Experience for Freight Transport

One of the most recent experience in the rail-based freight transport in the country is when the International Container Terminal Services Incorporated (ICTSI) introduced a short range railway cargo transport service between the Manila International Container Terminal (MICT) and the Calamba Inland Container Depot (CICD) in December 1997. The rail-based freight operation has the following characteristics:

1. The frequency of rail service was between 2 to 4 round trips per day
2. The operating distance was about 55 km and it would take around 4 hours to complete the journey, at an estimated slow speed of 13.75 kph.
3. One train set was composed of 20 cars
4. Loading capacity of car was two (2) 20-foot containers or one (1) 40-foot container
5. ICTSI rented ROW of PNR and constructed the connecting line at both ends of the existing PNR line going to the port and going to the ICD.
6. ICTSI developed the ICD and provided the rolling stocks

Other descriptions of the operation include:

1. ICX Corporation under the ICTSI operated the container train operation. ICTSI leased the track of PNR Main Line South by paying trackage fee to PNR and ICTSI prepared the necessary facilities according to a signed MOA between PNR and ICTSI in 1996.
2. ICTSI provided the connecting lines, which is about 1 km between R10 and the container terminal in the North Harbour and procured the rolling stocks.
3. ICD in Calamba was also constructed beside the PNR line.
4. The operation was purely freight and containers handled only those for import and export.
5. The consignee or customers basically pick up or bring their containers to ICD in Calamba since the rail transport service is between Manila and the ICD.
6. Loading and unloading of trains would take around 2-3 hours.

It was however terminated in February 2003 for the following reasons as mentioned in UNESCAP (2007):

1. The train cannot run fast and be punctual because of the serious deterioration of the rail track condition.

2. Squatters throw out garbage towards the passing cargo containers and although their garbage does not penetrate the containers, it was still required by the shippers to clean the containers. The estimated cost of this per year was 2 million pesos.
3. There was long turn-around and waiting times because only one train set was in operation.

There are several studies indicating how freight rail can compete with trucks for container transport. The study by CPCS (2013) mentioned that the general "rule of thumb" is that transport distance has to be over 500 km for a railway to be more cost-competitive than trucking. The study also mentioned that trucking is more cost efficient for short distances for the following reasons: (a) The railway does not deliver door to door, thus transshipments from trains to trucks on both ends of the delivery process are required. However, spur lines may directly link the origin/destination facilities with the railway, (b) Railways require large upfront investments, and (c) Railway usually have to recover its full cost by charging cost-recovery tariffs while trucking industry often do not pay the full road infrastructure costs.

Also from the study by CPCS (2013), it was found out that the current level of freight traffic through Batangas is too small to consider it as a major source of potential base traffic for freight railway. The container throughput of Batangas Port was only 14,800 TEUs for a 4.9% utilization rate of the port. Considering the origins and destinations of these TEUs from the port of Manila, around a third are going to or coming from within 30 km of the port while almost 40% is within 55 km. These indicate the short distances the TEUs have to travel and which is not advantages when using the trains. It was also estimated that in 2012, the containers that were destined in the Bulacan area were only around 31,000 TEUs. The study also found that virtually no containers traveled beyond 100 km and hence could not provide any significant traffic potential to the railway system.

VIII. Scenario Modeling of Freight Transport Through the PNR Network

(a) Major Assumptions

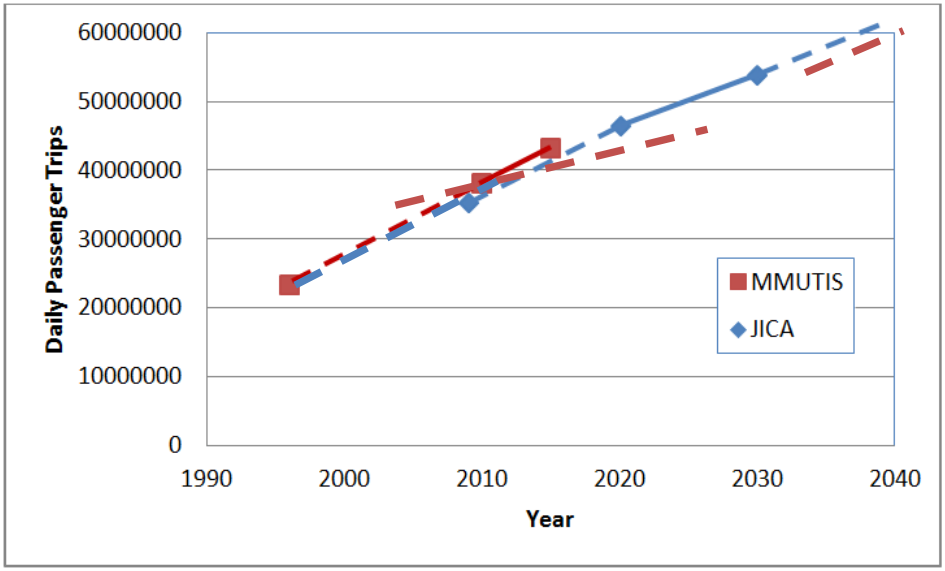
The following are the data used in the freight transport modelling through the PNR System.

1. **Trip Generation Growth Rates.** With regards to the background/other vehicular traffic due to people trip movements, the MMUTIS (1999) and JICA (2010) projections were used as shown in Table 9 and Figure 28. These growth rates are used to estimate to total daily trips generated for the design years 2020 and 2030.

Table 9. Trip Generation Percent Growth Estimates of MMUTIS (1999) and JICA (2010)

	Design Periods		
Year	1996	2010	2015
MMUTIS (1999)	1.00	1.62	1.84
Year	2009-2020	2021-2030	
JICA (2010)	2.5	1.5	

Figure 28. Estimated and Projected Passenger Trips of MMUTIS (1999) and JICA (2010)



2. **Occupancy Factors**. The occupancy factors used especially for private vehicle users are shown in Table 10. This occupancy factor is needed when modelling the transit assignment part. Table 10 is used to convert person trips to vehicle trips and this is

explicitly done for private car users. In the case of public transport, the transit assignment modelling process distributes the public transport commuters to the available public transport routes in the network.

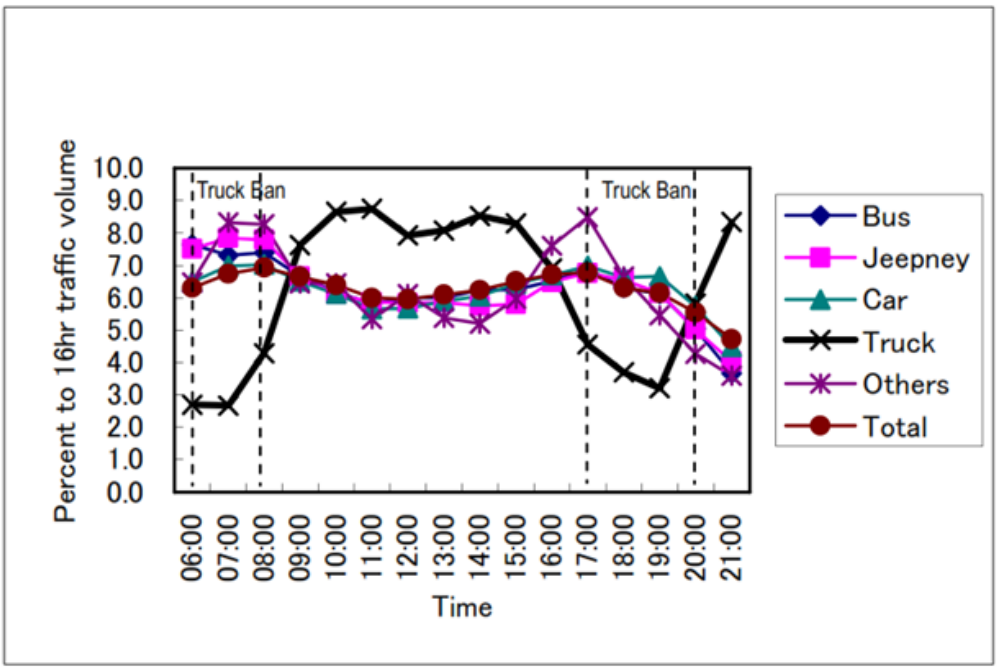
Table 10. Occupancy Factors of Vehicle Types

Vehicle Type	Occupancy
Private Car	3.5
Jeepney	9.3
Bus/Light Truck (2 axle)	30.8
Heavy Truck (3+ axle)	2.6

Source: JICA Study (2010)

3. **Hourly Truck and Other Vehicular Flow Trends**. Based from the study by Castro et al. (2003), the shape of the hourly truck traffic does not coincide with the peak hour volume during the day as shown in Figure 29. Using this finding, the impact of the truck traffic volume during the peak hour even though the former is less compared to other vehicular traffic as well as during the off peak hour (after the truck ban) will also be modelled.

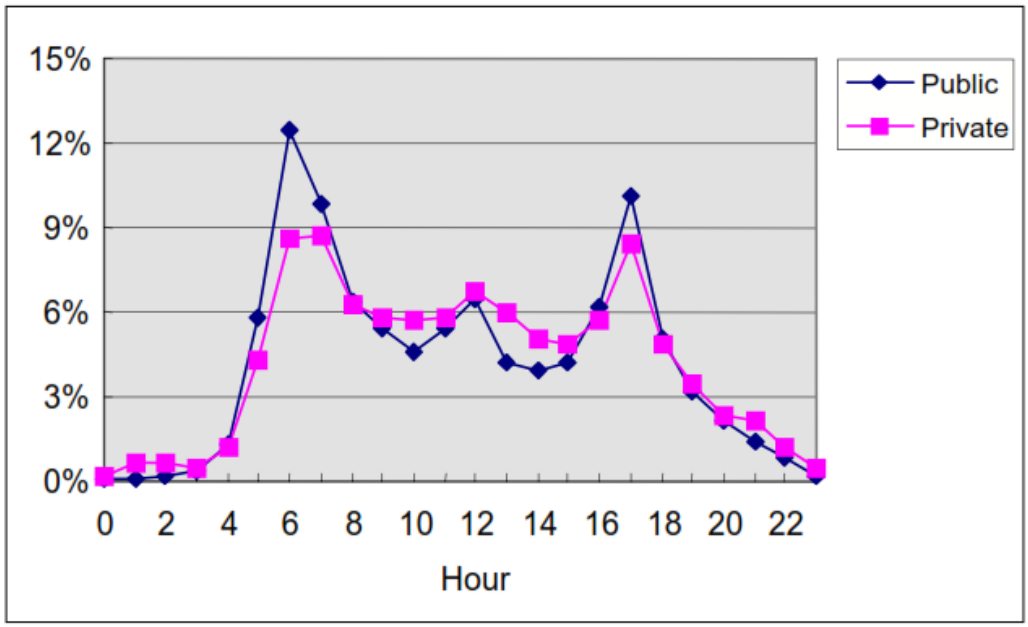
Figure 29. Temporal Distribution of Vehicular Traffic at Cordon Stations



Source: Castro, J. et al. (2003)

Truck traffic is only around 3 to 4 % during the morning or afternoon peak hour period of its 16 hour traffic volume. The truck traffic reaches its peak at around 9% of its 16hr traffic volume during the 10-11AM period and does not go lower than 8% during the 10AM to 3PM time period. It is further assumed that during the 8PM to 6AM period, the truck traffic averages around 6% of the 16 hour traffic volume. These conditions were then used in modelling the impact of the truck traffic on vehicular flow as well as the rail option scenario where a certain percentage of those using the trucks would shift to the rail option.

Figure 30. Hourly Trips Generated in Metro Manila



Source: MMUTIS (1999).

4. **Hourly Trip Generation Percentages in Metro Manila**. With regards to the public and private trips that compete with the trucks on the use of the road, Figure 30 above was used from MMUTIS (1999) regarding the hourly distribution of trip generation in Metro Manila.

5. **Cargo Demand Generation.** The JICA (2010) shows that the total generation of cargo demand in the Study Area is expected to increase from 2,565,622 tons per day in 2009 to 3,478,682 tons per day in 2020 and 4,292,515 tons per day in 2030.

   Approximately, two thirds of the total cargo movements will be continuously generated and/or attracted within Metro Manila (see Table 11). The annual growth

rates in Table 11 were used to estimate the cargo demand in the design years 2020 and 2030.

Table 11. Cargo Demand Generation

Area	Cargo Demands (tons/day)			Annual Growth Rate		Increase Ratio	
	2009	2020	2030	'09-'20	'09-'30	'09-'20	'21-'30
Metro Manila (MM)	1,602,847	2,138,180	2,584,875	1.7%	1.7%	1.33	1.61
Neighboring provinces of MM	878,332	1,227,513	1,548,574	3.1%	2.1%	1.40	1.76
Other Study Areas	84,443	112,989	139,065	2.7%	1.9%	1.39	1.65
Total	**2,565,622**	**3,478,682**	**4,292,515**	**2.8%**	**1.9%**	**1.36**	**1.67**

6. **Passenger Car Unit (PCU) Equivalents**. The PCU values used are those of DPWH as shown in Table 12. Truck vehicles are first converted to PCU equivalents before loading it to the network and together with the public transport trips and private vehicle trips are simultaneously distributed on the road network using established traffic assignment methodologies. Please see Figure 31.

Table 12. Passenger Car Unit (PCU) Equivalents

Vehicle Type	Passenger Car Unit
Passenger Car	1.0
Jeepney	1.5
Bus	2.2
Truck	2.5

7. **Average Loading by Type of Truck.** The truck vehicle OD is estimated from the commodity OD using the average weight load of each type of truck as conducted in the JICA (2010) study. Table 13 shows the average weight loaded by type of truck. The average truck load of 4.0 tons was obtained and also used in this study. The zone-to-zone cargo demand per day just like in Table 15 is converted to truck trips per day using the average truck load of 4.0 tons per truck.

Table 13. Average Loading by Type of Truck

(unit;kg)

	Agri./ Fishery / Forestry	Mining/ Construction	Manufacturing	Gross Average Loading*	Net Average Loading**
2-AXLE TRUCK	5,840	5,060	3,589	4,917	2,401
3-AXLE TRUCK	14,069	13,990	11,509	13,323	6,943
TRUCK-TRAILER	16,067	18,197	11,911	15,663	8,294
DELIVERY VAN	3,370	2,960	1,760	2,573	1,559
Weighted Mean TRUCK	7,667	10,694	5,033	7,413	4,008

Source: JICA Study (2010)

* Empty trucks are excluded.

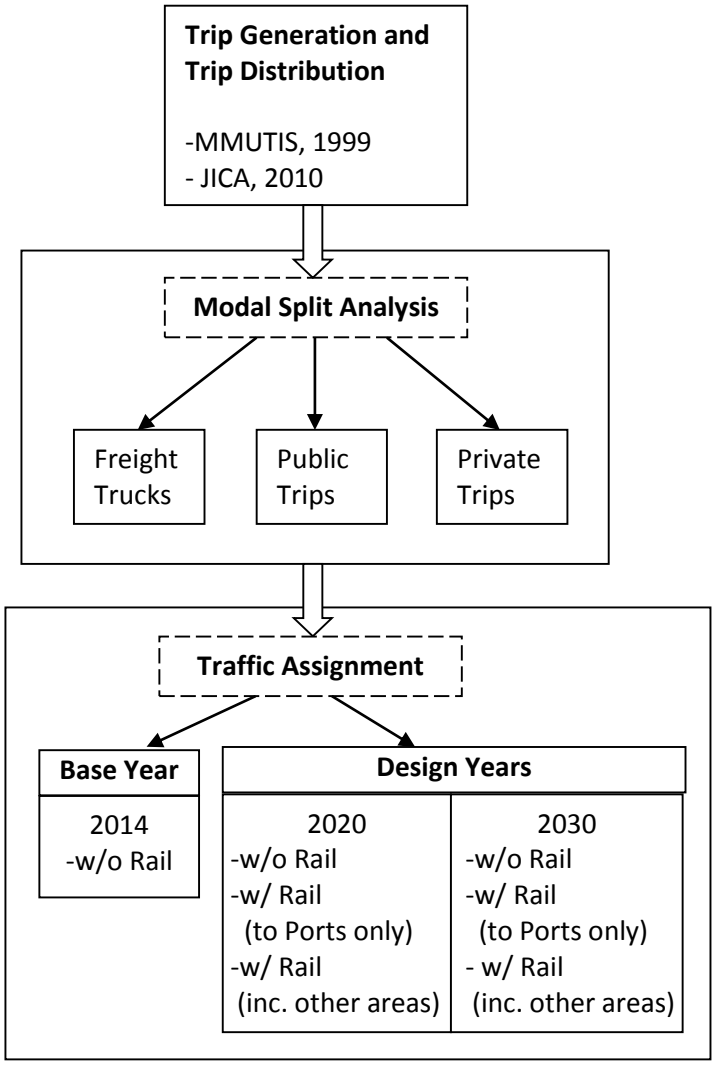
** Empty trucks are included.

8. **No Conflict between the Commuter and Freight Lines when using PNR**. Finally, it is also assumed that the rail freight transport will not disrupt the operation of the PNR commuter line. The rail freight transport will only operate during night time when the commuter line is already done for the day. It could also be possible that efficiency in the PNR operation is possible in the future without any conflict between the commuter and freight lines that share the PNR system.

(b) The Rail Option Modeling Framework

Since existing OD Trip Matrix data of both passengers (MMUTIS, 1999) and freight (JICA, 2010) were used, these data were simply projected using the estimated growth forecast from these studies as stated in the assumption. Given the availability of OD data for both passenger (public and private) and freight, one has to simply load these trips into the network. Traffic assignment under multi-class assignment (with several modes) is then run. Note that the truck traffic is constrained only on roads allowed for them to use while public trips are constrained to use the public transport system, and the private vehicle trips can use whichever path they would like to take as they travel from their origins to their destinations. Furthermore, the scenario modelling conducted is shown in Figure 31, with 2014 as the base year (without rail freight), 2020 (with and without rail freight), and 2030 (with and without rail freight). It should be noted that by 2020 only the Calamba ICD is available while in 2030 it is assumed that the whole PNR rail network as shown in Figure 27 is available with another ICD somewhere in Angeles, Pampanga in operation. JICA (2013b) recommends the establishment of the ICD in the Angeles-Clark area of Pampanga.

Figure 31. Rail Option Modeling Framework



(c) Summary of Data Used in the Modeling

1. Passenger demand in terms of person-trips using both the public and private transport as obtained from MMUTIS (1999) as well as the JICA Report (2010). The passenger demand projections for both are not that different and the MMUTIS (1999) was used.
2. The truck OD Matrix in terms of the number of truck traffic used was obtained from the JICA Report (2010) and which has a base line data for 2009 and truck OD projection for years 2020 and 2030 (See Tables 14 16, and 17). Table 15 is the commodity flow for 2009 where in if you divide the values in Table 15 by 4 (average truck load of four tons from Table 13), you obtain Table 14. Tables 16 and 17 which are the estimated truck trips per day in 2020 and the estimated truck trips per day in 2030, respectively, used in modeling the future traffic flow in the said

years. These are used to obtain the peak hour and off peak hour trips and are used together with the peak and off peak hours of both the public and private transport passenger demand. As the data in the tables would show, more than half of the truck trips occur within Metro Manila and more than two thirds of the truck either originate from or destined for Metro Manila. High volume of truck traffic also occurs within each of the provinces aside from Metro Manila like in Cavite, Laguna, Rizal, and Bulacan. Note that Tables 14 to 17 were directly obtained from the JICA (2010) study.

3. The zoning system used was that of MMUTIS (1999) with 181 zones plus additional zones of 15 considering the location of PEZAs external zones and ports (Subic, Batangas, and Manila) for a total of 196 zones.
4. The roads where the truck traffic is allowed as well as the truck ban period were considered in the modeling.
5. In the design years 2020 and 2030, transport infrastructure projects, both expressways and mass transit systems that have been given a go signal to be constructed or are underway, were incorporated in the transport scenario modelling.
6. It is further assumed that in year 2020, only the inland container terminal in Calamba, Laguna is operational but with the Batangas spur line of the PNR network already available. By 2030, it is further assumed that the rail line going to Subic is open and another inland container terminal is available in Angeles, Pampanga.
7. Since the shippers and locators are open to the use of the rail option, those that are competitively located with respect to the proposed International Container Terminal like in Calamba, Laguna, the percentages of those going to shift that was used in the scenario modelling is 50%. From the survey, around 50% of respondents answered yes to the rail option.
8. From the result of the questionnaire survey of the shippers and locators, most are open to the use of the rail option to ship their goods to/from the port. When information regarding the option of using the rail to transport goods to/from the port is available, they would consider it in comparison to the current option of using the trucks directly to transport the goods to/from the port. It should be noted however that since most shippers and locators would be far from the proposed inland container terminal of the rail system where the goods will wait to be transported by rail or will be unloaded from the rail, the trucks are still needed to transport this goods to/from the location of the shippers and locators. While on the other end of

the rail line, it is understood that it will end inside the ports and with the goods directly carried to the waiting ships or unloaded from the ships and carried to the trains by overhead cranes or forklifts.

TABLE 14.Truck OD (Large Zones), JICA (2010)

(Vehicle/day)

	Metro Manila	Cavite	Laguna	Rizal	Bulacan	Pampanga	Batangas	Quezon	Bataan	Zambales	Tarlac	Nueva Ecija	Pangasinan	Aurora	Outside of Study Area	Total
Metro Manila	370,101	1,315	14,454	5,930	5,808	716	1,463	223	292	199	154	89	204	0	336	401,284
Cavite	2,283	17,682	1,288	13	998	74	336	34	2	2	2	9	6	0	23	22,752
Laguna	8,520	1,605	33,516	1,675	41	86	2,112	131	19	12	4	5	9	0	37	47,772
Rizal	4,956	50	1,180	57,262	173	22	89	23	8	2	0	0	0	0	7	63,772
Bulacan	5,514	1,023	263	121	74,029	2,947	148	32	154	149	62	412	73	0	360	85,287
Pampanga	632	6	18	14	1,252	1,698	6	3	284	339	100	28	33	0	29	4,442
Batangas	1,335	538	1,519	27	211	15	2,100	172	19	0	6	0	7	0	84	6,033
Quezon	365	34	190	64	12	14	147	1,478	0	4	2	0	5	0	82	2,397
Bataan	220	8	8	6	171	241	11	0	263	232	24	20	10	2	10	1,226
Zambales	244	11	30	3	305	149	13	5	116	15	19	5	4	0	4	923
Tarlac	257	9	12	0	111	91	7	8	26	8	1,422	63	149	1	39	2,203
Nueva Ecija	108	3	8	3	350	5	12	0	23	11	46	209	239	0	333	1,350
Pangasinan	166	8	7	2	173	26	8	0	10	1	170	143	402	0	430	1,546
Aurora	14	0	0	0	7	2	0	0	0	1	0	3	0	0	0	27
Outside of Study Area	289	4	37	4	289	21	212	57	13	3	22	265	414	0	70	1,700
Total	395,004	22,296	52,530	65,124	83,930	6,107	6,664	2,166	1,229	978	2,033	1,251	1,555	3	1,844	642,714

TABLE 15. Commodity OD (Large Zones), JICA (2010)

(Ton/day)

	Metro Manila	Cavite	Laguna	Rizal	Bulacan	Pampanga	Batangas	Quezon	Bataan	Zambales	Tarlac	Nueva Ecija	Pangasinan	Aurora	Outside of Study Area	Total
Metro Manila	1,480,404	5,260	57,816	23,720	23,232	2,864	5,852	892	1,168	796	616	356	816	0	1,344	1,605,136
Cavite	9,132	70,728	5,152	52	3,992	296	1,344	136	8	8	8	36	24	0	92	91,008
Laguna	34,080	6,420	134,064	6,700	164	344	8,448	524	76	48	16	20	36	0	148	191,088
Rizal	19,824	200	4,720	229,048	692	88	356	92	32	8	0	0	0	0	28	255,088
Bulacan	22,056	4,092	1,052	484	296,116	11,788	592	128	616	596	248	1,648	292	0	1,440	341,148
Pampanga	2,528	24	72	56	5,008	6,792	24	12	1,136	1,356	400	112	132	0	116	17,768
Batangas	5,340	2,152	6,076	108	844	60	8,400	688	76	0	24	0	28	0	336	24,132
Quezon	1,460	136	760	256	48	56	588	5,912	0	16	8	0	20	0	328	9,588
Bataan	880	32	32	24	684	964	44	0	1,052	928	96	80	40	8	40	4,904
Zambales	976	44	120	12	1,220	596	52	20	464	60	76	20	16	0	16	3,692
Tarlac	1,028	36	48	0	444	364	28	32	104	32	5,688	252	596	4	156	8,812
Nueva Ecija	432	12	32	12	1,400	20	48	0	92	44	184	836	956	0	1,332	5,400
Pangasinan	664	32	28	8	692	104	32	0	40	4	680	572	1,608	0	1,720	6,184
Aurora	56	0	0	0	28	8	0	0	0	4	0	12	0	0	0	108
Outside of Study Area	1,156	16	148	16	1,156	84	848	228	52	12	88	1,060	1,656	0	280	6,800
Total	1,580,016	89,184	210,120	260,496	335,720	24,428	26,656	8,664	4,916	3,912	8,132	5,004	6,220	12	7,376	2,570,856

Table 16. Estimated Truck Trips Per Day (2020), JICA (2010)

2020	MM	Cavite	Laguna	Rizal	Bulacan	Pampanga	Batangas	Quezon	Bataan	Zambales	Tarlac	Nueva Ecija	Pangasinan	Aurora	Outside Study Area	Total
MM	493007	1752	19254	7899	7737	954	1949	297	389	265	205	119	272	0	448	534545
Cavite	3196	24755	1803	18	1397	104	470	48	3	3	3	13	8	0	32	31853
Laguna	11928	2247	46922	2345	57	120	2957	183	27	17	6	7	13	0	52	66881
Rizal	6938	70	1652	80167	242	31	125	32	11	3	0	0	0	0	10	89281
Bulacan	7720	1432	368	169	103641	4126	207	45	216	209	87	577	102	0	504	119402
Pampanga	878	8	25	19	1740	2360	8	4	395	471	139	39	46	0	40	6174
Batangas	1856	748	2111	38	293	21	2919	239	26	0	8	0	10	0	117	8386
Quezon	507	47	264	89	17	19	204	2054	0	6	3	0	7	0	114	3332
Bataan	306	11	11	8	238	335	15	0	366	322	33	28	14	3	14	1704
Zambales	339	15	42	4	424	207	18	7	161	21	26	7	6	0	6	1283
Tarlac	357	13	17	0	154	126	10	11	36	11	1977	88	207	1	54	3062
Nueva Ecija	150	4	11	4	487	7	17	0	32	15	64	291	332	0	463	1877
Pangasinan	231	11	10	3	240	36	11	0	14	1	236	199	559	0	598	2149
Aurora	19	0	0	0	10	3	0	0	0	1	0	4	0	0	0	38
Outside Study Area	402	6	51	6	402	29	295	79	18	4	31	368	575	0	97	2363
Total	527835	31119	72542	90770	117079	8479	9205	3000	1693	1350	2818	1738	2151	4	2548	872,329

Table 17. Estimated Truck Trips Per Day (2030), JICA (2010)

2030	MM	Cavite	Laguna	Rizal	Bulacan	Pampanga	Batangas	Quezon	Bataan	Zambales	Tarlac	Nueva Ecija	Pangasinan	Aurora	Outside Study Area	Total
MM	596603	2120	23300	9559	9362	1154	2358	359	471	321	248	143	329	0	542	646870
Cavite	4025	31175	2271	23	1760	130	592	60	4	4	4	16	11	0	41	40114
Laguna	15021	2830	59091	2953	72	152	3724	231	33	21	7	9	16	0	65	84226
Rizal	8738	88	2080	100957	305	39	157	41	14	4	0	0	0	0	12	112435
Bulacan	9722	1804	464	213	130519	5196	261	56	272	263	109	726	129	0	635	150368
Pampanga	1036	10	30	23	2053	2785	10	5	466	556	164	46	54	0	48	7285
Batangas	2189	882	2491	44	346	25	3444	282	31	0	10	0	11	0	138	9894
Quezon	599	56	312	105	20	23	241	2424	0	7	3	0	8	0	134	3931
Bataan	361	13	13	10	280	395	18	0	431	380	39	33	16	3	16	2011
Zambales	400	18	49	5	500	244	21	8	190	25	31	8	7	0	7	1514
Tarlac	421	15	20	0	182	149	11	13	43	13	2332	103	244	2	64	3613
Nueva Ecija	177	5	13	5	574	8	20	0	38	18	75	343	392	0	546	2214
Pangasinan	272	13	11	3	284	43	13	0	16	2	279	235	659	0	705	2535
Aurora	23	0	0	0	11	3	0	0	0	2	0	5	0	0	0	44
Outside Study Area	474	7	61	7	474	34	348	93	21	5	36	435	679	0	115	2788
Total	640062	39035	90206	113908	146743	10381	11218	3573	2030	1619	3338	2102	2555	5	3067	1,069,841

(d) Scenario Modelling and Discussion of Results

Shown in Figure 32 are the location of the export processing zones in Luzon. The high concentration of these zones on a particular area, the higher would be the concentrationof the freight transport. To bypass the congested roads of Metro Manila, inland container terminals could be designed in the periphery like in Calamba, Laguna and Angeles, Pampanga where rail freight services could be offered whether going to the ports of Manila, Batangas and Subic as well as vice-versa.

IN THE NEWS

Multiple Problems Cause Congestion at Busiest U.S. Port Complex

The Christmas season is the best time of year for Liang Liang's wholesale business in Southern California if he has merchandise to sell.

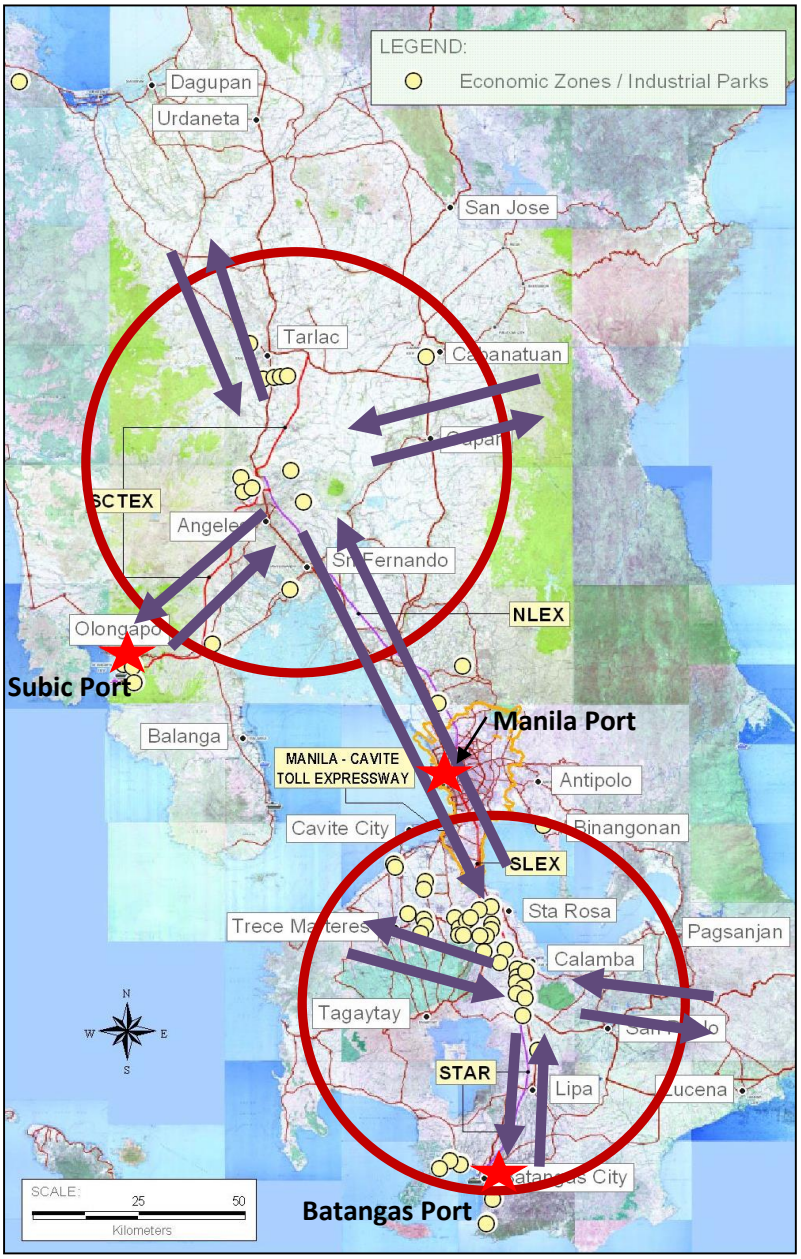
Liang is still waiting for cargo that arrived at the Los Angeles-Long Beach port complex at the start of the month. It usually takes two days to a week to receive it. But now he has no idea when the goods will clear the port.

The Los Angeles-Long Beach ports make up the busiest container port complex in the U.S. Port officials say there are several reasons why it is experiencing congestion. One problem involves the wheeled frames called chassis that hold the shipping containers. The chassis haven't been where they need to be for trucks to move the containers.

Another reason for the congestion: cargo ships up to 50 percent bigger than those of a few years ago are arriving with more containers, but there are fewer truck drivers to haul the containers away. The conditions are so bad, the pay is so low, and the problems are so serious for these workers so they are quitting. The shipping companies said the union has refused to dispatch hundreds of skilled workers to the Los Angeles and Long Beach Ports. The union said that it is not accurate, and that the industry and employers have been responsible for massive congestion problems.

Source: "Multiple Problems Cause Congestion at Busiest U.S. Port Complex," U.S.A. News, November 18, 2014.

Figure 32. Location of Economic Zones



Source: Prepared by the Study Team based on the data of Philippine Economic Zone Authority (PEZA), 2008

It should be again noted that in the year 2020 scenario, it was assumed that only the CICD is operational and those freight coming from and going to the provinces of Laguna, Batangas, and Cavite would avail of the service by rail through the CICD. Based from the questionnaire survey, around nine out of 17 said they would avail of the service if it is as competitive or even better than using the truck all the way to/from the port.

For the year 2030 Scenario, it is assumed that the PNR rail network as shown in Figure 27 would be in place and also there would be a rail line going to the Subic free port. Furthermore, it is proposed that an inland container terminal would be available in Angeles, Pampanga to cater to freight coming from the North aside from the one from Calamba, Laguna that caters to freight coming from the South. Nevertheless, it is assumed that the three ports of Subic, Manila, and Batangas are all interconnected by rail. The shippers can then choose which port to ship or to receive their cargoes which can be collected through the mentioned inland container terminals. Also in the 2030 Scenario, aside from the 50% shift to rail, the 75 % and 100 % shift were also tested given that several of those who are undecided in the survey might change their minds in using the rail given its advantages.

IN THE NEWS

Retailers Call On Obama to Ease West Coast Container Crisis

A labour dispute and problems handling vast new container ships have led to the worst delays in 10 years at US west coast container ports, with shipping lines being forced to divert vessels or cancel services.

Retailers have called on President Barack Obama to intervene after they were left struggling to get hold of stranded goods. Other sectors of the US economy including manufacturing and agriculture have also been hit.

The situation has been most acute at the neighbouring ports of Los Angeles and Long Beach, which together handled 41 per cent of US container traffic in 2013. However, high cargo volumes and a simmering labour row over pay and conditions have caused disruption all along the US Pacific coast.

The hold-ups have left queues on some days of up to 18 ships waiting in San Pedro Bay off Los Angeles. According to the US's National Retail Federation, congestion has pushed up the waiting time to retrieve containers from the ports from two to three days to seven to 10 days.

The White House has made no response following the plea. The Federal Mediation and Conciliation Service, which would handle negotiations, has acknowledged the request but declined to say what its involvement might be.

Terminal operators, port authorities, shipping lines and railways are working together to address the congestion crisis, the worst at US ports since 2004. Similar problems, though on a smaller scale, have affected other big container terminals on the Pacific Coast, including Seattle and Oakland.

Source: Robert Wright, "Retailers Call On Obama to Ease West Coast Container Crisis," *Financial Times*, January 2, 2015, pages 11 & 14.

Table 18. Estimated Traffic Volume of Public and Private Vehicles as well as Trucks during Peak Hour and Off Peak Hour Periods under Different Scenarios

Year	Scenario	Period	Public (No. of Pas.)	Private (No. of Pas.)	Truck Volume Shift , % of PHV (in PCU)	Trucks (in PCU)
Base Year (2014)	No Rail	Pk Hr	2,075,416	1,490,139	0 (---)	24,669
		Off Pk Hr	1,383,608	744,974	0 (---)	60,033
Design Year (2020)	No Rail	Pk Hr	2,406,735	1,728,039	0 (---)	76,343
		Off Pk Hr	1,604,539	863,973	0 (---)	185,395
	With 50% Shift to Rail (to/from Ports only)	Pk Hr	2,406,735	1,728,039	846 (1.12%)	75,447
		Off Pk Hr	1,604,539	863,973	2,067 (1.13%)	183,328
Design Year (2030)	No Rail	Pk Hr	2,793,312	2,005,307	0 (---)	93,619
		Off Pk Hr	1,862,170	1,002,641	0 (---)	227,334
	With 50% Shift to Rail (to/from Ports including other areas)	Pk Hr	2,793,312	2,005,307	1,875 (2.04%)	91,744
		Off Pk Hr	1,862,170	1,002,641	4,522 (2.03%)	222,812
	With 75% Shift to Rail (to/from Ports including other areas)	Pk Hr	2,793,312	2,005,307	2,822 (3.11%)	90,797
		Off Pk Hr	1,862,170	1,002,641	6,862 (3.11%)	220,472
	With 100% Shift to Rail (to/from Ports including other areas)	Pk Hr	2,793,312	2,005,307	3,745 (4.17 %)	89,874
		Off Pk Hr	1,862,170	1,002,641	9,108 (4.17%)	218,226

Table 18 shows the estimated number of truck traffic volume (in PCU) whose freight would be shifted to the rail transport as well as the estimated truck volume (also in PCU) during the peak/off peak hours (as determined from Figure 29). It should also be noted that the volume of trucks are higher during the off peak hour period compared to the peak hour period. We can see that atmost only around 4.17% percent of the freight movement during the peak hour and off peak hour would be able to shift to the rail freight transport under the 100 % shift to/from the ports including other areas. Other areas include those freight coming from the North of Metro Manila and going to the South even whose destinations are not the ports and vice-versa.

Table 19 summarizes the impact of using rail as an alternative to trucks in the transport of goods in Mega Manila during the peak hour and off peak hour periods. The traffic flow measures include the average travel speed, the Vehicle-Hour-Travelled (VHT) and the Vehicle-Distance-Travelled (VDT). The average travel speed during the peak hour is significantly lower than that of the off peak hour in all scenarios which are mostly due to the high volume of private vehicular traffic.

Table 19. Estimated Traffic Characteristics during Peak Hour/Off Peak Hour Periods under Different Scenarios

Year	Scenario	Period	Average Travel speed of whole network (kph)	VDT Veh-km	VHT Veh-hr
Base Year (2014)	No Rail	Peak Hour	16.57	4,666,829	723,026.5
		Off Peak Hour	26.51	3,117,866	256,610.0
Design Year (2020)	No Rail	Peak Hour	14.87	5,458,194	1,082,395.0
		Off Peak Hour	24.18	3,635,990	370,448.5
	With 50% Shift to Rail (to/from Ports only)	Peak Hour	18.34	5,458,010	1,082,390.0
		Off Peak Hour	24.18	3,635,540	370,417.6
Design Year (2030)	No Rail	Peak Hour	13.36	8,608,614	3,723,377.0
		Off Peak Hour	21.92	4,242,488	543,033.4
	With 50% Shift to Rail (to/from Ports including other areas)	Peak Hour	13.36	8,608,614	3,723,377.0
		Off Peak Hour	21.92	4,242,488	543,033.4
	With 75% Shift to Rail (to/from Ports including other areas)	Peak Hour	13.36	8,608,614	3,723,377.0
		Off Peak Hour	21.92	4,242,488	543,033.4
	With 100% Shift to Rail (to/from Ports including other areas)	Peak Hour	13.36	8,608,614	3,723,377.0
		Off Peak Hour	21.92	4,242,488	543,033.4

It can be seen in Table 19 that during the peak and off peak hours there is decreasing speed due to the increase in freight transport as well as other vehicles on the road. Also, the effect of around 4 percent of truck traffic removed (from Table 18) due to the use of rail freight transport on the average speed of vehicles on the road network as well as on the VDT and VHT are negligible.

As shown in Table 20, there is a big disparity between the average travel speed (in kph) along road segments designated as truck routes compared with the average speed for all the roads in the study area. In the current year (2014) during the peak hour, the average speed along the truck routes is only 5.2 kph while for all roads it is 16.57 kph. Although the truck volume is higher during the off peak hour, the average travel speed along truck routes is much better due to the significant decrease in the other vehicular traffic using these roads. The use of the rail by freight transport assuming we shift a certain percentage (50%, 75% and 100%) of those using the trucks in areas where the use of the rail could be competitive versus the trucks has negligible effect in the improvement of the travel speed along the roads of the study area.

Table 20. Comparison of Average Travel Speed Along Truck Routes and All Roads

Year	Scenario	Period	Average Travel Speed along Truck Routes (kph)	Average Travel speed along All Roads (kph)
Base Year (2014)	No Rail	Peak Hour	5.2	16.57
		Off Peak Hour	12.8	26.51
Design Year (2020)	No Rail	Peak Hour	3.1	14.87
		Off Peak Hour	11.4	24.18
	With 50% Shift to Rail (to/from Ports only)	Peak Hour	3.1	14.87
		Off Peak Hour	11.7	24.18
Design Year (2030)	No Rail	Peak Hour	2.4	13.36
		Off Peak Hour	9.1	21.92
	With 50% Shift to Rail (to/from Ports including other areas)	Peak Hour	2.4	13.36
		Off Peak Hour	9.1	21.92
	With 75% Shift to Rail (to/from Ports including other areas)	Peak Hour	2.4	13.36
		Off Peak Hour	9.1	21.92
	With 100% Shift to Rail (to/from Ports including other areas)	Peak Hour	2.4	13.36
		Off Peak Hour	9.1	21.92

Figure 33 below simply plots the difference between the average travel speeds along truck routes during the peak hour and off peak hour under the different scenarios.

(e) Conclusion

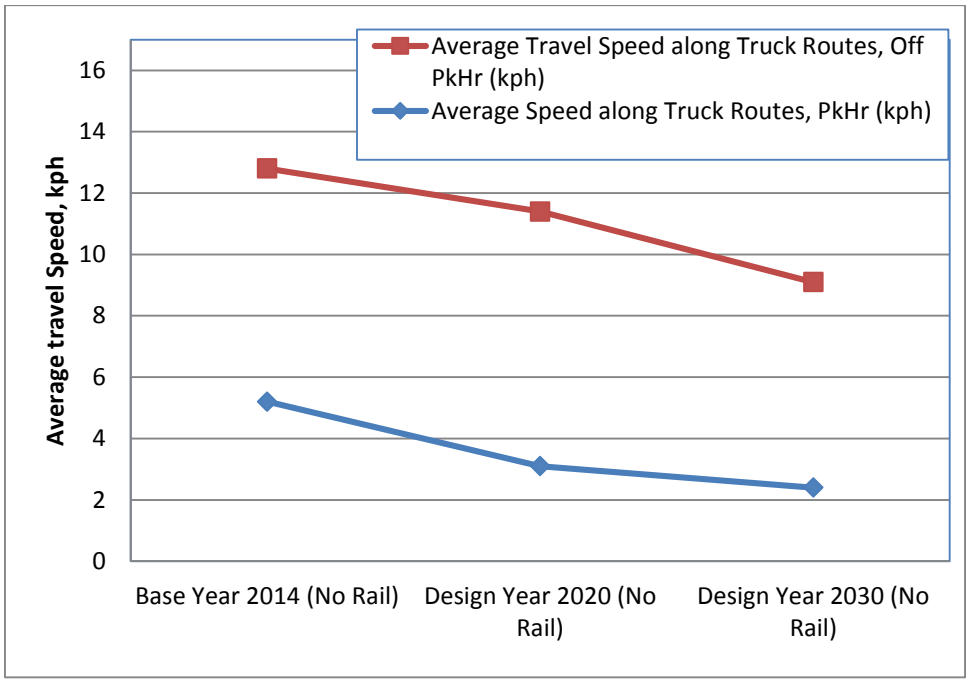
Under a 50%, 75% and 100% shift of road-based freight transport to the use of the rail transport from locators and shippers in the periphery of Metro Manila and even for those

freight coming from the North and going to the South and vice-versa, the percent shift only translated to around 1 to 4 percent of truck traffic being removed from the road during both the peak and off peak periods resulting to an insignificant impact on the overall road network travel speed. The average travel speed is quite low along roads used by trucks compared to the overall average travel speed. And the average travel speed during the off peak hour is much better compared to the peak hour especially along the truck routes. It should however be noted that there may be some significant improvement in vehicular speeds and level of service along truck routes directly in competition with the rail route.

Although the use of the rail for freight transport may not provide a signficant impact on the improvement of road congestion, giving shippers/locators an alternative way of transporting their goods would be good for the freight industry. With traffic congestion going to get worse in Metro Manila, shippers/locators could opt to bypass Metro Manila by using the rail system to transport their goods while at the same time truckers can still provide their services when moving the goods from the inland container terminals to the end destination of the goods or the other way around.

It may also be high time to consider moving or developing new export processing zones near the railway line with the primary objective of using the rail system to transport the goods coming from or going to these export processing zones. An efficient rail system that connects these export processing zones to the ports as well as airports should be a major component of the plan.

Figure 33. Comparison of Average Travel Speeds Along Truck Routes During Peak and Off Peak Hours Under Different Scenarios



IX. Estimating the Economic Effect of Port Congestion

Survey data indicate that the cost of shipping a 20-ft or a 40-ft container by truck doubled from PhP18,000 before the truck ban to PhP36,000 after the truck ban. Port congestion as a result of the truck ban led to time delay in cargo releasing. For instance, a cargo that took from 3-4 days to be released before the truck ban took from 7-10 days to be released after the truck ban (*see In the News: Japan Automakers Turn to Airlifts as Port Row Hits US Production*).

Even before the City of Manila imposed a truck ban, JICA had already estimated that the traffic congestion in Metro Manila causes PhP2.4 billion of losses per day because of lost work hours and business opportunities as well as due to the cost of fuel consumed by vehicles.

A crude approximation of the economic cost of the seven-month truck ban produced a total loss of PhP43.85 billion broken down as follows:

- BOC revenue losses PhP 25.55B
- Output losses PhP 18.20B
- Vehicle operating cost PhP 0.099B

Total	PhP 43.85B

This value includes employment and output losses of manufacturing firms in economic zones net of truck ban benefits such as reduced emissions and traffic congestion in the restricted areas.

IN THE NEWS

Japan automakers turn to airlifts as port row hits US production

TOKYO—Japan's top three automakers said Wednesday that a US port strike has hit their North American production, with some companies resorting to airlifts to keep plants running at full stream.

Dock workers on the US West Coast are reportedly on a go-slow and have not been supplying full crews for months in a bid to gain bargaining leverage in labor negotiations—a situation that led to a crippling french fry shortage at Japanese fast-food outlets last year.

Now, Japan's major automakers say that the prolonged labor dispute is hitting their supply chain as they race to ship parts to North American factories.

"We have tried to procure parts by alternate means such as by air," Honda spokeswoman Yuka Abe told AFP. "But the continuing strike action is slowing down cargo shipments and the company has not been able to supply enough parts in North America."

Honda said it would trim output at four plants in the United States and Canada by a total of 20,000 units this week—mainly of the popular Accord and Civic—and added that a decision would soon be made on further production cuts.

Lat year, Japan's number-three automaker produced about 1.6 million vehicles in North America.

Rival Toyota, the world's biggest automaker, said it would also resort to airlifts and changing shifts to keep its factories humming, but added that the labor disputes were not having a "significant impact" on operations so far.

"Due to delays in the processing of overseas parts at the West Coast ports, we have adjusted overtime at some plants in North America as needed," Toyota spokesman Nicholas Maxfield said in an e-mail. "In an effort to minimize production disruptions we are expediting shipments by air."

Nissan, meanwhile, said there had been "some impact" on its North American operations.

"As a result, Nissan started limited use of air freight to deliver auto parts from some countries in Asia to the US," a Tokyo-based company spokesman said.

He added that Nissan sources many of its parts from North American-based parts makers.

Source: "Japan Automakers Turn to Airlifts as Port Row Hits US Production," *Philippine Daily Inquirer*, February 19, 2015, page B2-3

X. Planning Ahead of Capacity: The Bangkok Experience

Thailand's growing and increasing international trade caused port congestion and traffic gridlock in Bangkok. To decongest Bangkok, the Port Authority of Thailand (PAT) decided in 1991 to develop the Laem Chabang Port with an initial capacity of 4 million containers and leaving some room for future expansion. At the same time, PAT issued a regulation limiting the volume at the Port of Bangkok. Today, Laem Chabang ranks among the top 20 major ports in the world.

Since 1947, Bangkok port or Klongtoey port has been the main commercial port of Thailand but had problems in accommodating ships of size higher than 12,000 DWT, length greater than 172 meters or draught of more than 8 meters in relation to mean sea level. The government of Thailand soon had to find a deep-sea port that could facilitate large ships. A feasibility study by the NEDECO (Netherlands Engineering Consultants) concluded that the best location to build a port was Laem Chabang because it is well sheltered, can easily be dredged and had capacious land for port facilities. In 1973, the government started expropriation of land at approximately 130 kilometers from Bangkok, in Tambon Thung Sukhala, Sriracha District and Tambon Thung Lamung, Bang Lamung District of Chon Buri. On November 15, 1987, General Prem Tinsulanonda led a stone-laying ceremony for the construction of the Laem Chabang Port. In 1991, the government of Thailand together with some private investors initiated the port's commercial services with B1 as the first terminal to operate.[11]

The first phase of the Laem Chabang port aimed to create ample space for containers and capacity for large ships that were unable to dock at Bangkok port.[12] As soon as the first phase reached full capacity, the second phase of the Laem Chabang port was constructed.[13] Third phase was initiated by the Port Authority of Thailand with the goal to rank itself among the world's top 10 countries with the highest port traffic. Period of construction was set from 2011 to 2020[14] (see Table 21).

[11] http://www.laemchabangportphase3.com/port_01_en.html
[12] http://www.laemchabangportphase3.com/port_02_en.html
[13] http://www.laemchabangportphase3.com/port_03_en.html
[14] http://www.laemchabangportphase3.com/port_04_en.html

JICA (2013a) stated that the Master Plan of Batangas Port consists of four-phased schemes. The completed phases (I and II) have a total area of 150 hectares. The remaining phases should be developed taking into account the "building capacity ahead of demand" mindset. On the other hand, Subic Port has a total area of 41 hectares with 15 operational piers and wharves and the capability of handling all kinds of sea vessels including Panamax Class container vessels.

The trend towards building capacity ahead of demand is likewise exemplified by the airport building binge in Asia. Jakarta airport is expanding three times its capacity, Kuala Lumpur airport is doubling capacity to 100 million people by 2020, and Beijing that already has an airport servicing 80 million people is building a second airport to handle 40 million passengers by 2018. Ho Chi Minh City airport has planned a new international airport as its existing Tan Son Nhat airport will reach its capacity of 25 million passengers in 2016. On the other hand, DOTC-JICA plans for the Sangley International Airport intend to serve 55 million in 2025 and complements NAIA's servicing 59 million passengers. Phase II of Sangley envisions serving 130 million passengers per year by 2050.

Anticipative capacity build up in airport infrastructure is also applicable to build up in port infrastructure.

Table 21. Specifics of the Laem Chabang Port

SPECIFICS	PHASE 1	PHASE 2	PHASE 3
Structure of Port	U-shaped	U-shaped	U-shaped
Size of Port	450 meters (width), 1,600 meters (length)	500 meters (width), 1,800 meters (length)	800 meters (width), 2,000 meters (length)
Depth of Mooring Basin	14 meters at mean sea level	16 meters at mean sea level	18 meters at mean sea level
Channel Depth to Terminals	16 meters at mean sea level	16 meters at mean sea level	18 meters at mean sea level
Breakwater Length	1,300 meters	1,900 meters added to the old structure (combined length of 3,200 meters)	-
Size of Ships	Panamax size (60,000 - 80,000 DWT, with capacity to carry more than 3,000 TEU)	Post Panamax (80,000 DWT, with capacity to carry more than 5,000 TEU)	Super-Post Panamax (100,000 DWT with capacity to carry more than 10,000 TEU)
No. of Quays	11	7	9
Total Capacity for Cargos	4 million TEU	6.8 million TEU	8 million TEU

Source: Laem Chabang Port Website (http://www.laemchabangportphase3.com/)

XI. Analysis Toward a Desirable Policy Direction

(a) On the Policy Regarding Container Traffic Coming from or Going to the South and North of Metro Manila

Batangas and Subic Ports were designed to complement the Port of Manila and reduce traffic congestion in Metro Manila. In addition, both ports were expected to promote growth and development in CALABARZON and Central Luzon, respectively (JICA, 2013a). During the July 30, 2013 meeting of INFRACOM, DOTC and PPA informed the Committee that there is enough container traffic or demand in the south of Metro Manila and that the government only needs to issue a policy statement that cargoes bound for or coming from the south of Metro Manila should call on the Batangas Port, and that DOTC and PPA (as instructed by the INFRACOM) will provide the timeline on when to implement the restriction on foreign shippers' (exporters and importers) use of Manila Ports for Batangas Port, and to force Laguna-based containers to utilize the Batangas Port.[15] Furthermore, SBMA recommended to DOTC and PPA on August 26, 2014 that cargoes coming from and bound for Central and Northern Luzon shall no longer be allowed to use Manila Port and instead be directed to Subic Port to address port and road congestion in Metro Manila.[16] In support of this policy, Batangas and Subic Ports lowered its rates, starting October 1, 2014, on harbor fee from $0.046 per gross register tonnage (GRT) to just $0.008, and on berthing fee from $0.0345 per GRT per day to only $0.004. But these rates will expire on March 31, 2015, beyond which the rate will increase to $0.0410 for harbor and $0.0200 for berthing. PEZA provided a 50% discount on the processing fees for full container shipments to be discharged or loaded at the Batangas Port. This policy has been recently extended up to December 2015. At the same time, the government imposed higher storage fee for BOC-cleared cargo in Manila Port starting in October 2014. The fee was raised from Php500 per TEU per day after a 5-day free storage period to Php5,000 after a 10-day free storage period. Table 22 shows the new penalty charges on overstaying inbound foreign containers that are already cleared by the BOC for withdrawal and with gate passes (meaning: taxes, duties, and arrastre fees are already paid). These new charges were imposed effective October 2, 2014 on the eleventh day after the imported containers were cleared by the BOC. Note that in our earlier discussion of Table 2 ("Quantifying the Time Delay of Cargo Releasing Due to the

[15] NEDA Aide Memoire on Study on Logistics, March 18, 2014.
[16] NEDA Aide Memoire, November 14, 2014, page 9.

Truck Ban") we stated that there is a wide variation in the amount of time the cargo stays at the port before being released, and we deduced that this may be due to the fact that there are no specific rules and regulations on how long should a cargo stay at the port after being cleared by the BOC. Thus, the new rates in Table 22 are the government's response to our suggestion to impose "overstaying charge" to minimize the number of cargoes staying at the port.

Table 22. New Storage Rates
(Pesos Per Day)

CONTAINER TYPE	STORAGE CHARGE
20 footer	5,000
35 footer	8,750
40 footer	10,000
45 footer	11,250

Source: NEDA Aide Memoire, November 14, 2014, Table 4, page 11.

Pres. Benigno Aquino declared [on September 16, 2014 (EO 172)] Batangas and Subic Ports as extensions of Manila Ports during times when there is port congestion (*see Concepts in Context: Defining Port Congestion*). This EO gives the DOTC Secretary the authority to declare the existence of a port congestion situation based on the recommendation of the PPA.

So far the government has limited itself to use price/cost incentives to entice port users to utilize Batangas and Subic Ports. The result has not been very promising. At the height of the Manila Port congestion, only six (NCC, NYK, SITC, APL, RCL/PL, and CMA/CGN) and two (Wanhai and APL) shipping lines used Batangas and Subic Ports, respectively. In fact, the utilization rate in 2014 of Batangas Port was 7.8%, and that of Subic Port 8.7%, respectively.[17] However, SBMA reported on November 28, 2014 that from October 6, 2014 to November 10, 2014 the average daily container terminal utilization rate at the Subic Port was 50.28%.

[17] JICA (2013b) pointed out that utilization rate is less than 5.7% in 2012 for both terminals NCT 1 and NCT 2 in Subic Port.

The government has at least two policy options to consider in structuring its regulatory policy towards increased utilization of Batangas and Subic Ports: (1) Adopt Fines and Price Discounts Policy, and (2) Impose Volume Restriction Policy. If the desired result is to improve the utilization of Subic and Batangas Ports, the more effective policy is the latter but if the goal is to decongest the Manila Ports, then an efficient pricing and penalty mechanism will have to be established.[18] However, these two policy options are not necessarily mutually exclusive. In the aftermath of the Manila Truck Ban, numerous ad hoc and uncoordinated pricing discounts and fines policies were implemented by various government agencies. Its effects toward increasing the utilization of Subic and Batangas Ports, or in decongesting the Manila ports were barely visible. It must be stressed that JICA (2013a) recommended the use of incentive packages to increase port utilization. Moreover, JICA (2013b) recommends the improvement of the incentive scheme for maritime stakeholders.

The first approach attempts to divert usage to a targeted port by offering pricing incentives. The second approach encourages utilization of a targeted port by imposing quantity restriction on the frequently used port. Each of these approaches can potentially lead to the optimal utilization of existing ports, depending on how fees are set and how quantity limits are determined. If prices and fees are fixed at levels that do not compensate for non-price service attributes of the most frequently used port, shippers and other port users would not respond favorably to the incentives. On the other hand, if too high volume is targeted to be restricted from the frequently used port with relatively large capacity and to divert it to an underutilized port with limited capacity, the ultimate result will just be to transfer the port-congestion problem to the latter. There might still be a window of opportunity toward a policy to divert traffic to Batangas and Subic Ports (most likely up to 2030), and the most appropriate approach favors quantity restriction if port users are seemingly unresponsive to price incentives. However, to avoid the problem of simply transferring the congestion problem from one port to another, a policy of expanding capacity ahead of demand in Batangas and Subic Ports must form part of the policy package to divert volume and compel shippers and consignees near these ports to use them.

[18] The items to be covered in the discount policy include berthing fee; harbour fee for import, export, and transhipment; stevedoring and arrastre fee; pilotage services fee; wharfage fee; storage fee; and terminal handling fee.

What do the findings of this study say as to which policy option can be enhanced based on the existing preferences of the port stakeholders? The findings indicate that shippers prefer to use Manila ports because they are the most frequently used destinations of shipping companies, availability of service providers, reliability of shipping schedule, accessibility, and efficiency of cargo acceptance or release. Thus, the proximity of shippers to the Batangas Port is not enough to offset the other benefits of using the Manila ports. Neither is the affordability of port-related services a major consideration.

In addition, the findings indicate that the decision in choosing which port to use is the joint decision of both the shipper and the consignee. Hence, a policy towards using the price-cum-penalty mechanism has to appeal to both these decision makers. The truckers' preference for the Manila ports is due to its proximity to their garage and their points of destination. It looks from the survey result that volume restriction is relatively more effective than price incentives in diverting traffic to Batangas and Subic Ports. However, if such policy is pursued it must be complemented by simultaneously staffing these ports with sufficient BOC/PPA personnel, cargo handling equipment, berth capacity, and container yard capacity commensurate to the volume of cargo and transactions that are targeted to be diverted from Manila Ports. Furthermore, planning capacity expansion ahead of demand must likewise be made to avoid simply transferring the congestion problem from Manila ports to Batangas and Subic Ports.[19]

(b) On the Proposed Policy to Put a Cap on the Manila Port Capacity

During the July 30, 2013 INFRACOM meeting, DOTC and PPA also informed the Committee that they already agreed on the restriction of the Manila Port expansion. During its September 11, 2013 meeting, the INFRACOM decided to elevate the issue to the President for appropriate policy decision to provide proper information dissemination to the private sector investors to assist them in their future investment plans and decisions.[20]

Table 23 shows the annual capacity, traffic volume, and utilization rate for each GCR port in 2013. Although the Manila truck ban was lifted on September 13, 2014, MICT's and

[19] "But in reality, the situation is more complex. Diverting traffic to Subic and Batangas is only a short-term solution; high utilization rates for both may mean that we run the risk of transferring the problem we encountered in the Port of Manila to those very ports," Speech of President Benigno Aquino III delivered at the 40th Philippine Business Conference, Manila Hotel, October 24, 2014.
[20] NEDA Aide Memoire on Study on Logistics, March 18, 2014.

South Harbor's utilization rate reached 94% and 97% respectively in October 7, 2014,[21] way above what is considered the ideal utilization rate of 80%.

Table 23. Greater Capital Region Ports' Annual Capacity: 2013

(In TEUs)

Port	Capacity	Actual Volume	Utilization Rate
• Manila	3,700,000	2,884,029	77.9%
– MICT	2,500,000	1,901,476	76.1%
– South Harbor	1,250,000	982,553	78.6%
• Batangas	300,000	23,251	7.8%
• Subic	600,000	37,470	6.3%

Source: NEDA Aide Memoire, November 14, 2014, Table 3, page 6.

JICA (2013a) reported that Batangas and Subic ports were utilized at a mere 4.2 percent and 5.6 percent of their respective capacities. In contrast, the Manila ports (e.g. Manila International Container Terminal and Manila South Harbor) handled about half of the total container volume in the country. The Port of Manila is continuously expanding with the completion of Berth 6 in 2012. MICT is likewise planning to expand by 20% its total capacity of 2.5 million TEUs by announcing the fast-tracking the construction of new yard facilities at its 21-hectare Calamba International Container Depot (CICD), and the 9-hectare yard expansion at its Berth 7 site to provide additional capacity for empty containers and facilitate the monthly movement out of the country of about 20,000 empty containers. MICT is seeking government approval to construct Berth 7 as it believes that both Batangas and Subic ports will be filled up in a year's time, given the current growth in trade volume. However, the continued dominance of Manila ports puts pressure not only on the roads within the port area, but also along major roads in Metro Manila due to the congestion created by port-related traffic.

The port stakeholders report entitled, "Port and Road Infrastructure for Greater Luzon Trade" (September 2014), states that "the root cause of congestion is the lack of a dedicated port access road to the Manila ports," and it urges for the fast-tracking of the construction of the North Harbor Link Road and the Port Connector Road. Among its long-term measures, it recommends the formulation of a master plan for the Manila Port Area, a master plan for

[21] "Port Capacity Utilization Far From Ideal," Malaya Business Insight, October 8, 2014, page A1.

staged expansion of the Batangas Port to accommodate long-term growth in CALABARZON region, and a master plan for staged expansion of Subic Port to accommodate long-term growth in Central and Northern Luzon.

ICTSI's contract to operate MICT was extended in 2012 for 25 years (May 19, 2013 to May 18, 2038) for a lump sum fee of Php670 million due on May 20, 2013, and an annual fee of US$24 million (which is equivalent to a total fixed fee of US$600 million to be paid in 100 quarterly installments). Asian Terminals, Inc. (ATI)'s contract to operate Manila South Harbor was extended for 25 years (May 19, 2013 to May 18, 2038) for a lump sum fee of Php282 million due on May 19, 2013 and an annual fee of US$9 million (which is equivalent to a total fixed fee of US$225 million to be paid in 100 quarterly installments). Both ICSTI and ATI contracts are subject to a variable fee of 20% of gross revenues (JICA, 2013a).

As both Metro Manila and Manila Port are growing, the relocation of ports on new port sites is inevitable. However, existing private port operators such as ICTSI and ATI have recently signed long-term contracts with PPA and promised to invest billions of pesos to develop the Manila ports. Under ICTSI's contract, Berth 7 construction shall commence when volume at MICT reaches 2 million TEUs, and under ATI's contract, it stipulates the construction of South Harbor Pier 9 into an international container terminal when traffic at South Harbor reaches 1.4 million TEUs.

A successful action plan to divert container traffic to Batangas and Subic Ports would be at most only a near-term solution to decongest Manila Ports because Batangas Port has only an annual capacity of 300,000 containers, while Subic Port has an annual capacity of 600,000 containers. The current available annual container capacity in Manila Ports is 3.7 million TEUs (2.5 million at MICT and 1.2 million at Manila South Harbor) against a throughput of 2.7 million TEUs in 2013. Without the go-signal to construct Berth 7, ICTSI's capacity is expected to reach 3 million TEUs after the completion of the construction of its CICD yard facilities and its 9-hectare yard expansion at MICT. Thus, Manila's two international ports will raise its overall capacity to 4.2 million TEUs, even without Berth 7 construction. This figure excludes the additional capacity to be added (estimated at 2.8 million TEUs) once the Manila North Harbor Port Modernization Program is completed. MICT's proposed Berth 7 has an estimated capacity of 500,000 TEUs which far exceeds Batangas Port's current capacity.

JICA (2013a) analyzed four port traffic development options for the Greater Capital Region:

Option 1: Status Quo Scenario. The container traffic shares of South Harbor, MICT, Batangas, and Subic Ports in 2010 will remain constant in the long-term. There will be no government intervention to divert container traffic from Manila Ports.

Option 2: Limit Manila Port to Berth 7 Capacity of MICT and No Port Expansion for South Harbor. This scenario involves putting off further expansion of MICT beyond the capacity added by Berth 7 and the conversion of Pier 9 to foreign container berth.

Option 3: Limit Manila Port to Berth 6 Capacity of MICT and No Port Expansion for South Harbor. This scenario involves suspending further expansion of MICT beyond its present capacity and the conversion of Pier 9 to foreign container berth.

Option 4: Rescheduling of Manila Port Capacity Expansion, or Delay MICT Berth 7 and South Harbor Pier 9 Conversion Until 2019. This scenario does not cap MICT's and South Harbor's capacities but delay them until Batangas and Subic Ports attained full utilization.

JICA (2013a) recommends Option 4 because it does not require contract termination or renegotiation with private port operators, and at the same time it ensures the full utilization of Batangas and Subic Ports by 2019. However, the Study Team recommends Option 3 because it addresses the Manila Port congestion problem in 2020 and beyond, and it generates (based on JICA's forecast) the highest utilization rates for both ports among the four options.

A long-term plan to shift traffic from the Manila Ports to Batangas and Subic ports requires at least action plans to expand the capacity of the Batangas and Subic ports ahead of demand. For Batangas port, PPA has created a Land Acquisition Committee to conduct an inventory of all lands and other properties, its owners, claimants, and other parties-in-interests. This is a long-term policy direction the government must pursue considering that Batangas and Subic ports are expected to attain a volume of 1,246,194 and 3,369,340 TEUs (under Option 3) by 2030, respectively. JICA's Master Plan for the Strategic Development of the National Port System has proposed that Subic port will have a total berth length of 840m and Batangas Port with a total berth length of 3,200m by 2024. Note that Table 21 shows that Thailand's Laem Chabang Port expanded capacity ahead of demand by 1,600m, 1,800m, and 2,000m, in Phase 1, Phase 2, and Phase 3, respectively, and JICA (2013a) has indicated that

for Phase I and Phase II alone, Batangas Port has a total area of 151 hectares in a four-phased long-term plan.

The findings of this study indicate that the use of rail for freight transport may not provide a significant impact on the improvement of road congestion. With traffic congestion going to get worse in Metro Manila, the Study Team recommends to limit MICT to Berth 6 and no port expansion for South Harbor. In addition, it recommends that DOTC and PPA renegotiates the contract with private port operators to explore some mutual agreement on a freeze on berth expansion, but possibly allowing expansion of yard capacity for storage and efficient handling of laden and empty containers.

(c) Other Issues

c.1 PNR Expansion and Freight Operation

Although the rail option may not provide a significant impact on the improvement of road congestion, it, however, gives shippers and locators an alternative way of transporting their goods. Our recommendation rehabilitate and improve the PNR line (in the medium-term) and to pursue total upgrade of the rail system through PPP arrangement (in the long-term) is consistent with DOTC's railway master plan which covers the following lines: (1) Manila to San Fernando, La Union, (2) Manila to Legaspi, Albay, (3) Legaspi to Matnog, Sorsogon, (4) Calamba to Batangas, (5) Tarlac to San Jose, Nueva Ecija, and (6) San Jose to Tuguegarao, Cagayan. These new lines cover more than 700 kilometers and have leeway to accommodate the operation of freight railway.

c.2 Lack of Container Depot

Shipping lines are mandated to operate their own container depot outside the port where their empty containers should be returned. However, the shipping lines are not operating container depots that could accommodate the number of containers they keep, and the shipping lines take advantage of using the port as a container yard. The Study Team recommends that the shipping lines be compelled to provide their own depot for empty containers as stated in their mandate.

c.3 Alleged Corrupt Practices in Processing Export and Import Documents

The Study Team has no findings to support the alleged corrupt practices of those responsible in processing export and import documents during the port-congestion period. Similarly, the truckers revealed during the FGDs that they are being extorted from Php2,000 to Php4,000 per container each trip when unloading empty containers in yards or just for container yards to accommodate the empties. On the other hand, shippers and consignees complain that high trucking rates imposed during the height of port congestion-cum-truck-ban period has not been lowered during the period after the truck ban was lifted by the City of Manila government.

c.4 Integrated Truck Dispatching System

The Association of International Shipping Lines (AISL) has initiated a project for a web-based 24-hour integrated truck dispatching, appointment, and booking system for an online system to retrieve empty containers. The system is designed to interconnect all stakeholders (shipping lines, truckers, and depots) directly involved in empty container returns. AISL has hired the services of technology provider Cargo Data Exchange Center to develop and implement the integrated system.[22] The Cabinet Cluster on Port Decongestion has affirmed this initiative on October 16, 2014 at the Senate public hearing on port congestion.

c.5 Rationalization of Port Development and Investment Programs

The Philippine Development Plan infrastructure projects are heavily concentrated in Metro Manila and Luzon island. The port component of the PDP's national infrastructure plan lists the development of the New Cebu International Port (Phase I) located in northern Cebu town of Consolacion. However, JICA (2013a) gives a detailed description of the long-term development of the GCR ports. Nevertheless, this report has not discussed long-term port development and investment programs beyond Batangas, Subic, and Manila ports. There was a discussion on the development of regional ports in an earlier JICA study on the "Master Plan for the Strategic Development of the National Port System (2004)." Port relocation to new sites is not easy because of the huge sunk investments made by existing

[22] Bernie Cahiles-Magkilat, "Empty Containers Easing Up at the Port of Manila," Manila Bulletin, December 1, 2014, page B14.

operators (e.g. ICTSI and ATI). Moves to shift cargoes to Batangas and Subic ports will not address the long-term congestion problem unless port development and investment plan is made where port development in targeted sites is developed in multiple-phased scheme in which a target volume is specified to trigger the start of the construction of the next phase ahead of demand. The Cabinet Cluster on Port Decongestion and INFRACOM can create a Land Acquisition Committee to conduct an inventory of all lands and properties that can serve as new port sites if Batangas and Subic Ports have no more vacant areas to be used for capacity expansion. A policy to put a cap on the capacity of Manila ports must be accompanied by capacity of expansion of Batangas, Subic, or new port sites.

c.6 Cargoes Coming From or Bound for CALABARZON

The actual cargo traffic in Batangas Port in 2013 was 23,251 TEUs or approximately 7.8% of its capacity. JICA (2013a) estimated that cargoes coming from or bound for CALABARZON range from 646,508 TEUs to 912,626 TEUs during the 2009-2014 period. Our rail option model (see Table 11) has a lower estimate of cargo demand in the CALABARZON area (from 62,293 to 87,058 TEUs) for the 2009-2020 period, taking into account the impact of the truck traffic.

c.7 Timing and Phasing of the Use of Rail Freight

Several measures and actions related to the rail industry are recommended below and the timeline in Section XIII indicates as to when this could be implemented. Explanations under short-, medium-, and long-term horizons are provided as follows:

i. Short-Term

1. **Revival of the freight transport by rail from Port of Manila to ICD in Calamba, Laguna.** This has been done before by ICTSI and could easily be revived immediately. Freight transport by rail can be done at night in order not to compete with the PNR passenger service.

ii. Medium-Term

1. **Rehabilitation and gradual improvement of the PNR line for freight transport**. Freight transport by rail can be designed to operate hand in hand with passenger transport since the rolling stock used for freight operation is different from that of the passenger train. Meaning, we do not

need to wait for the rail passenger service to end for the day in order to start the freight operation. In order to do this, the communication and signalling system of the PNR system should be upgraded to accommodate this arrangement. Freight operation by rail could then be done 24 hours a day.

2. **Integration of studies on goods and passenger movement in the Greater Capital Region (GCR).** Two studies on freight transport were mentioned, one by the PPA on the *Conduct of Feasibility Study and Strategic Plan for the Optimum Utilization of Batangas Port* and the second one by SBMA on Optimizing *the Use of New Container Terminals 1 and 2 in Subic Port* through JICA and currently there is a *Metro Manila Transportation Integration Study Update and Capacity Enhancement Project (MUCEP)* study on passengers travel in Mega Manila. Since OD survey on freight movement was conducted in at least one of the freight studies while the MUCEP study has the OD survey on passenger movement, the raw data as well as outputs of these studies could be merged to come up with a freight and passenger study in the GCR. As highlighted by the truck ban in the City of Manila to solve traffic congestion along its streets, studies on freight and passenger movement should not be treated in isolation but should be integrated as they compete for the use of the limited road space. Hence, infrastructural needs of the freight transport could also be identified and proposed and not only focus as always to the needs of the passenger travel.
3. **Proposed inland container depot of international shipping lines**. In order not to congest the ports especially of empty containers, international shipping lines handling high volume of exports as well as imports should put up inland container depots. It is recommended that the inland container depot should be accessible by rail or should be near the inland container depot to be put up by PNR. This can easily be put up given the minimal infrastructural needs of the facility.

iii. Long-Term

1. **Proposed North and South container depot/hub**. This proposed North and South container depots as well as hubs should be adjacent or can be integrated with the inland container depot of the PNR. Given the ever-

decreasing road space for trucks in Metro Manila, the need to use the services of PNR to move goods from outside Metro Manila to the Port of Manila and vice-versa would become relevant. The depot or hub could also be used to break bulk the goods brought by trucks using smaller vans when entering Metro Manila or vice-versa, thereby circumventing the truck ban being implemented within Metro Manila.

2. **Upgrading of the PNR through PPP**. This plan has long been identified by the government through its PPP Center to speed up the rehabilitation and upgrade of the PNR system. The analysis of the economic and financial feasibility of this project would not be a problem but more so on the legal and administrative issues just like in the current PPP projects the government are involved in. A well-defined legal and administrative framework should be developed and the management and operation of this project would be better in the hands of private business.

iv. Further Analysis

Given the latest development in the service operation and infrastructural improvements of the PNR system, specifically in terms of serving the commuting public, its role as a freight service provider can further complement the former. It should be pointed out that the freight service should remain secondary to the commuter service the PNR system provides. There are several important facts that we need to consider in the rehabilitation of the PNR system especially if the government is to invest its own money, and these include:

1. The PNR system currently provides regular commuter service from Tutuban, Manila to Mamatid, Cabuyao, Laguna. Stretching 56 kilometers, the service starts at around 5 AM to 830 PM. Mamatid, Cabuyao, Laguna is already very near the Calamba Inland Container Depot (CICD). This goes to show that it would be easy for ICTSI to operate its ICD in Calamba, Laguna and there may be minimal investments needed on the part of the government once ICTSI decides to start its ICD.
2. The presence of the CICD that the ICTSI is willing to revive approximately midway of the Batangas and Manila ports can provide shippers/consignees a competitive option to whichever port to use when the rail system between the two ports is available.

3. The rail infrastructure from Manila to Legaspi City for the Bicol Express is still working but needs further improvement for safety purposes and a test run was conducted by PNR last September 2014.
4. There is increasing use of the Batangas port from 12,630 TEUs in 2011 to 23,251 TEUs in 2013. This growth trend is expected to continue. In the case of the Subic port, freight volume increased from 33,573 TEUs in 2011 to 37,470 TEUs in 2013.
5. The presence of several export-processing zones in Calabarzon area will form as major bases of potential users of the rail system whether going to Batangas or Manila port.
6. Since there is already an existing right-of-way (ROW) for the PNR spur line going to Batangas port, rehabilitation of the spur line coming from the Calamba, Laguna area to Batangas port can be started. Although there may be illegal settlers that occupy some parts of the rail ROW, they would be easier and less costly to remove than purchasing new land for the rail ROW.
7. If the rail line is available between the ports of Manila and Batangas, this will make it parallel to the existing road expressway system. Notably, the latter will only be completely connected to both ports if the initial expressway project plan of connecting the Skyway to the port of Manila will be realized. Apart from providing shippers additional options on which mode of transport to use, whether all the way by trucks through the expressway network or by rail through the ports or the ICD, not only will it create healthy competition but also complementation as well, especially when one option for some reasons is not working.

The PNR system does not need to be a full-scale freight service provider and freight service should be only secondary to its primary role of providing commuter service. Here are the important facts to support this

1. The PNR carried 1,000,000 tons of freight in 1964 and this decreased drastically to only 30,000 tons of freight in 1990, and turned negligible during the period 1992-1995. When ICTSI introduced the CICD in 1997 to 2003 it also carried some cargoes through the Calamba, Laguna to port of

Manila by rail. The 1964 freight volume carried by PNR may not be replicated in the immediate future.

2. CPCS (2012) has indicated that the railway transport of TEUs would require at least 150 km to be competitive against trucking. However, a transshipment is required at either end of the rail transport. Hence, an additional 30 km distance is further required making the minimum required rail transport distance to be 180 km. Virtually no containers travel beyond 100 to 110 km in the Luzon area, and therefore are not expected to provide any significant traffic potential to the railway.
3. The CPCS study also mentioned that transporting petroleum and mineral products are also not expected to be cost-effective via the railway given the current modes that used pipelines and barges; mineral products in particular are directly exported by ship from their point of origins. The study instead pointed out that transporting the two major agricultural products, namely, rice and corn, will be more feasible; their combined volume, estimated at around 2.7 million tons for the Mainline North and 230,000 tons for the Mainline South in year 2012, may be moved by rail.

In June 2014, DOTC proposed a Php271 billion North-South commuter rail project, stretching 89.7km from Malolos, Bulacan to Calamba, Laguna using the existing PNR ROW through the greater Manila area. There is also currently a Php300 billion proposal to rehabilitate the PNR system reportedly for the Manila to Legaspi City route, but this may need to go through a PPP for it to be realized. If the government is to spend for the rehabilitation of the PNR system and even for its eventual PPP with the private sector, the cost-effective approach would be to improve the PNR system for its commuter service first and foremost from Malolos, Bulacan to Legaspi City in Albay. The freight service would only be secondary and should only focus on the CICD to the Manila Port segment immediately since ICTSI is willing to reopen this freight service through the PNR system. More investment is also needed to strengthen the rail tracks and rail infrastructures like bridges if the PNR is to provide specialized freight service. The rest of the PNR system improvement and rehabilitation vis-à-vis its use for interconnecting ICDs, ports, and economic zones is shown in Figure 34.

Figure 34. Timing and Phasing of PNR Rehabilitation and Opening of ICDs, Ports, and Ecozones

Rehabilitation of the PNR System	2014	2015	2016	2017	2018	2019	2020	2021-2025	2026-2030	Beyond 2030
1. Manila to Calamba, Laguna (CICD)										
2. Tutuban to Malolos, Bulacan										
3. Calamba, Laguna to Legaspi City, Albay										
4. Spur line from Calamba, Laguna to Batangas Port										
5. Malolos, Bulacan to Angeles, Pampanga										
6. Rest of the PNR Network										
Opening of ICDs, Port Developments, and Ecozones										
1. Calamba ICD										
2. Angeles, Pampanga ICD										
3. New Ecozones with rail access(Batangas, Laguna and rest of South)										
4. New Ecozones with rail access (Bulacan, Pampanga and rest of North)										
4. Batangas Port Development										
5. Subic Port Development										

XII. Conclusions and Recommendations

Evidently, the Manila Truck Ban triggered congestion at the port of Manila and adversely affected exporters, importers, and manufacturers whose operations have been disrupted and face increasing transport cost. Freight forwarders, logistics services providers, shipping lines, truckers, and terminal operators are likewise negatively affected since congestion at the Port of Manila leads to difficulty to off-load cargoes and resulting to delays and longer waiting time. On the other hand, the Manila Truck Ban was instigated by the congestion of Manila's streets caused by huge cargo traffic coming in and out of the Port of Manila, the lack of depot by shipping lines for their containers, and the lack of depot for cargo trucks which use Manila's streets as their parking garages.

The study recommends the following measures to decongest Manila Port and address the underutilization of Batangas and Subic Ports:

a. Short-Term Measures

1. Decongesting Manila Ports is inevitable since Metro Manila's economy, port traffic, and population grew faster than infrastructure spending on new roads that connect the ports to the adjacent provinces that host industrial and commercial estates, the policy of putting a cap on the capacity of Manila ports is recommended. The Study Team recommends to make a policy pronouncement to limit Manila Port to Berth 6 capacity of MICT and no port expansion in South Harbor. And to issue a statement that cargoes bound for or coming from the south of Manila should call on the Batangas Port and those bound for or coming from the north of Manila should call on the Subic Port.
2. Given that the infrastructure facilities (both the rail and the inland container depot in Calamba, Laguna) are available, the night time operation of the freight transport by rail should be immediately revived by ICTSI. Since it will operate at night, this will not affect the commuter line of the PNR. Freight transport by rail should commence after the last commuter train has ended its operation and should end before the start of the first commuter train in the morning.
3. Implement the web-based 24-hour integrated truck dispatching, appointment, and booking system designed to improve the logistics chain.

b. Medium-Term Measures

1. To achieve a shift of at most 1,000,000 TEUs from Manila Port to Batangas and Subic Ports, there is a need to do the following measures in the medium run: increase the available personnel, expand the cargo handling, equipment, berth, and container yard capacity of Batangas Port.
2. Adopt a rationalization plan for future port development and investment programs for ports in the Greater Capital Region. This includes putting restrictions on future expansion in Manila ports, capacity expansion plans ahead of demand for Batangas and Subic ports, and identification of future port relocation sites through the creation of an INFRACOM land identification and acquisition sub-committee to conduct an identification and inventory of potential port relocation or expansion sites including information on its owners, claimants, and other parties-in-interests.
3. Enhance logistics, port and customs related services and processes within the proximity of Batangas and Subic ports. This requires facilitating the growth of freight forwarders, consolidators, brokers, truckers, and other logistics services providers.
4. Revive freight by rail from Manila Port to Calamba Inland Container Depot. One of the problems cited about port congestion especially in the port of Manila is the empty, unclaimed and abandoned containers. They should be transferred to an inland container yard or depot. Preferably a new site should be located along the railroad of PNR so that the trains can be used to move these said containers to the inland container depot and can operate at night.
5. Rehabilitate PNR Line for Rail Freight. There should be gradual rehabilitation and improvement of the PNR system(including rail track, signalling system, rail crossings, and stations) including the removal of the remaining illegal settlers along the railroad track right-of-way most especially along the segments where rail freight will be introduced. An improved PNR system being both used for commuter and freight movement would boost its image and could attract more investors under a PPP arrangement.
6. Compel International Shipping Lines to Establish Inland Container Depot. In order not to congest the ports especially of empty containers, international shipping lines handling high volume of exports and imports should put up inland container depots.

c. Long-Term Measures

1. Draft a multi-modal transport and logistics development plan for the country covering the Manila to Mindanao corridor with special emphasis on the Manila-Sorsogon-Leyte-Surigao segment.
2. Pursue the PPP plan for the PNR system if the government cannot allocate funds to invest in the improvement of the PNR system. It is just unfortunate that the North Rail Project was rescinded by the current Administration due to anomalies in the contract and maybe a PPP partneship with the private sector could speed up the upgrade that the PNR system needs.
3. A more thorough study should be conducted regarding goods and passenger movement in GCR so that the integration and interaction between the two types of movement could be considered. Futhermore, transport infrastructures (water, rail, road) could be properly planned and integrated that would not only address the needs of the people but also that of the freight industry.

XIII. Proposed Measures and Actions and Their Timelines

Attached is the timeline of implementation, indicating the responsible agencies and entities for each proposed measure or action (see Figure 35).

Figure 35. Timeline of Proposed Measures and Actions and Their Implementing Agencies

	Proposed Measures/Actions	Responsible/ Implementing Agencies	Timeline								
			Short-Term		Medium-Term			Long-Term			
			2015	2016	2017	2018	2019	2020	2021-2025	2026-2030	Beyond 2030
1	Issue a policy statement putting a cap on capacity of Manila ports and to instruct that cargoes bound for or coming from the south of Manila should call on the Batangas Port and those bound for or coming from the north of Manila should call on the Subic Port	DOTC, PPA, DOJ, ICTSI, ATI, NEDA, SBMA									
2	ICTSI to revive the PNR rail freight operation to its inland container depot	PNR, DOTC, ICTSI									
3	Roll out the 24-hour web-based integrated truck dispatching, appointment, and booking system	AISL/CTAP									
4	Increase the available personnel, expand cargo handling, equipment, bherth, and container yard capacity of Batangas Port	DOTC, PPA, ATI, LGU									
5	Implement the Rationalization Plan for GCR Ports										
	- Putting a cap on expansion of Manila Ports	DOTC, PPA, NEDA, ATI, ICTSI									
	- Capacity Expansion Plan for Batangas Port	DOTC, PPA, NEDA, ATI									
	- Capacity Expansion Plan for Subic Port	DOTC, PPA, SBMA, NEDA, ICTSI									
	- Identification of Future Relocation Sites	DOTC, PPA, NEDA									
6	Revival of Freight by Rail from Manila Port to ICD in Calamba, Laguna	PNR, DOTC, ICTSI									
7	Rehabilitate/gradual improvement of PNR line for rail freight	PNR, DOTC, LGUs									
8	Proposed Inland Container Depot of International Shipping Lines	DOTC, PPA, AISL, PNR									
9	Proposed North and South Container Depot/Hub	DOTC, PNR, PPA									
10	Upgrading of the PNR through PPP	PNR, DOTC									
11	Integration of Studies (PPA study, JICA study, MUCEP study) on goods and passenger movement in GCR	DPWH, DOTC, MMDA, NEDA									
12	Draft a national Multi-Model Plan with emphasis on connecting the Subic-Clark-Manila-Batangas corridor to the rest of the country	DOTC, DPWH, PNR, NEDA, PPA, MARINA, LGUs									

Note: The length of the arrows indicate the implementation period of the proposed measures/actions.

References

Almec Corporation, Pacific Consultants International, and Yachiyo Engineering, Company, Ltd. (1999). Metro Manila Urban Transport Integration Study.

Basilio, E. (2014). Policy Paper on Port Congestion in a Congested Metropolis. Position Paper by the Philippine Chamber of Commerce and Industry.

Bureau of Customs (2014). Customs Operations Affected by Manila Expanded Truck Ban. Retrieved from http://customs.gov.ph/news/2014/02/25/customs-operations-affected-by-manila-expanded-truck-ban/

Castro, J.T., Kuse, H. and Hyodo, T. (2003) A Study on the Impact and Effectiveness of the Truck Ban Scheme in Metro Manila, Journal of the Eastern Asia Society for Transportation Studies, Vol. 5, pp 2177-2192.

Castro, J. (2005). Impacts of Large Truck Restrictions in Freight Carrier Operations in Metro Manila. *Journal of the Eastern Asia Society of Transportation Studies*. Japan.

CPCS (2013) Integrated Luzon Railway Project, prepared for PPP Center of the Philippines and DOTC.

Garutsa, R. (1995). Basic Study of Urban Goods Movement in Metro Manila: An Assessment of Physical Distribution Facilities and Commodity Flow Patterns. National Center for Transportation Studies, University of the Philippines, Quezon City.

International Container Terminal Services, Inc. and Subsidiaries Quarterly Report (June 2014).

Japan International Cooperation Agency and DPWH (2010). The Study on Master Plan of High Standard Highway (HSH).

Japan International Cooperation Agency (2013a). Study to Decongest Manila and Divert Container Traffic to Subic and Batangas Ports.

Japan International Cooperation Agency (2013b). Expert for SBMA in Optimizing the Use of New Container Terminal (NCT) 1 and NCT 2 in Subic Port. Makati City: Horizons Diversified Incorporated.

Japan International Cooperation Agency and National Economic and Development Authority (2014). Roadmap for Transport Infrastructure Development for Metro Manila and Its Surrounding Areas (Regions III and IV-A). Manila: National Economic and Development Authority.

Javier, S. (2012). Philippine Transport Statistics. National Center for Transportation Studies, University of the Philippines, Quezon City.

Journal of Commerce (2013). The JOC Top 50 World Container Ports. Retrieved from http://www.joc.com/port-news/joc-top-50-world-container-ports_20130815.html

Llanto, G., Basilio, E., and Basilio, L. (2005). Competition Policy and Regulation in Ports and Shipping. Discussion Paper. Philippine Institute for Development Studies. Makati City.

Llanto, G., Navarro, A., Detros, K., and Ortiz, M.K. (2013). Towards Informed Regulatory Conversations and Improved Regulatory Regime in the Philippines: Logistics Sector and Trade Facilitation. Discussion Paper Series No. 2013-47. Philippine Institute for Development Studies. Makati City.

Naval, H. (1999). Development of Demand Model for Regional Commodity Flow in the Philippines. National Center for Transportation Studies, University of the Philippines, Quezon City.

Oxford Business Group (2014, April 22). Mixed reaction to a truck ban by authorities in the Philippines. Retrieved from http://www.oxfordbusinessgroup.com/economic_updates/mixed-reaction-truck-ban-authorities-philippines.

Punzalan, J. (2000). The Impact of Truck Ban on the Trucking Industry In Metro Manila

Romero, J. (2001). Assessment of Traffic Impact of Port Development Projects (The Case of Port of Manila). *Journal of the Eastern Asia Society of Transportation Studies*. Japan.

Romero, J. (2001). Port Development Projects and Their Traffic Impact. National Center for Transportation Studies, University of the Philippines, Quezon City.

Santiago, R. (2001). Reinventing the Philippine Port Sector: Strategies for Commercialization and Privatization. *Journal of the Eastern Asia Society of Transportation Studies*. Japan.

Sasao, R. (2011). The Republic of the Philippines Ex-Post Evaluation of Japanese ODA Loan Batangas Port Development Project (Phase II). IC Net Limited.

Sinarimbo, N. G. (2001). Stakeholder's Preferences on Urban Freight Transport Measures in Metro Manila. National Center for Transportation Studies, University of the Philippines, Quezon City.

Tiglao, N. (1995). Discrete Choice Model on Locational Choices of Manufacturing Firms in Industrial Estates: The Case of CALABARZON in the Philippines. National Center for Transportation Studies, University of the Philippines, Quezon City.

Tiglao, N.C.C., Regidor, J.R.F., and Teodoro, R.V.R. (2005). An Assessment of the Truck Ban and UVVRP, and Their Effects on the Freight Forwarding Industry. Proceedings of the First Conference on Transportation Logistics (T-LOG 2005), Furama Riverfront, Singapore, CD-ROM.

UNESCAP (2007). Country Report: Philippines, Promoting the Role of the Asian Highway and Trans-Asia Railway: Intermodal Interfaces as Focus for Development, Subregional Workshop for ASEAN Subregion, Bangkok, 28-29 August 2007, pp. 8-11.