

**TOWARDS A PARTNERSHIP IN PORT OPERATION
CONCERNING INTERMODAL TRANSPORT
Lesson from the Port of Rotterdam
(Case study in Port of Belawan, Indonesia)**

THESIS

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ABSTRACT
TOWARDS A PARTNERSHIP IN PORT OPERATION
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The partnership in port operation has become an important concept in port development. Port operation is the main core activity in port business that strongly related to high cost investment and technological equipment. Intermodal transport is one of the port operation activity to improve port efficiency and productivity in order to decrease congestion in the port. Private parties has a fundamental role in port development to cope with the lack of government budget by transferring some of port development project and operating cost to the private parties. Port of Belawan has a lack of experience in public private partnership. In other hand, the Port of Rotterdam has a long experience in partnership implementation to upgrade the port operation through physical infrastructure and promoting intermodal transport. This research explores the partnership concept in port operation concerning intermodal transport and to know its implementation in both ports. There are four comparative analysis that are being used to analyze the implementation of the partnership in port operation: The first, policy and regulatory framework; second, public and private role in partnership; third, planning and development; and forth, inland transport connection and services. The result of this research concludes that the Port of Rotterdam is more flexible in contract agreement and promoting transparency and accountability in public private partnership than Port of Belawan. Furthermore, this research recognize some lessons learned from the Port of Rotterdam that can be adopted in Port of Belawan, those are, encouraging partnership by maintaining the investment climate, composition foreign ownership in port facilities, intermodal transport collaboration and Port Model and management.

Keywords: partnership, port operations, intermodal transport, Port of Rotterdam, Port of Belawan.

PREFACE

Partnership is an important concept in port operation in supporting the port infrastructure development and intermodal transport development. It defines the task and responsibilities of private and public parties in port operation. Port of Belawan has significant cargoes growth during last 10 years, but the lack of private involvement and public agencies coordination will slow down the port development and finally will lead to the port congestion.

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CHAPTER 1

INTRODUCTION

1.1. Background

A Port is a gateway for several of cargo in international and domestic trade. According to UNCTAD (2012), world seaborne trade total goods are 8,748 million metric ton, by types of cargo: petroleum product and gas 1,034 billion metric tons and dry cargo 5,952 billion metric tons. Based on those data, volume of cargo carried by ship is the largest portion in world trade cargo distribution. Increasing of the cargo around the world significantly create a good business for port industry. From 2000 to 2012 the total world cargo increased by an average 5-6 % each year. To face the demand of service, ports have to improve the capacity and ability to maintain the port activity to be more efficient. Changing trade markets and transport industry create a challenge to port authority and port operator to provide inland modes of transport for controlling the traffic according to all its operations.

As an economic booster, a port has a great value in giving revenues through export and import activity, taxes, and port's services to the country. Globalization gives a big impact on international trade; the bilateral and multilateral trade increases the economic development of each country. Ships usually carry cargo between countries in bulk and huge quantity, which is a mode of transport handling depending on the cheapest transportation cost for long distance voyage. The international transportation dominated by maritime sector for its ability to guarantee the benefitted for shipper to minimize the freight. And also the geographical advantages, the port not requires infrastructure investment along the entire journey but only the end sea voyage that called port, unlike road transport and rail transport. Since the growth of world trade the ports get an important role to serve ships and their cargo and contribute to the national economy.

Port operation is highly dependent on intermodal transport, integrated infrastructure, latest equipment, and good management. The main function of the modern port according to *United Nations Conference on Trade and Development*: "Seaports are interfaces between several modes of transport, and thus they are centers for combined transport". Furthermore, they are multi-functional markets and industrial areas where goods are not only in transit, but they are also sorted, manufactured and distributed. As a matter of fact,

Seaports are multi-dimensional systems, which must be integrated within logistic chains to fulfill properly their functions.

A modern port functions not only as a transit point of ships and cargo, but there are also multi functional port-activities in order to give service and supply for maintaining trade flows. To adjust to the changing trade and transport market, it is needed to improve the provision of port services. Therefore a partnership among the port community comes in sight. There are several organizational modes for seaports, depending on the role that port authorities assume. These are usually labeled as *landlord port*, *tool port* and *services port* (Trujillo and Nombela, 1999)

First, the Landlord Port, the Port Authority owns the basic infrastructure only, land and access and protection assets, and leases it out to operators, mostly on a long-term concession basis, while retaining all regulatory functions. Second, the Tool Port, the Port Authority owns the infrastructure, the superstructure and heavy equipment, rents it to operators which carry out commercial operations, and retains all regulatory functions. Third, the Service Port, the Port Authority provides all commercial services to ships and cargo, owns and operates every port asset, and fulfills all regulatory functions. Ownership of ports and port operators are two different things. However, there is a combination of ownership and operating structure that has been widely applied in ports of developing countries for increasing cost effectiveness and overall efficiency in port services.

In general, the most common form of port organization is the Landlord port. Almost every large port uses this port type for operating structure. The newest statistic report (Port of Rotterdam Authority, 2012) explain that specially for yearly container traffic, Port of Rotterdam ranked the top 4th worldwide and the number one in Europe. Since the economy started increase significantly, Port of Rotterdam develops their container ports in face the regional and international cargo flows. A large volume of cargo entrance to the port as main port of call and will distribute to other Europe country by train, waterways and truck. The Port of Rotterdam had strategic value that has ability to handle cargo flows, strategic connectivity that create a partnering through cooperation with inland container terminal and automatically give positive value to the Netherlands. It emerge the specific activity in port operation, innovation and stimulate the competitiveness (Van Den Bosch et al., 2011).

Began from small town by a dam in the river Rotte in fourteenth century, the Port of Rotterdam has become a big trading port and ensure its position as one of the main gateways in Europe (Daamen, 2012). Total cargo in 2012 is 441.5 million metric ton and a container throughput 37.8 million TEUs. As a result, this port became the main container hub in Europe. In addition the Port of Rotterdam is the homeport for oil and chemical centers in the world (Port of Rotterdam annual report, 2012). The increasing total of cargo throughput the port creates port congestion as a major issue for many actors that are involved in port activity.

Increasing cargo flow in the ports also lead to increasing transport volumes in their hinterlands, and this also has created the issue of capacity and quality of the intermodal transport system to the fore. This issue makes hinterland accessibility mainly important for maintaining the congestion. The key of a successful hinterland transport system is the good performance of port to serve demand development, which are cost-effective, reliable and have a short transit time (Visser et al., 2007). It can help keeping the port accessible by shifting cargo away from the congested roads to waterways and railways. There are two main forces in port operation that influence the intermodal transport. First, force concern globalization, when regionalization enables the development of distribution network that closely to production and consumption system; second, force concern local constraints, many freight activities, such as storage, that used to take place in proximity of port terminal facilities (Rodrigue and Notteboom, 2010)

Port of Belawan is one of the four international hub ports in Indonesia. The port and transport sector of Indonesia have not counterbalanced with changing trade and economic development needs. Container flows in Port of Belawan are the big portion in the port operation: the total container in 2012 is 1.2 million TEUs per year (PT Pelindo 1, 2012). Ship turn round time is 7-8 day in previous year, of course this is inefficient and has a big impact on logistics cost and port operation cost efficiencies. Unfortunately, the intermodal transport is not developed as the situation demands. Cargo and container transportation from and to ship only carried by truck and limited train line, no have integrated intermodal transport in cargo handling process that can reduce the turnaround time in port. Due to lack of partnership system in port operation, made the limited resource and financial unresolved by conventional port structure system (Trujillo and Nombela, 1999)

1.2 Research Objectives

This study to determine the suitable partnership in port operation concerning on intermodal transport in order to manage the port congestion. The term of partnership to encourage intermodal transport mean it shares the responsibility and authority from government agency domination toward a new system of partnership by offering the private sector to provide and operate the intermodal transport.

The study tries to explore the concept of partnership, to provide port capability in organizing the intermodal transport as one method to achieve reliability and learn the empirical practices of public private partnership in managing the port operation in the Port of Rotterdam and Port of Belawan. Furthermore, this study tries to find the lessons that can be learned from the situation in Rotterdam by the Port of Belawan.

1.3 Research Questions

Based on the explanation and the research objective above, several research questions explored in this research are:

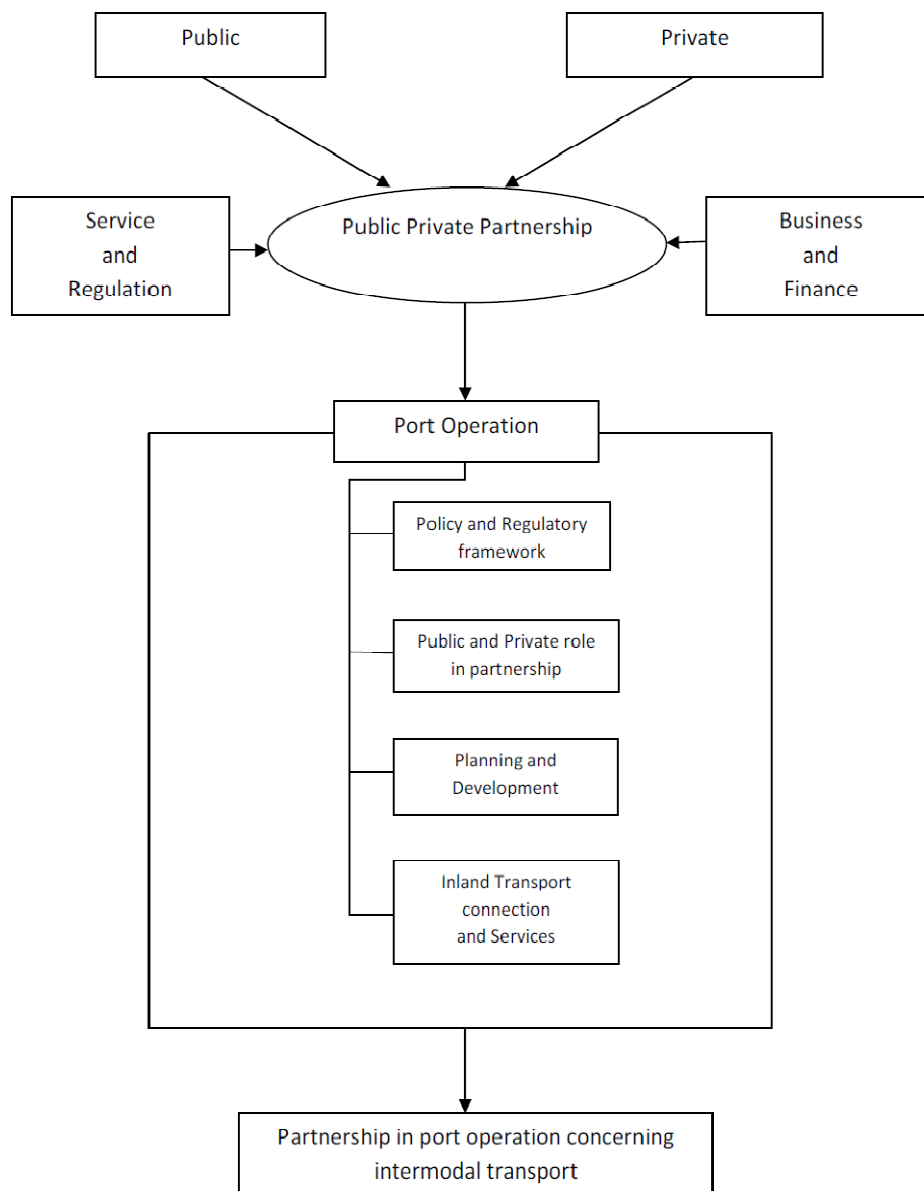
1. What is PPP, and what role can it play in port operation regarding the development intermodal transport system?
2. What is an intermodal transport system and what role does it play in port operation in order to solve port congestion?
3. How does PPP play a role in the intermodal transport system linked to the Port of Rotterdam?
4. Which aspects of PPP in intermodal transport systems are relevant to the case of Port of Belawan?
5. What lessons can be learned from the case of Rotterdam for the development of Port of Belawan?

1.4 Relationship between public private on partnership of port operation

The relationship between public private on partnership of port operation concerning intermodal transport are inherently connected. Ports reflect a collaboration of public and private parties. Both generate the increase of production volumes through cargo flows

indicator. Partnerships act and interrelated activities are mutually supportive and keep on growing by sharing the responsibility and different role. Public as the policy makers, services, and regulation and private parties more focus on business and financial mechanism. To ensure the aim of partnership, it is necessary to create the form of partnership through concessioning, licensing, leasing, or other appropriate methods in order to design an efficient allocation of resources. The relationship of public private for reaching partnership, showed in figure below:

Figure 1. Relationship between Partnership, Port operation, and Intermodal transport



1.5 Report structure

The structure of this research will be explained in seven chapters. Each chapter will describe the research as follows:

Chapter 1: Introduction

This chapter consists of background, research objectives, research question, conceptual model and report structure. The objectives of the research is to develop a partnership in port operation concerning intermodal transport in order to solve port congestion.

Chapter 2: Theoretical framework

This chapter provides a theoretical framework of a partnership, port operation, and the concept of a partnership concerning intermodal transport.

Chapter 3: Research Methodology

This chapter describes the process of research that uses the qualitative data. Data were obtained by port regulations, port policy and relevant document analysis. This qualitative method uses to develop theoretical framework about the concept of partnership, concept of Port operation and Concept of partnership in port operation concerning intermodal transport.

Chapter 4: Partnership in port operation concerning intermodal transport in the Port of Rotterdam

This chapter describes the partnering in port operation concerning intermodal transport by describe the type of partnership, the main role of each parties, share the risk and profit in Port of Rotterdam.

Chapter 5: Partnership in port operation concerning intermodal transport in the Port of Belawan

This chapter describes the implementation of partnering in port operation concerning intermodal transport, type of cooperation between private and public parties, the main role of each parties, share the risk and profit in the Port of Belawan.

Chapter 6: Comparative Analysis

This chapter describes the characteristic between two ports, explain the similarities and differences implementation of partnership concept and to choose the type of partnership which suitable to learn for partnership implementation in the Port of Belawan.

Chapter 7: Conclusion, Recommendation and Reflection

Finally, this chapter provides research result, recommendations and reflection.

CHAPTER 2 THEORETICAL FRAMEWORK

PARTNERSHIP, PORT OPERATION AND CONCEPT OF PARTNERSHIP CONCERNING IN INTERMODAL TRANSPORT.

This chapter will explain basic theories about Partnership term and its implementation in port sector and also describing type of partnership commonly use in practice. Also explore Port operation activities in international port system and partnership system concerning intermodal transport within port area for transferring the cargos.

2.1 Concepts ofpartnership

In a business and public services, a partnership becomes a concept to achieve the mission.As a tool to get mutual success and interest, partnership remain common concept that use across sector,by involved one or more parties in more business and in various length of time. Traditional concept of government procurement and funding in public services resulting in inefficient goal, time over run and cost overrun. More efficient and effective approach has been introduced by partnership concept that public and private parties improve the delivery of public services. The partnership term can describe as stated by Cartlidge (2006p2), *“A Partnership in the generally accepted business sense is a form of business enterprise and exist where there is voluntary association of two or more persons engaged together for the purpose of doing business as a partnership, for profit”*.

From the term of partnership above, the cooperation between stakeholders give ability to organization enhancing the knowledge to learn about inter-organizational relationship that will increase the understanding formation of the partnership formal form. Scale of partnering shows the spectrum that the participant can link each other in formal structures of form participation project or business organization. Various models of partnering are shown in this table:

Table1. Models of Partnering

Inter-organizational form	Tightness of Coupling	Description	Coalition type
Merger or Shareholders ship	Tight	The combining of two or more entities into one, through a purchase acquisition or a pooling of interest. Differs from a consolidation in that no new entity is created from a merger	Collaboration
Joint Venture	Tight	An entity that is created when two or more firms pool a portion of their resources to create a jointly owned new organization	Collaboration
Consortium	Tight	Specialized joint venture encompassing many deferent arrangements. Often a grouping of firms oriented towards a specific problem solving or technology development	Collaboration
Network	Tight to loose	A hub and wheel configuration with one firm at the hub organizing the interdependencies of a complex array of firms.	Information exchange or coordination or cooperation
Contractual Alliance	Medium	An arrangement between two or more firm that establish an exchange relationship, but has no joint ownership involved.	Cooperation
Licency	Medium	A permission granted by a holder of copyright or patent or any other right to another firm to use this right to engage in a business.	Cooperation
Trade association	Loose	Typical nonprofit organization that are form by firms in the same industry to collect and disseminate trade information, offer specific advice, furnish industry related training and provide a platform for collective lobbying.	Coordination and information exchange
Interlocking directorate	Loose	An interlocking directorate accrues when a director of executive of one firm sits on the board of second firm or when one firm has directors also sitting in the board of another firm interlocking directorates serve as a mechanism for inter-firm information sharing.	Information exchange
Outsourcing	Loose	Product or service contracting based on a pre-specified specification.	Information exchange

Source:Barringer and Harrison (2000)

Lack of resources and finance emerge many reason for organization tryto find solution by choose partnership concept. There are several degree of partnership and sometimes not

suitable in implementation. In partnership approach, one or more factor creates challenge to avoid the potential conflict because of many interests and vary motivation within the partner. In a complex condition, it is need to create formulation for getting best partnership design, by clearly determine the objectives, context, preferences and the strategies of each party. All parties are responsible to create relationship in flexible way and interaction by active communication for maximizing the effectiveness and efficiency of partnership. The effectiveness of partnership will be described as sharing power, adapting to partnership needs, trust and confidence (Brinkerhoff, 2002).

2.1.1 Cooperative strategies in partnership.

Developing cooperation between actors is important to expand organization ability, involved in market competition, financial support, create more effective product or service, explore more resources and give maximum support by stakeholders. Create a partnership by doing collaboration between actors give more challenge and need long adaptation in implementation. There are four cooperative strategies (Cray and Inglis, 2011, Dees et al., 2002):

- Networking: in this cooperative strategy, levels of trust and time are limited.
- Coordination: in achieve a common purpose, greater amounts of trust and time commitments are needed.
- Cooperation: is a formal relationship that needs a substantial amount of time and high levels of trust as a main strategy.
- Collaboration: emphasis on substantial time commitments, very high levels of trust, and extensive areas of common turf.

A collaboration approach guide to allocate resources crossing multiple goals for actors that involved in an organization is become important in defining a contract. The concept of collaboration most regularly contribute to public policy analysis (Donahue and Zeckhauser, 2011). In traditional approach government carried out direct supply in public service, effect on increase the financial problem to economy and lack of human resources that result ambiguous lines of authority and inflexible in public mission.

In provide a public service, government need to implement the alternative models that increase of shares collective action with private sector to solve the problem both for profit and not profit oriented. They also defined an alternative concept of public private collaboration especially by choose public goals and work together with private parties. The intents interaction between two or more parties in defining not only the individual goal but also how integrating the goal and detail of the goal also have to identify (Brinkerhoff, 2002 pp21) the ideal type of partnership, can be defined as follows:

“Partnership is a dynamic relationship among diverse actors, based on mutually agreed objectives, pursued through a shared understanding of the most rational division of labor based on the perspective comparative advantages of each partner. Partnership encompasses mutual influence, with a careful balance between synergy and respective autonomy, which incorporates mutual respect, equal participation in decision making, mutual accountability and transparency.”

Because of partnership commonly consist of normative and instrumental emphasis, its challenge to implement the ideal sense of partnership, by identifying the specific type of its capacity that can help the actors to adapt in their organization by setting up the context and objectives. In generally, partnership accepting subjectivity to find dimension of mutuality and organization identity (Brinkerhoff, 2002)

2.1.2 A Collaborative in term of Public Private Partnership

A collaborative approach that uses to manage the project or business which involve public and private parties is Public Private Partnership (PPP); they work together with clear and agreed contract. In present day, broadly definition of Public Private Partnership term. According to Horton (2009), Public Private Partnership can be explain as “any innovation-based relationship whereby public and private actors jointly contribute financial, research, human and infrastructure resources, either directly or in kind. In his opinion, as such partnerships are more than simply a contract research mechanism for subsidizing industrial R&D”. It represents the concept of relationship between public and private sector contribution in research, financial, human and infrastructure resources. Nowadays, there are many kind of PPP applied in most of government project, in scheme of using private parties to deliver public service that cross context such as infrastructure, transportation, health and education. Succeed of PPP as a challenge in maintaining this partnership because of different interest and objectives becomes critical process for determining the goal. The concept of this cooperation can explain as *“The PPP as a rubric for describing cooperative*

ventures between the state and private business, currently enjoys remarkable acclaim in both official and scholarly circles” (Linder, 1999)

In the collaborative system, there is a challenge that the groups or parties commonly looking for the easy and low cost in get solution for collaborative issues. Horton (2009) point out that in the book “Managing to collaborative: The theory and practice of collaborative advantage”, Huxham and Vangen (2005) discuss of two key concept, namely, collaborative advantage and collaborative inertia. Collaborative advantage is regarding how synergy can produce the output that would not otherwise be attained whereas collaborative inertia is a concept introduced by Huxham and co-workers to describe miserable collaborative performance (Horton, 2009)

2.1.3 PPP main dimension in implementation

Public Private Partnership is a one of the many kinds of partnership field. In two or more parties that work together in a business relationship, there is must be agreement signed between parties involved as guidance to share financial support and project risk sharing. The partnership is should be stated in the written agreement in PPP implementation in order to stick in the law as a basic to view the course that has to follow together by a business relationship mechanism.

The application of PPP in many countries has been developed the framework as a theoretical concept. Carbonara et al. (2013) suggest that there are three main dimension of the PPP framework, each has characterized by variable that are specific criteria regarding to PPP implementation, the three major dimension are, structure of PPP arrangement, financing of PPP arrangement and public leverage on PPP. In the wide windows of PPP model of contract type, can define into several specific contract, such as management contract with characterized by little or no capital investment in partnership form, concession contract with focus from design and continue build the construction until operation and maintenance process and joint ventures by sharing of ownership and management.

Table 2. The PPP framework: Dimensions and variable

Dimension	Variable	Values
PPP arrangement's structure	Based on the legal structure of the transaction	Institutional PPPs Contractual PPPs
	Contract type Based on operational aspects	Management contract Leasing model or Build-Lease-Transfer Design-Build (and Design-Build with warranty) Design-Build-Operate-Maintain Design-Build-Finance-Operate Build-Operate-Transfer Build-Own-Operate-Transfer Build-Own-Operate
	Use of private resources and expertise	Degree of involvement of the private sector in the lifecycle of the project (from design to management)
	Time horizon of contract	Long term (25-30 years)
	Revenues sources Payment based on usage volumes or demand Public financial contribution	By private sector By public sector By public and private sectors Lump sum payment by public sector
	Special purpose vehicle (SPV)	Private company Publicly- and privately-held company
	Risk allocation	Private sector

		Public sector Shared between public and private sectors
PPP arrangement's Financing	Use of private finance	Financing in whole by the private sector Financing partially by the private sector Government-funded projects (no private capital)
	Type of funding options	Bank debt Equity Bonds Loan from shareholders Mezzanine finance
	Debt to equity gearing	High (debt exceeds 70%)
	Investment value	High
Public Leverage on PPP	Scope	Assuring Value for Money
	Legislation	Degree of PPP formalization by a Government legal/statutory framework

Source: Carbonara et al. (2013)

2.2 Partnership concerning port operation

2.2.1 Definition of port operation

The definition of partnership in port operation is a way for optimizing the use of port facilities to response the demand. The involvement of private operators in port services has become one of the most chosen tools for port authorities to share port operation control by handle supply side of the terminal services (Notteboom and Verhoeven, 2010).

As an important organization in port, Bukljaš Skočibušić et al. (2012) suggest that the port authority has a role of regulatory body dealing with the overall port activities and port operations in order to ensure competitive conditions of a port, equal status of the port clients, fair treatment of all shippers using the port, and maximal utilization of the potentials of a port. In their view the main advantage of this model is that both parties (public and private) invest in key resources, both carrying time and a part of the risk.

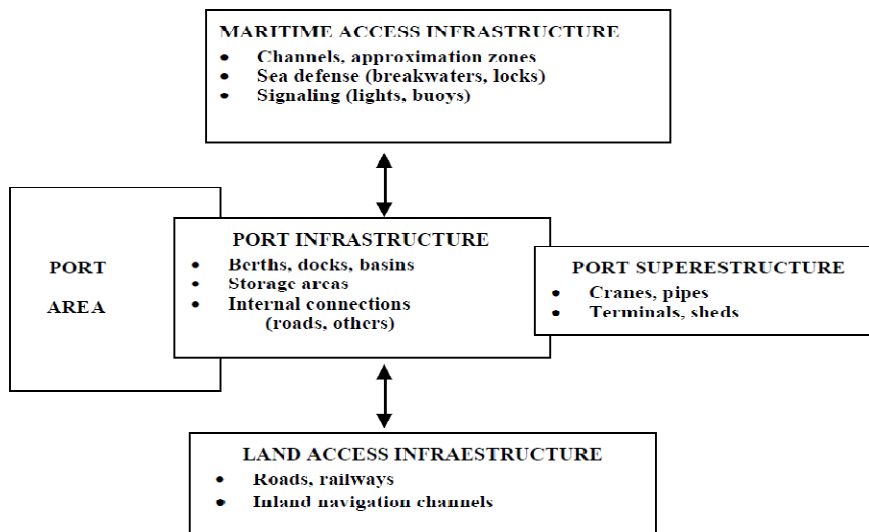
Port has more activities than only as a cargo handling area that serve the arrival and departure ships. As a one place that involved in many kind of services, Trujillo and Nombela (1999 pp. 6) defined in broad term of port:

“A seaport can be considered a single organizational unit that provides a service to ships. However, when its internal workings are analyzed in detail, it is clear that there are *multiple* services being produced and demanded within a port area (services to ships, to cargo, and to passengers). Even for a type of service such as cargo handling, technologies can vary enormously depending on the type of cargo, up to the point that, for example, container loading can be regarded as a different service from bulk cargo handling. Therefore, instead of a single unit, a seaport is better characterized in economic terms by considering it to be a multi-product organization. Seaports offer many different services to ships, which in some cases can all be offered by a single company (small ports), but more often, are provided by independent firms working within the port area”

A wider scope of services also equipped with more facilities that has to provide as a modern port. Port offering more facilities in order to compete with other port around the world by carrying out the ships activity such as provide the sea and harbor pilot to assist the ships, tug boat, mooring team, cargo-handling, warehousing, yard, etc. According to port system, many kind of these facilities and services are provided in complete package or independently and also by order or procedural. Owen (1959) state the improvement of ships technologies is need to accelerate with the physical condition of port infrastructure for balancing with consumer requirement.

In other, European parliament (1993) state the European Union uses an interesting definition of the infrastructure in particularly, first, the *port area* is defined as a complex of berths, docks, and adjacent land where ships and cargoes are served. To reach that area, it is required to have infrastructures related to maritime access (channels, locks, aids to navigation, etc) and to land access (connections to roads, rail network, and inland navigation).

Figure 2. Scheme of Seaports' structure



Source: Trujillo and Nombela (1999)

2.2.2 Main actors in Port Management

Port activities are governing by different port actors to provide port services that performed their role of duty for developing maritime transport sector. These collaboration regarding to point out the efficiency of port operation in order to be able to give the new needs of shipping company that must have suitable facilities to compete in port industry. The main actors in port activities, namely, port authority, port operator and transport ministry. In principle, the role of each organization should fulfill the requirement of the modern port in provision of infrastructure and the cooperation of port services.

According to the Port Reform Tool Kit of the World Bank (2007) the each role of port organization as a basic activity in port operation as follows:

1. Role of a Port Authority

The role of the port authority has a wide scope in managing the port, as the port authority, port management, or port administration. In general these three terms is implemented in modern port to establish the services. There are also various term of port authority, A commission of the World Bank (1977) pointed out that port authority as a "State, Municipal, public, or private body, which is largely responsible for the tasks of construction, administration and sometimes the operation of port facilities and, in certain circumstances, for security." The wide ranges of definitions are representing different types of port

operations in several countries. Various levels of government can be involved in the port authority: national, regional, provincial, or local. The models that widely applied are a local port authority, an authority administering only one port area. In their view, national port authorities also still exist in various countries such as Indonesia, Tanzania, Sri Lanka, Nigeria, and Aruba.

The United Nations Conference on Trade and Development *Handbook for Port Planners in Developing Countries* (UNCTAD, 1985) provide kind the statutory powers of a national port authority, those are, investment, financial policy, tariff policy, labor policy, licensing, information and research and legal.

2. Role of Port Operators

As port operators, the core of business carried out face to face with the port user in terms of services as related to stevedoring companies, freight forwarders and terminal operators. Port operator focus on profit oriented by increasing productivity and reach as much as possible the advantage and increases the amount of work for the greater benefit. Port operators are free to innovate in order to achieve a dominant market share of the port business competition.

3. Roles of a Transport Ministry

As a government agency, the ministry of transport is responsible for regulation of the port system and also as a coordination centre among actors involved in port. As a government function, ministry of transport also generated policy making, legislation function, security compliance and ensure the safety and security in shipping

2.2.3 Objectives of Ports and the role of actors

To define the port objectives, all port has focus on their mission and vision for several of goals according to the port planning. Gaur (2005) suggest that it is not only the mission statement and regional market that makes an impact on objectives of port but also institutional development plays a key role in defining the objectives of a port. In his view some of the objectives and key players have been listed in this table:

Table 3. Port player and their objectives

SI No.	Objectives	Player
1	Maximise Throughput	Port Authority/Operator
2	Maximise Net profit	Port Authority/Operator
3	Operate at Least Cost	Port Authority/Operator
4	Maximising Value Addition	Port Authority
5	Reach Financial Autonomy	Port Authority/Government
6	Efficient management of assets	Government/Port Authority
7	Minimise required Capital Investment	Government/Port Authority
8	Maximise Employment level	Central Government/Trade Unions
9	Secure National Independence as regards maritime transport	Central Government
10	Ensure full environment protection	Local Government
11	Minimise Vessel's time in Port	Shipping Company
12	Minimise Total Cost of Maritime Transport	Shipper
13	Maximise quality of service to Shipper	Shipper
14	Minimise Port user Cost	Users
15	Transparency of Charges	Users
16	Minimising Welfare Loss	Economist
17	Maximise Return on Capital Investment	Financial Company of Port
18	Ensure full Environment Protection	Pressure Groups

Sources: Based on Lecture notes of Prof. Eddy Van.d.v and Prof. Willy.WinGaur (2005)

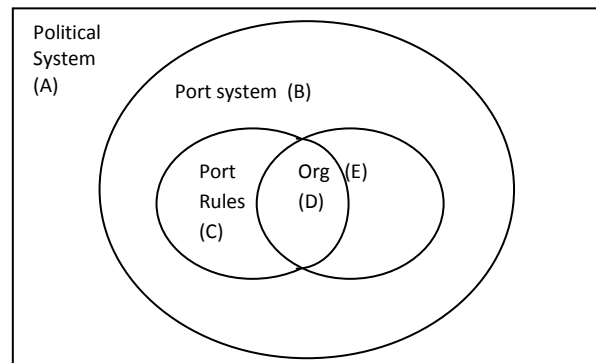
In term of partnership, port operation should shift from conventional port model that all aspect of the port operation and port management carried out by government to modern port model. Port reform has lead port ownership moves from a public service port model to a wholly privatized or concession port model, but from the other aspect it form is changed from regulation era to partnership cooperation of stakeholders. Gaur (2005)suggest those private parties' enables a port from operational activities to strategic position with competitive advantage in economies of scale.

2.2.4 Port organizational framework

Port playing important function in cargo flows for global trade, it is not only as a single function that one specific cargo must be loaded and discharged on a special design port but

also the wide port network concept has been applied in many port around the world. Sorgenfrei (2013) states it is important to take into account the diverse characteristic of each particular service that may lead to different regulatory schemes. In his view all services have to be produced within a limited area.

Figure 3. Port System, Port Rule, Port Organization



Source: Sorgenfrei (2013)

According to Sorgenfrei (2013) "It is important to analyze the ways and means of inducing public and private interest in ports and to identify the role of port authorities as institutions in change of the regulation within a port".

In the above figure, it describes that ports are part of the political system such as political and socio-economic framework (area A) of a country. The port system "B" shows the fundamental port regulation, the concept of public/ and private engagement. Technical port rules (C) on the same level like the port system. Typical technical and navigation relating to basic rules for all parties that involve in a specific port. In case of port system, regulation is more general and adopted by all ports in a country. The circle "D" focuses on port internal organization of certain port, such as: internal structure of port authority and also describes about the relation between port authority and other organizations that concern in port activity, such as: Custom, Police etc., port organization also applied for certain port. The cross area of "E" shows that port rules influence the port organization or otherwise.

2.3 Partnership concerning intermodal transport

2.3.1 Definition of partnership in intermodal transport

The definition of partnership in intermodal transport is similar with other field as states in the Cartdlidge definition of partnership. Partnership in intermodal transport can be defined as “The formation of global alliances has taken inter-carrier cooperation to new high, with member sharing inland logistic information, technique, and resources as well as negotiating collectively with suppliers such as terminal, rail operator, feeder, barge operators, etc.”(Notteboom, 2008)

2.3.2 Concept on Intermodal transport

There are many alternatives for transferring cargoes such as truck, air, ocean/river, train and all of the also need specific infrastructure to accommodate each of them. Increasing of cargo distribution in many international ports emerged the system that possible to maintain the congestion through Intermodal transport. Bektas and Crainic (2007) define that intermodal transportation refers to the transportation of people or freight from their origins to their destination by a sequence of at least two transportation modes. In their opinion, transfers from one mode to the other are performed at intermodal terminals, which may be a seaport or inland terminal, e.g., yard, river ports, airport etc.

Port is the area act as gateways to serve inland network where the cargoes transport flows from one point of origin to other point of destination or otherwise. Notteboom (2008) state that the rise of inter-modality and associated transport corridor had a major structuring effect on the hinterland of seaport. In his opinion inter-modality is not only one factor given incentive for ports to expand their hinterland. In this paper, we focus on container based-transportation.

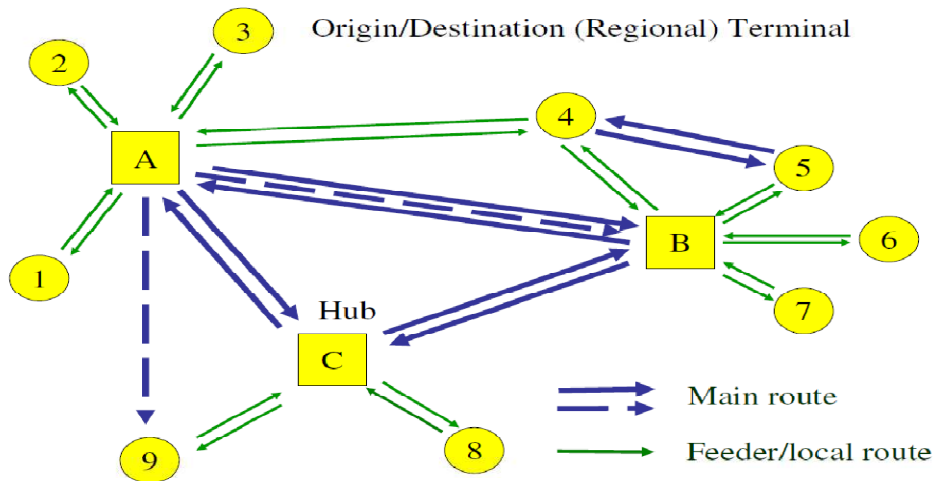
In term of intermodal transportation and international trade, container transportation is a major component in cargo transfer (Crainic and Kim, 2006). The Ports and container terminal should be fits with container ships and also equipped with suitable cargo handling equipment. In modern port, container terminal have been built or modification to increase the efficiency of loading, unloading and transfer operation. The operation standard and

container handling equipment are continuously evaluated to improve productivity and compete in terms of cost and time. The positive value that offered by container based transportation came from the safety of cargo relating to the potential loss and damage. Furthermore, the container based transportation could reduce the cargo handling time and also has a standardization of size and worldwide door to door intermodal service.

In intermodal flow system, freight can move out by a particular mode of transportation to customers consists of different origins and destinations service by transport operators who are responsible or the transport of any cargoes. According to Crainic and Kim (2006) Consolidation transportation carriers and fundamentally all intermodal transportation systems are organized as so-called hub-and-spoke networks. He illustrates in figure 5, in flow system, cargo transfer carry out between a point of origin and destination (the local/regional terminals), that shows as in position 1 to 9. These frequencies of movement larger than the frequency of direct, departure point to arrival point handle by the carrier. This result of low-volume demands are transfer first to an intermediate point- a consolidation terminal or a hub (nodes A, B and C) such as an airport, seaport container terminal, rail yard, or intermodal platform. In the hub point, combine of the movement of the busiest hubs are transfer to another with high frequency.

Show in the figure, a wide range of services, with different modes, can carry out between hubs. On services that are not congested, visible from a smaller operation, which is used between the hub and the terminal area (the link between nodes A and 9) or between the two terminal regions (the link between nodes 4 and 5), as shows in figure 4:

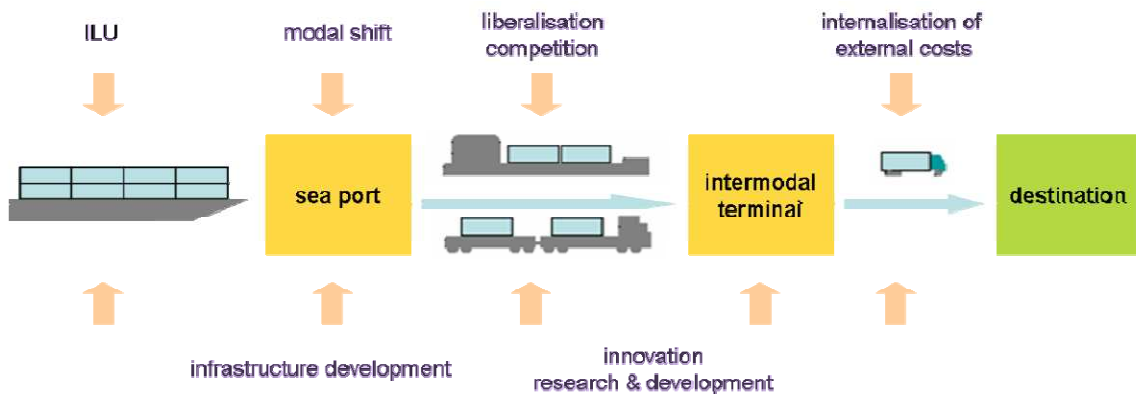
Figure 4. Network with Consolidation Terminals / Hubs



Source: Crainic and Kim (2006)

The overall process in customized, consolidation and integrated is the main characteristic of intermodal transport to provide service to each particular customer. The process begin when the truck proceed to the customer warehouse/factory location, loading the cargoes and continues moves to the specific destination where it is unloaded. Ocean navigation services loading the cargoes on board then have a voyage to arrival point, cargo discharging from vessel and move into train, truck or inland shipping. The whole processes reflect on connection between nodes or between two regional terminals. The comprehensive activities shows in figure 5 intermodal policy framework(Macharis et al., 2009)

Figure 5. Intermodal Policy Framework



Source: Macharis et al. (2009)

A hub-and-spoke organization allows a much higher frequency of service between all origin-destination pairs in the network and a more efficient utilization of resources. Li et al. (2013) argue that nodes in the intermodal transport network can be categorized into three types based on the roles that they play in container transport: origin nodes, transfer nodes, and destination nodes.

2.4 Conceptual model

This research will be comprised of six main sections. The paper will present reviews on related literature on partnership on port operation concerning intermodal transport. In this section will be analyzed and collected the relevance data from report, academic journal paper, newspaper article and other related materials. The section will be devoted to defining it and outlining its theoretical concept.

Next section will present the selected theoretical framework of partnership followed by theoretical framework of port operation and finally theoretical framework of intermodal transport. In this section will explain three concepts as well as their analyses and related discussions.

In the implementation of the partnership in each port, this section is selected four factors, the factors influencing partnership in port operation as follows:

Firstly, in the policy and regulatory framework, the subsidy is need for basic port infrastructure investment and dedicated for selective business sector. It is also defined the port law that explains about the objectives and function of a port authority. Port authority is a main element of the port sector and has legitimacy to managing the port based on a port law. Also regulation regarding engagement with public and private stakeholders in port development. The legal status of the private involvement has been defined in a large variety of laws, regulations, and contracts.

Secondly, the public and private role in partnership. Public and private parties collaborate in decision making on the financing of port infrastructure projects and hinterland link connections. It is also defined that Port Authority has a clear interest and responsibilities according to the regulation and specific contract. However, private operators such as road

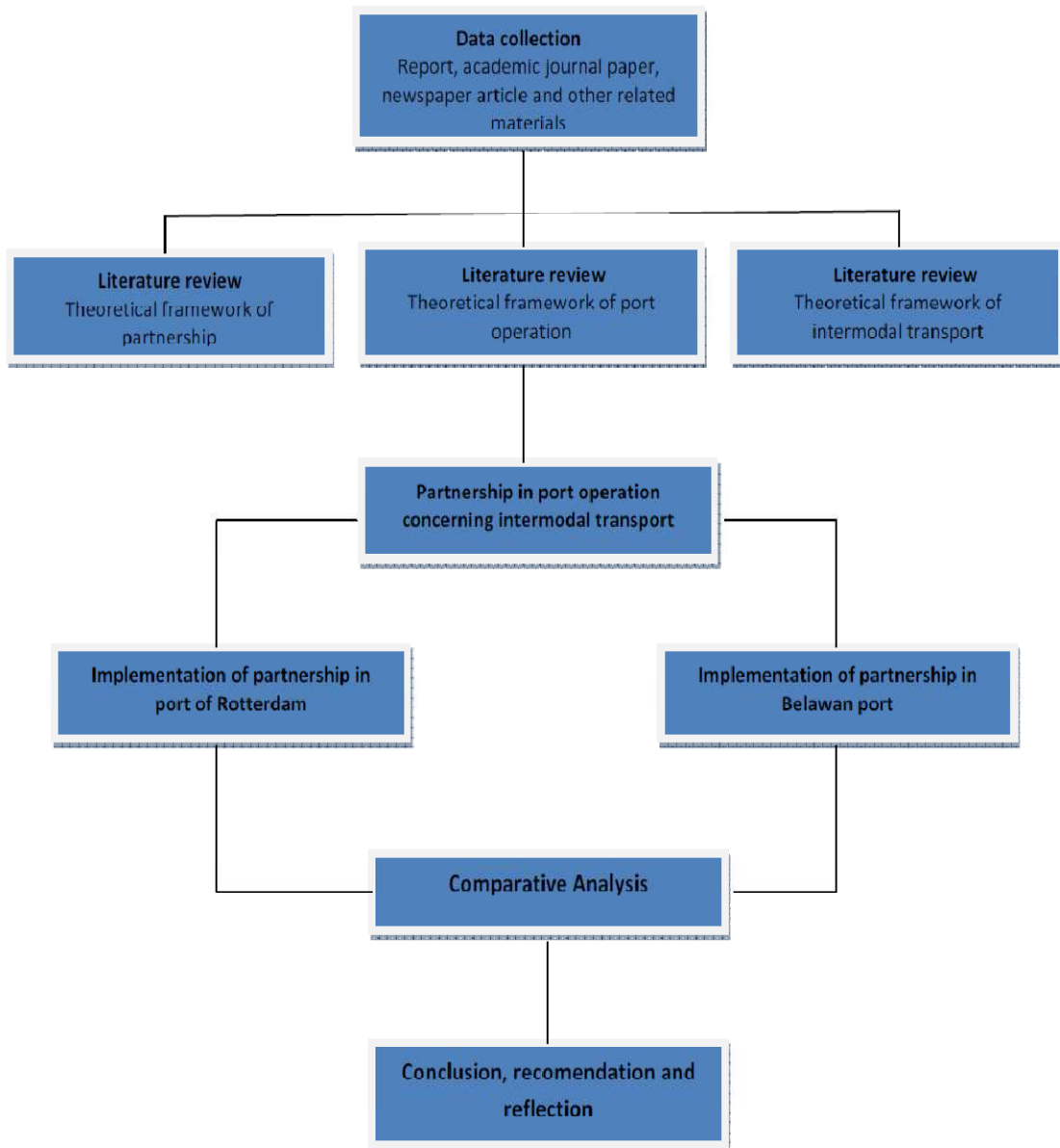
transport, rail and inland waterway operators, have higher and direct responsibilities for the decisions and financing the project.

Thirdly, the planning and development in port. The port development program involved other parties to support the financial scheme and resources. Various companies and organizations are collaborating for the development of the port. These partnering are necessary requirements for the port development, port operation and port efficiency in order to reach Port Vision. The port authority is also promoting the public-public cooperation by inviting all of the surrounding municipalities to involve in the port development.

Fourthly, inland transport connection and services. This factors investing in accessibility, port authority promotes the sustainable and cleaner transportation mode by shifting to inland shipping, rail and pipeline. This project is cooperation between port authority, government, local residents, customer and other stakeholders in order to solve port congestion. With the 'modal shift' program, the transport problem was set up to reach the target of increasing the cargo flow

From the research can be derived that some aspect can contributes to the development of partnership in Port of Belawan. It is need to adopt the landlord port model for Port of Belawan by strongly separated regulator function and operators function. Furthermore, the government should release the monopoly practices and guarantee the equality, transparency and security in port investment. Related to the specific characteristic of Port of Belawan it will be suitable if the intermodal transport is more focus on railway and road-based transport

Figure 6. Conceptual Model



CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This research focuses on partnership concerning intermodal transport and uses existing data research (secondary data) and literature review. This information can be obtained from several sources such as reports, academic journal papers, newspaper article and other related materials. The aim of this research is to explore the partnership on port operation concerning intermodal transport in Port of Rotterdam and Port of Belawan. I use literature review on this research because I want to provide an overview of sources that have been published and fit into the field of study. Furthermore, I could read and analyze the document in order to know in what ways the research question and findings could contribute to port development.

After getting the relevant issues, continue with a comparative of the cases Rotterdam and Belawan to identification the issues relating to characteristics of the area and port operation system in Belawan port, to make suitable approaches for the concept of partnership, specially associated with intermodal transport.

3.2 Case selection and scope determination

The reason to choose Port of Rotterdam for case study because from their vision and mission more focus on "to develop in partnership the European port of world class" (www.portofrotterdam.com). The analysis of their vision and mission statement of the biggest port in Europe express that Port of Rotterdam want to develop the port through partnership concept. As the biggest port in Europe, they are successful in achieving their mission. In case of Port of Belawan, it still struggle of port development due to lack of partnership in port development.

Qualitative method was chosen as a feasible method for identifying four factors that are important to partnership in port operation concerning intermodal transport. This method was selected because of its ability to examine the characteristic of each port through the related documents and materials. Research tools are tied to research objectives. Based on the research questions, this research were to evaluate partnership in port operation of Port

of Rotterdam and Port of Belawan that will be employed and related their application to solve port congestion. The approaches using this method have the advantage of various information about port operation characteristic from academic journals, reports and update information but the drawback is that they typically assume constant information from the related documents. The method, however, has difficulties with data requirements, particularly the specific type of project contract related to the partnership in port operation, detail information related to share risk and profit and other requirements.

The scope of the research begins with four factors of partnership. On the basis of **policy and regulatory framework** of port, the status of the ports in legal and financial scheme can be determined. **The public and private role in partnership** plays an important role to define the port ownerships model and it should be clearly defined the public and private responsibility and risk. **Planning and development of the port** is used to explain about port development plan in short and long term planning. This factor also clearly defined the involvement of private parties in port development. **Inland transport connection and services** will explain about port accessibility that promotes the intermodal transport as a solution to solve port congestion.

3.3 Methodology and data collection

The main purpose of this research is to gain lessons learned from Port of Rotterdam to increase private involvement through partnership in port development. The process of this research uses the qualitative data. Data on legal framework were obtained by port regulations and port policy in each port. The data on public and private role in partnership; planning and development; inland transport connection and services were obtained by relevant document analysis. This qualitative method uses to develop theoretical framework about the concept of partnership, concept of Port operation and concept of partnership in port operation concerning intermodal transport. This research will be developed with several methodological steps as follows:

1. Development of theoretical and empirical base.

The first, this research develops the understanding of theoretical and empirical bases emphasize on the concept of partnership in port operation, port operation activity in modern port, intermodal transport and their inter-organizational form, port ownership

and management model and concept of partnership concerning intermodal transport. These theoretical and empirical bases can be obtained from literature review on several sources such as reports, academic journal papers, and newspaper article. In addition, this research also uses more information and data come from Internet and other related materials.

2. Getting and analyzing information and data from implementation of partnership in Port of Rotterdam and Port of Belawan especially about partnership in port operation concerning intermodal transport.

After getting theoretical and empirical bases, the information and data collection about the implementation of partnership in Port of Rotterdam and Port of Belawan is collected. These data consist of policy and regulatory framework, public and private role in partnership, planning and development of ports, inland transport connection and services. The information and data obtained from literature review such as reports, journal articles, some relevant publication, and official websites.

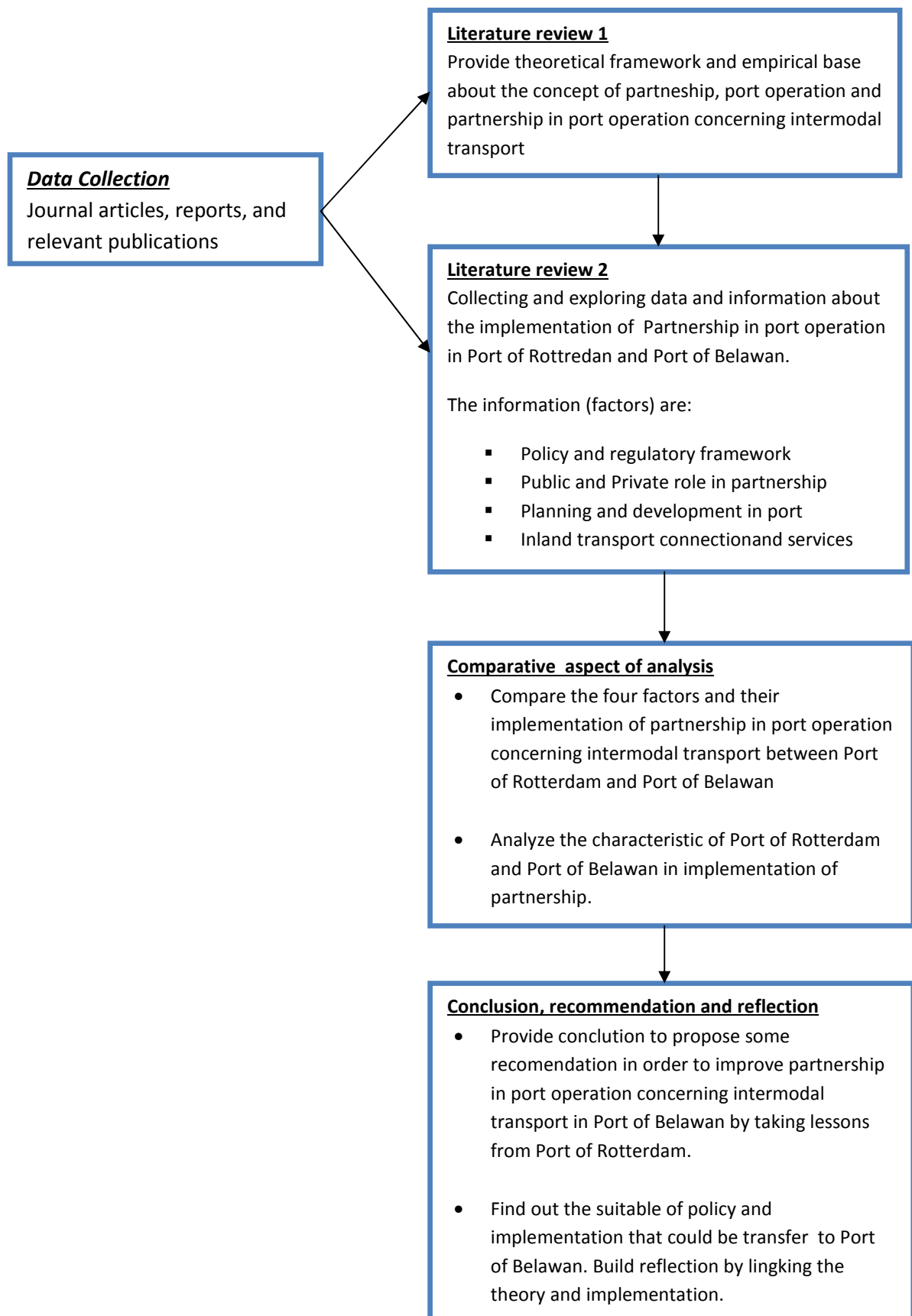
3. Comparative analysis between two ports.

After getting the relevant issues in the second step, continue with a comparative of the elements and factors in Port of Rotterdam and Port of Belawan. These comparative are use to identification the issues relating to the characteristics of policy, legal framework and implementation of partnership in port operation concerning intermodal transport. Furthermore, it also use to get information about what system or concept that might be transferred to Port of Belawan, to make suitable approaches for the concept of partnership, specially associated with intermodal transport.

4. Framing the recommendation to encourage private involvement through concept of partnership in port operation concerning intermodal transport in Port of Belawan.

Finally, this research suggest some recommendation to improve the efficiency and productivity of the port in solving the port congestion in Port of Belawan by taking the lesson learn from Port of Rotterdam. In addition, this research also suggests some adjustment is required in order to adopt the policies from Port of Rotterdam that might be implemented in Port of Belawan.

Figure 7. Research Methodology



CHAPTER 4
PARTNERSHIP IN PORT OPERATION CONCERNING INTERMODAL TRANSPORT
IN THE PORT OF ROTTERDAM

Partnership in port operation concerning intermodal transport is one of the strategies to prevent port congestion in the Port of Rotterdam, due to the increase of cargo transfer by ships as a result of globalization. To understand the port operation concerning intermodal transport, this chapter will elaborate the policy and regulatory framework, the public and private role in partnership, planning and development in the Port of Rotterdam, and inland transport connections and services.

4.1 Policy and regulatory framework

According to Van Hooydonk (2002) the advantages of cooperation in European policy has been debatable since the 1970s, which laid down in the Treaty of Rome. The European involvement is important for port policy, especially to boost cargo flow within Europe country. The cooperation proposed the progressive reduction of customs duties and the establishment of a customs union. It proposed to create a common market of goods, workers, services and capital within the EEC's (European Economic Community) member states. It also proposed the creation of common transport and agriculture policies and a European social fund. The policy was implemented in the transport sector as a whole and specifically for port sector that became aware of the immediate consequences of community law. In 1974, the establishment of the Port working group became the first action of European port policy. This working group consists of representative of port Authority and was led by the Commission. In 1997, a fact-finding report explaining the status of European ports in legal and financial scheme. In 1980, the commission argued that specific action for the port sector was unnecessary and suggested to continue the common transport policy.

In the 1990s, the restriction of port completion under community law became attention and forces to renewal the legal status of the European ports. Meantime, the implementation of a comprehensive European regulatory framework was promoted the liberalization of

intermodal transport such as road, rail, inland and maritime shipping. Van Hooydonk (2002) states that Maritime ports are thus one of the few remaining segment of the transport industry where a sector specific liberalization at community level was to be introduced, in his view as was previously mentioned, the commission issued a green paper on seaport and maritime infrastructure in 1997.

Van Hooydonk (2002) summarized the basic ideas of Green Paper, first, the Commission showed their awareness according to the differences in the port ownership, organization and financing of ports that still implementing. The commission appreciated the increase of a private participation in port activities, especially in cargo handling, while it also understands the tension among port Authorities. In the one hand they have to follow their port "landlord" type, and the other hand they have to consider the financial and operational aspect of port services. The involvement of private parties in cargo handling has been fully implemented, but for technical-nautical services that are related to the port safety, restriction often happened.

The Commission accepted that, under article 295 of the EC Treaty, the community must remain neutral with regard to the private and public status of port operators. Moreover the right of member state to define the regimes of the services provided in their port in accordance with their particular geographical, administrative, social, technical and historical circumstances should be respected. In principle, however, the rules of the EC Treaty also apply to port undertaking and authorities. Irrespective of the regime, public and private port should compete under equal condition as regards port services of a commercial nature (Van Hooydonk, 2002).

In the 1960s, there were many statements about the port subsidization in Europe (World Bank, 2007). Most of European governments subsidized their port development. No European rules or regulations were in place because the port sector was not included in the Treaty of Rome. According to the Port Reform Toolkit (World Bank, 2007) that rules were laid down within the framework of regulating subsidization of infrastructure. Article 93, paragraph 3 regulates the admissibility of state subsidies in port infrastructure as follows:

- Subsidies should be necessary for the project in question to be realized.
- The period of subsidization should be limited.

- Subsidies must be in the interest of the European Union.
- Subsidies must be compatible with the objectives of the common transport policy.
- Subsidies should not disrupt competition.
- The investment must be profitable from the financial and socioeconomic points of view.
- More than one party should benefit from the subsidy.
- Subsidy of mobile assets is not permitted.
- Subsidies to cover operational costs are not permitted.

The subsidy is permitted when the selective business sector has put into the main criterion for assessment. In port sector, the European Commission argued that basic port infrastructure investment, such as coastal works, port accesses, and operational infrastructure are not appropriate to support by state subsidy. For the operational infrastructure, the subsidy need the European commission approval and investments in a dedicated terminal that are not fully charged to the client are considered illegal state subsidies and are not allowed (World Bank, 2007).

In the port law, the third section explains about the objectives and function of a port authority. Port authority is a main element of the port sector and has legitimacy to managing the port based on a port law. According to the Dutch Commercial Code, established in 2004, the port of Rotterdam, Ltd. (Haven Bedrijf Rotterdam) has the legal structure of a limited liability company.

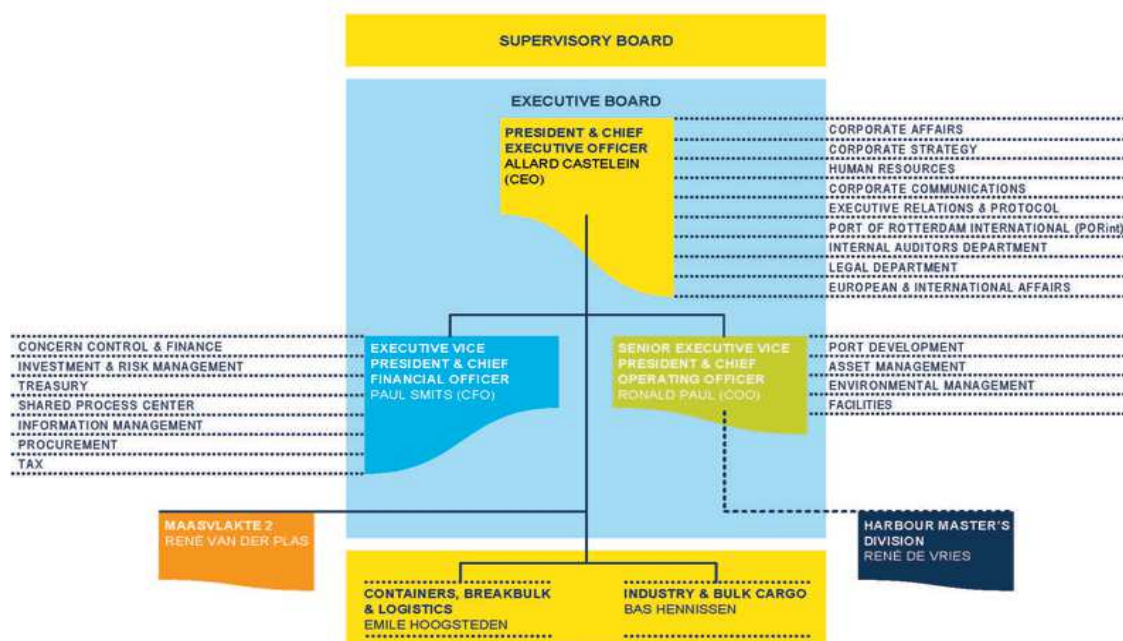
In promotion of sustainable transport solutions and integration of urban nodes into the trans-European transport network, the public private partnership is solution to enhance the accessibility. According to the Regulation (EU) no 1315/2013 (2013) of the European Parliament and of the Council in 11 December 2013, on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU stated in Article 50 regarding engagement with public and private stakeholders:

- Projects of common interest relate to all directly concerned stakeholders.
- National procedures shall be complied with.

- The stakeholders referred within the scope of their competence, also use, in addition to the Connecting Europe Facility and the Cohesion Fund, other specific European program.

The Port of Rotterdam Authority is an unlisted public limited company, but it does comply with all the legislative requirements imposed on 'large' companies. Since the 21st of July 2008, a lighter two-tier board system has been applicable to the company. This means, among other things, that the General Meeting of Shareholders is authorized to assign and dismiss Executive Board members (www.portofrotterdam.com)

Figure 8. Port Of Rotterdam Authority Organizational Structure.



Source: (www.portofrotterdam.com)

Under the EU Ports Regulations and the EU Concessions Regulation (EU) Directive 2014/23/EU (2014) on the award of concession contracts, a law has guaranteed for the public sector to involve in port development and infrastructure investments. Also open the chance for private sector to join port activities that formerly dominated by public sector. The legal status of the private involvement has been defined in a large variety of laws, regulations, and contracts. The Port Authority implemented marketable and bankable regulatory and contractual arrangements for the partnership.

4.2 Public and Private Role in Partnership

The important factor of partnership in port operation is sharing the risk and benefit from public-private involvement. Public and private parties collaborate in decision making on the financing of port infrastructure projects and hinterland link connections. However, when the port Authority and terminal operator has been agreed in a contract, the terminal operators will be full on charge for port operation and will have to deal with the business risks, whereas the port Authority will be protected to some extent from the short term of market dynamics. Port Authority has a clear interest and responsibilities according to the regulation and specific contract. However, private operators such as road transport, rail and inland waterway operators, have higher and direct responsibilities for the decisions and financing the project.

4.2.1 Public involvement of port project

In the Netherlands, construction of maritime access and protection works used to be carried out by and for the account of the government with the port authorities obliged to pay one third of the relevant costs (World Bank, 2007). There are various model of port governance in related to the different port regulation in every country. The funding for maritime infrastructure and intermodal connection are reflecting from policies and type of port ownership and organization. Trujillo and Nombela (1999) argue that ports may be owned by the State, regional or local governments or by private enterprises. Before the port reform era, ports provided the public services and focus on general economic interest generated by the public sector and financed by the taxpayer, whereas in the port reform era, the pattern has shifted towards considering ports as commercial entities which are taking high profit and create the sustainable business.

In the port authority role as a regulator and concession grantor are faced with many challenges. Some of these challenges will need expansion of the port area and the hinterland connection due to the additional complexity of the activities and the interactions between stakeholders. In case of capacity issue, the challenges relate to land side activities. Port of Rotterdam Authority in its role as port landlord and port manager has made a number of important cooperation. When the port authority want to shift the cargo from road to inland shipping or railway, port of Rotterdam Authority has negotiated contracts

with terminal operators in the new Maasvlakte 2 project, and terminal operator agreed to contribute to a raising of the railway and inland shipping, by switching their cargoes from road transport (Port of Rotterdam Authority, 2012).

The Maasvlakte 2 project is one of the public projects in the Port of Rotterdam. The authority responsible to guide the project on time by ensuring the port is always on progress in construction of the port infrastructure and transport connection to anticipate and respond to market demand. The Maasvlakte 2 project provided the land and infrastructure and lease to the market demand within the Port of Rotterdam area. Through the concession contract, global shipping lines and new terminal operators operate their business in the Maasvlakte 2 and will get the advantage of the existing services at the established port that provided by Port of Rotterdam Authority (World Bank, 2007). The existing services include transshipment, inland transport and transport feeder, also other port services and inland terminal infrastructure facilities.

Additionally, Port of Rotterdam Authority collaborates with some private parties and organization, besides the developed infrastructure of the port. The current port activities include the accessibility and the facilities are important factor for the business environment, safe operation and sustainable growth of the port. The port target is becoming the best players in specific growth markets. The specific sectors are: Container Port, Fuels Hub and Energy Port. To reach the aim, port authority wants to promote the partnerships with leading companies in this sector. This translates to the following objectives (Port of Rotterdam Authority, 2012):

- Further price differentiation (commercial policy)
- Deepening the customer relationship (the relationship with the customer)
- Growing faster in the growth areas than the market (Container Port, Fuels Hub, and Energy Port).

The main role of the Port of Rotterdam Authority as a public parties are in the handling of ships and her cargo, traffic separation scheme and in the development and management of the port area.

For the short term business plan in the 2011-2015, the port of Rotterdam responsible to increase transport efficiency, for instance through more efficient logistical processes with

inland container shipping and the expansion of the 'open access' pipeline network. By collaborating with all customers involved and other stakeholders, the port Authority wants to improve the Maasvlakte intermodal container product and encourage the improvement of the modal split. The project concentrates on bundling container flows for barge, feeder and rail, and on the exchange of containers on the Maasvlakte. To do this project the port of Rotterdam and terminal operator signed contract in term of BOT (Built Operate Transfer).

4.2.2 Private involvement in Port Operation

In term of port operation, ships services and cargo handling activity require a big investment. It is important in port business for private parties to join in port development to provide the port with the technological equipment. In 1980s, ECT built the Delta Terminal in Maasvlakte 1, it was important for the development of Rotterdam as a container port. The terminal will help the port of Rotterdam with the issue of capacity. The role of terminal operator in port competition is very important, because these private parties will increase port of Rotterdam productivity in port competition.

In port competition, Port of Rotterdam needs the market, because the market trend is towards capital concentration, specialization and vertical integration(World Bank, 2007). The provision of port services is moving significantly from the public to the private sector in order to reduce public funding in port operation, increase efficiency and on port labor costs. In 2012, additional private parties involve in port development.

Rotterdam World Gateway (RWG) and APMT (container stevedores) started their investment by building the container terminal on Maasvlakte 2. This new container terminal is dedicated for the Triple-E container ships, with the capacity around 16.000 containers. This is the biggest ships and also need the suitable container terminal for cargo handling. The big investment has to put in this terminal operation, both RWG and APMT provided sustainable lift AGVs (automated guided vehicles) to handle containers on their terminals. These unmanned vehicles are fully electric, with no CO2 emissions and reduced noise(Port of Rotterdam Authority, 2012).

Finally, in the development of Maasvlakte 2, public private partnership is carried out in the form of the so-called 'Combination Model'. The Combination Model incorporates both the objectives of the Government and the business community and comprises a number of

phases. Initially a public program of project specifications will be drawn up, this program is discussed with social organizations, private parties and then with the Dutch Lower House (Van Ham and Koppenjan, 2001). Business community constructing firm (Ballast Nedam), a container handling company (ECT) and a financial institution (ING Bank) launched the Binnenmeer concept (Ballast Nedam, ING Bank, ECT 1998).

Combination Model is only worth setting up while using consultation approach in partnerships. In short, (Koppenjan, 2005) point out that the PPP approach in Maasvlakte 2 project: In the process, private consultation followed by public project preparation, and then private contribution to content limited to the idea of a phased realization; no trade off between infrastructure and exploitation realized, finally, public preparation possibly resulting in DBFM and BOT construction in later project phases.

In DBFM, the contractor is not only fully responsible for designing and building the project, but also handles the administration and all maintenance. It is an integrated contract model. In traditional contracts, the government buys a product. Also same as BOT, A type of arrangement in which the private sector builds an infrastructure project, operates it and eventually transfers ownership of the project to the government

4.3 Planning and Development in port of Rotterdam

The Port of Rotterdam's Annual Report (Port of Rotterdam Authority, 2012) describes the development of the harbor from the 14th century until now. Extracts are set out below:

In Europe, Rotterdam is one of the main ports and the largest logistic center which acts as a hub port for industrial activity. With the total throughput of 450 million tons of cargo a year, Rotterdam awarded itself as the largest seaport of Europe. The port is the gateway of a European market with more than 350 million consumers. Rotterdam has the advantages of its geographical position by an excellent accessibility via the sea, the hinterland connections and the many companies and also organizations located in the port industrial complex.

The port stretches along over 40 kilometers and is about 12.500 ha (including Maasvlakte 2). With the landlord port type, the Port of Rotterdam Authority acts as a manager, an operator and the developer of Rotterdam's port and industrial area. The Port Authority is a

public limited company (N.V.) with two shareholders, the Municipality of Rotterdam and the Dutch State. Shares in the Port of Rotterdam Authority are held by: the Municipality of Rotterdam (approx. 70%) and the Dutch state (approx. 30%) and which employs approximately 1,100 staff.

A long history began in the 14th-century. From a small town, the city of Rotterdam has expanded to become a major harbor city and the busiest port in Europe. In the 19th century, the access to connect Rotterdam and the North Sea were poor. The development started with building a new water way or a large canal to create navigable water for the ships and also to improve the connection to the North Sea. In the first half of the 20th century the port activities moved from the centre westward towards the North Sea.

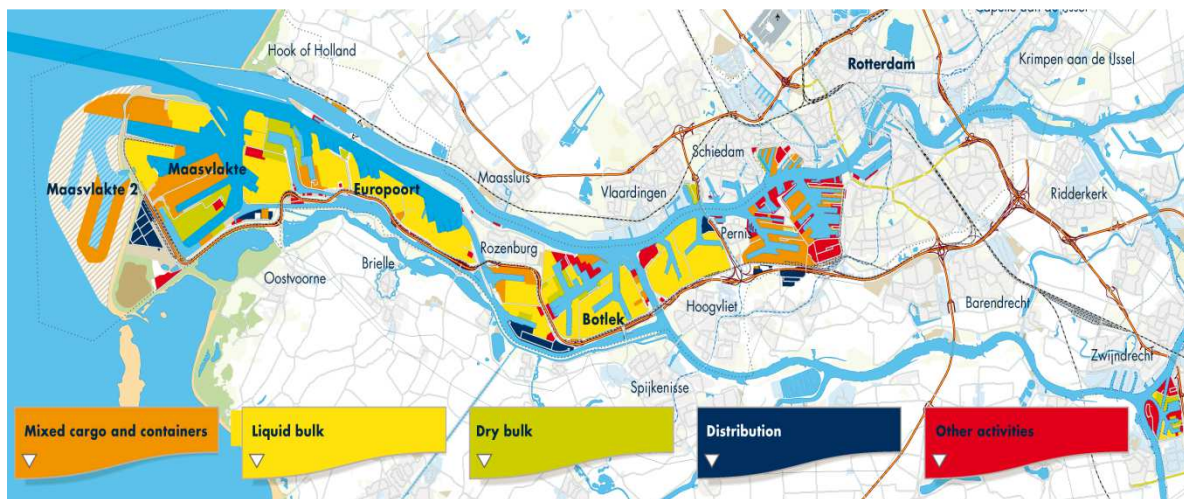
In 1955, the Rotterdam Municipal Port Management had plans to build the Europort (Eurogate) in response to the Hamburg branches of BP, Shell, Mobil and Esso plans to build refineries in the Ruhr. This development plan was to accommodate the demand of liquid cargo handling area. In the end of August 1960 the Europort was opened and on December 1960 the first oil tanker owned by Shell was alongside in this port. Also in 1960, the pipeline facilities to transfer cargo from Rotterdam to Rhine were operated. This is the first pipeline with a capacity 20 million tons that supply the cargo to the hinterland. Storage tanks facilities for oil were also built in 1970 and followed by the extension of the port by completion of the Maasvlakte1 which was located in the North Sea.

The Maasvlakte 1 needed 3000 ha for expansion and was built by the Directorate-General for Public Works and Water Management and Rotterdam Municipality. This project was used for the first time by Europees Massagoed Overslagbedrijf (EMO). On July 1970 the energy company GEB (now E.ON) was joined and followed and opened the Maasvlakte 1 Oil Terminal in 1972. The Maasvlakte 1 area dedicated for companies in the petro/chemical industry and for dry bulk transshipment point. The area also got equipped with the reception facilities for contaminated dredged material from the maintenance activity.

The Port of Rotterdam has succeeded in developing the container sector through the cooperation between several private parties. Originally, the container terminal is used for common terminal user; it is meant that the terminal can be used by every shipping line with the

same priority. Currently, Europe Container Terminal (ECT) as a large container terminal operator has been acquired by Hutchison Port Holdings (HPH), which has been decided by the European Commission to sell 33 percent of ECT ownership in the Maersk Delta Terminal. Also, P&O Nedlloyd joined the development program by started the construction of its Euromax Terminal at Maasvlakte 1 and first operation is in 2008. Thus, through the concession contract, the Port of Rotterdam currently operates both a mix of dedicated and common user terminals. There are four container terminals operating on Maasvlakte 1 now, with a total capacity of 7.3 million TEU (Twenty feet Equivalent Unit).

Figure 9. Port of Rotterdam Development Plan



Source: (www.portofrotterdam.com)

4.3.1 Port of Rotterdam development Plan in 2012

In its 2012 Annual Report, the Port Authority noted:

The port of Rotterdam development program is investing in three activities: infrastructure, increase capacity and renovation. In 2012, the investment volume up to € 626 million, big portion of the investment allocated for the construction of Maasvlakte 2, which is still continuing until 2015. The port development program involved other parties to support the financial scheme and resources in the three activities above. The government, the port of Rotterdam Authority and the business sector are also cooperated together for boosting the project's goal. 2012 was also the year in which the port of Rotterdam declared the Port Vision 2030 project. Strong commitment between The central government, the province of

South Holland, the municipality of Rotterdam, Deltalings and the port of Rotterdam Authority to succeed of Port Vision 2030.

The construction of Maasvlakte 2 will be carried out in two phases. The first phase, the project started in 2008 until 2015. In this phase the project focus on several construction; land reclamation of 680 hectares for cargo handling area, the construction of the outer bounds, the dredging the access of port basins, the extension of three kilometers of quay wall and the important main port services, and also provided the public infrastructure to access the area. The second phase will be started in 2015 until 2030. In this phase the project concerns for continuing the sand work for land reclamation around 300 hectares. Also maintaining the depth of port basins, construction of the remaining quay walls, and completes the other port facilities.

The project involved private parties to share the resources and risks. PUMA is the construction consortium that handles a large part of the construction, based on the 'Seawall and first plots' contract. The Maasvlakte 2 allocated the budget for the PUMA construction consortium approximately € 1.1 billion. In addition, two of global terminal operators both APMT and RWG also commenced construction of their terminals through the concession agreement. Port of Rotterdam Authority is still continuing to invest in handling capacity, included the sites in which the location that will lease out to customers. Real estate and infrastructure, such as quays, jetties and roads also need to develop for port development.

The private parties that involved in port development program invest in their core of business related to capital resources, such as offices, warehouses, storage facilities and cranes. In the context of accessibility for ships and to provide navigable water, the port of Rotterdam Authority is responsible to maintain the waterways at the appropriate depth. The development of traffic management, traffic control centers and information provision also the strategy to increase accessibility and these is tasks of the port of Rotterdam Authority. Various companies and organizations are collaborating for the development of the port. These partnering are necessary requirements for the port development, port operation and port efficiency in order to reach Port Vision on 2030.

4.3.2 Port of Rotterdam Business Plan in 2011-2015

The port of Rotterdam Authority is also promoting the public-public cooperation by inviting all of the surrounding municipalities to involve in the port development relating the implementation of the Port Vision 2030. The purpose of this program is to make agreements with other municipalities about the implementation of projects and cooperation between municipalities. In private involvement, through the Public Private Partnership, port development is facilitated by Deltalinqs organization. Deltalinqs represents the common interests of all logistical and industrial companies in the Rotterdam port and industrial area. The organization is considered to be the focal point and spokesman for more than 700 registered companies and associations. Via its unique network of contacts, Deltalinqs is the consultation partner at the regional level, with the government and with the EU (www.deltalinqs.nl). With Deltalinqs, the port of Rotterdam Authority is also looking for a way to increase the involvement of organizations sector in the implementation.

Port development begin with the slogan “World class in action”, reflecting the business plan of the port of Rotterdam Authority. In the short term planning port of Rotterdam focus on reaching of the company’s objectives up to 2015. With the vision, strategy and activities, the Business Plan 2011-2015 is continue to develop port of Rotterdam and integrated with industrial complex to achieve the port efficiency, sustainability and safety. To realize the world class in action port, port of Rotterdam was formulated a number of objectives for the following subjects (www.portofrotterdam.com):

- Sustainable use of space (Space and accessibility, Maasvlakte 2 and Existing Rotterdam Area), sustainable transport (Inland shipping, Rail, Road) and a sustainable own organization (Operations).
- Safety in the port.
- Efficient use of space, efficient handling of shipping traffic and better utilization of modalities to the hinterland (Inland shipping, Rail, Road and Pipelines).

The Port of Rotterdam is continuing their investment as a strategy to increase the capacity. It is important for the port to manage the congestion and to increase the throughput of the

cargo. In a result of port investments during period of time the throughput in 2012 increased by 1.6% compared to 2011. With the total of 442 million tons of cargo, port of Rotterdam has served the export and import cargo in Europe.

Table 4. Incoming and outgoing throughput Port of Rotterdam

	(Gross weight x 1,000 metric tonnes)				
	2012	2011	2010	2009	2008
Agribulk	8,050	9,870	8,383	8,334	10,420
Iron and scrap	32,742	37,449	39,884	23,298	44,001
Coal	25,282	25,108	24,080	24,833	28,553
Other dry bulk goods	12,029	13,299	12,293	10,163	11,961
Total dry bulk	78,103	87,326	84,640	66,628	94,935
Crude oil	98,324	92,807	100,235	96,418	100,406
Mineral oil	81,814	73,448	77,590	72,190	58,576
LNG	560	569	0	0	0
Other liquid bulk	33,515	31,700	31,563	29,182	35,021
Total liquid bulk	214,213	198,525	209,378	198,090	194,003
TOTAL BULK	292,316	285,851	294,019	264,718	288,938
Containers	125,428	123,556	112,298	100,280	106,999
Roll on/roll off	17,919	17,450	15,968	16,005	17,506
Other general cargo	5,865	7,693	6,875	5,954	7,293
Breakbulk	23,784	25,143	23,843	21,959	25,199
TOTAL GENERAL CARGO	149,211	148,699	136,140	122,239	132,198
TOTAL INCOMING- AND OUTGOING	441,527	434,550	430,159	386,957	421,136

Source: (Port of Rotterdam Authority, 2012)

4.4 Inland transport connection and services.

Investing in accessibility, Port of Rotterdam promotes the sustainable and cleaner transportation mode by shifting to inland shipping, rail and pipeline. This project is cooperation between Port of Rotterdam Authority, government, local residents, customer and other stakeholders. With the 'modal shift' program, Port vision is set up to reach the target of container transport by road from and to Maasvlakte below the 46.5% in 2012. In result of increasing the cargo flow, the target was over limit because of the mid-year result was 46.9%(Port of Rotterdam Authority, 2012). The high percentage of containers being transported by road have to reduce by attract the private parties to cooperate improving the rail and inland shipping. The port of Rotterdam is investing the development of intermodal transport concept to achieve the modal shift target. In collaboration with relevant authorities and various market parties, the project will implement the transparency and equality among others.

4.4.1 Roads

In 2009, port of Rotterdam developed a new western cross river connection. This project is to solve the port congestion and to anticipate the increase of port traffic(World Bank, 2007). This construction is carrying out to create the smooth traffic along the Rotterdam area in short term. With the cooperation between national government, province and urban region, a new cross river connection put on a strategic master plan for an accessible Rotterdam region. The Minister of Transport, Public Works and Water Management are fully support the construction of a new western cross-river connection. The Port authority involved in this project from the planning phase onward and working with other partner in order to speed up the project construction. During the first half of 2010, the public agency and private parties decided two possible routes that have an important role to increase accessibility with the surrounding area. In the planning phase the decision has been point out for one of the alternative route (Blankenburg route or Oranje route)

Port of Rotterdam worked actively with various (regional) parties and authorities to improve the accessibility of the port by road through the public-public cooperation scheme. In 2012, there are two goals for increasing accessibility(Port of Rotterdam Authority, 2012): A maximum journey time of 40 minutes must be achieved in rush hour and the maximum journey time on the subsidiary road network of the A15 motorway not double the journey time outside rush hour.

Together with the Betuwe Route, which runs parallel on several stretches, the A15 is a main transport corridor from the Port of Rotterdam to the east. The subsidiary road network will become increasingly important in the coming years as an alternative for the A15 motorway. The alternative motorway in the new West Riverbank Connection (to the west of the Benelux Tunnel)is the important routes connection to spread up the traffic and provide good flow of cargoes now and in the future. The importance of an extra connection is supported by surrounding municipalities and relevance stakeholders such as Deltalinqs, LTO-glaskracht, organisation for Transport and Logistics in the Netherlands (TLN), logistics promoter EVO and the Chamber of Commerce(Port of Rotterdam Authority, 2012).

Figure 10. New west riverbank connection



Source: (www.portofrotterdam.com)

In July 2008, Government established one organization who responsible to maintain the traffic, namely Traffic Management Company (Verkeersonderneming). This management is a public cooperation that consists of the municipality and urban region of Rotterdam, the Ministry of Infrastructure and Environment, and Directorate-General for Public Works and Water Management South Holland. The goal of this management is to promote the “smart accessibility” in Rotterdam by create the smart use of infrastructure, smart travelling and smart working. Additionally, The Traffic Management Company also has a role in handling of incident on the road.

The traffic management focuses on the program of the Ministry of Infrastructure and Environment with the slogan ‘Better Use’. The Traffic Management Company is implementing this program for the Rotterdam region. Some cooperation has been implemented to support this program. Port of Rotterdam Authority (2012)state that twenty companies that are transport containers on the A15 motorway joined forces to reduce the rush hour squeeze on the A15. They also point out there arefourteen companies signed an agreement with the Traffic Management Company to contribute to better accessibility in the region.

4.4.2 Inland Rail

Rail transport connection is one of the important intermodal transports in Port of Rotterdam. Related to the port mission to reduce the road transport, a separate rail network company is involved to provide this railway(UNCTAD, 1985). The company was promoted to connect the inner port line to the main rail link in the hinterland. Government is responsible to develop rail link in the hinterland to connect mode and node in intermodal transport. In case need for additional investment to develop inter-modal/multimodal hinterland connections, the port of Rotterdam can develop necessary hinterland connections by itself or by other agencies.

To promote rail cargo transfer in port of Rotterdam, the authority improves accessibility by cooperation in rail infrastructure. The target is 65% of container will be carried out from Maasvlakte 1 and 2 to the hinterland in 2035. Ministry of Infrastructure and the Environment and Keyrail want to improve the market participation in rail investment. The Port of Rotterdam Authority share is 35%, ProRail 50% and the Port of Amsterdam Authority 15%(Port of Rotterdam Authority, 2012). As a rail operator, Keyrail is managing the Betuwe Route that connects the dedicated railway track commodities from Maasvlakte to Zevenaar, German.

With 160 kilometers in length, Betuwe Route is became main rail link for Port of Rotterdam. This line is increasingly used for container transfer from Maasvlakte to the German border. The freight increased 4% compared to2011, around 22,500 trains used this Betuwe Route. According to the plan of German government to build a third railway track that connected to the main line, it will be increased the Betuwe Route capacity in the future. The impact is all the freight transport from Rotterdam to the hinterland potentially reduces down. To handle with this rail capacity, the other passenger train line will mix use for the freight transport from port to the destination. Of course this is only solution for short term (the mixed used line).

For long term solution to face the issue of capacity, initiated by Port of Rotterdam, the establishment of Quality Rail Rotterdam (QRR) in a public private partnership. These bodies responsible to optimize the services of rail transport in the port of Rotterdam. Quality Rail Rotterdam (QRR) composed of Port of Rotterdam Authority, RSC-Rotterdam,Dutch

association of rail operators, ECT and rail line Benelux. The other port organization that involves the public and private parties is Rotterdam Port Promotion Council. The role of this organization is to organize the investment and business trip of the customer related to port development.

4.4.3 Inland Shipping.

Inland shipping has a highest container flows in Port of Rotterdam. In 2012, 53% of container carried out from Maasvlakte 1 and 2 to the hinterland by inland shipping. Port of Rotterdam Authority declared the inland shipping program along with the rail program. To reach an optimum network for inland shipping, the strategy of authority is improving the inland waterway corridors and the hinterland. The business strategy is used to improving the inland shipping, by acquiring sites of their inland terminal and leasing that terminal to terminal operators. Also support by construction of a Container Transferium in Alblasterdam (Existing Rotterdam Area). The inland shipping has an important role for reducing road transfer, the existing transshipment terminal in Alphen and den Rijn transported 76,000 TEU via inland shipping in 2012, saving around 40,000 truck movements from and to Rotterdam(Port of Rotterdam Authority, 2012).

For optimization, all parties in container shipping create an integral Plan for Optimization of the inland shipping. In 2012, Nextlogic was established with the members are seaport terminals, barge operators, depots, inland terminals and shipping companies and the Ministry of Infrastructure and Environment. Nextlogic was established in order to create joint approach between all actors in inland shipping and to reduce operational inefficiencies. For the government agencies such as the Port of Rotterdam, Ministry of Infrastructure and Environment and Rijkswaterstaat, Nextlogic create an important contribution to the national logistics ambitions; durable goods , smooth and safe transport , accessibility and utilization growth potential of the port and a better utilization of the guard post (Nextlogic, 2013).

CHAPTER 5
PARTNERSHIP IN PORT OPERATION CONCERNING INTERMODAL TRANSPORT
IN THE PORT OF BELAWAN

Port of Belawan has different situation on port operation concerning on intermodal transport with Port of Rotterdam. Although National shipping Law noNational Shipping Law 17/2008 (2008) has promote the port reform era by removes monopolistic system on port operation, several issues regarding economic, bureaucracy and securityemerge in port business activity. This condition will make barrier to implement partnership in port operation especially in Port ofBelawan. To explain the port operation condition in Port of Belawan, this chapter will describe the policy and regulatory framework, public and private role in partnership, planning and development in Port of Belawan, and inland transport connections and services.

5.1 Policy and regulatory framework

5.1.1 Shipping Law 21/1992 and the Indonesian port corporations (Monopolistic era)

Indonesia port sector has experienced in two eras that called monopolistic era and port reform era. Based onNational Shipping Law 21/1992 (1992), port regulator and port operator was dominated by PT Pelindo/IPC. PT Pelindo is one of the state owned companies that responsible for port business in Indonesia. Framework of port administration shape to monopolistic era that delegated four port corporations (PT Pelindo 1, PT Pelindo 2, PT Pelindo 3, PT Pelindo 4) to manage the commercial port Indonesia. The commercial ports administered by each of the four Pelindo are shown in the table 4 below:

Table 5. IndonesiaPort corporations

Port corporation	Coverage (Provinces)	Ports administered
Pelindo I	Aceh, North Sumatera, Riau	Belawan, Pekanbaru, Dumai, Tanjung Pinang, Lhokseumawe
Pelindo II	West Sumatera, Jambi, South Sumatera, Bengkulu, Lampung, Jakarta	Tanjung Priok, Panjang, Palembang, Teluk Bayur, Pontianak, Cirebon, Jambi, Bengkulu, Banten, Pangkal Balam, Tanjung Pandan.
Pelindo III	Central Kalimantan, South Kalimantan, West Nusa Tenggara, East Nusa Tenggara	Tanjung Perak, Tanjung Emas, Banjarmasin, Benoa, Tenau/Kupang
Pelindo IV	Sulawesi (S, SE, Central and North), Maluku, Irian Jaya.	Makassar, Balikpapan, Samarinda, Bitung, Ambon, Sorong, Biak, Jayapura

Source: OECD (2012)

PT Pelabuhan Indonesia (Pelindo) is state owned company. According to Shipping Law 21/1992, PT Pelindo was given right to govern, regulate, maintain and operate all of commercial ports in Indonesia. Company numbers correspond to regional coverage of ports; they are numbered 1 through 4 from west (Sumatra Island) to east (Papua Island). Pelindo 1 is responsible for ports in Aceh, North Sumatra, Riau and Riau Islands. Pelindo 2 is responsible for ports in West Sumatra, Jambi, South Sumatra, Bengkulu, Lampung, Bangka Belitung, Banten, Jakarta, West Java and West Kalimantan. Pelindo 3 is responsible for ports in Central Java, East Java, Bali, South Kalimantan, Central Kalimantan, West Nusa Tenggara and East Nusa Tenggara and the rest are under Pelindo 4.

Each PT Pelindo was given authority of all commercial ports within their geographical region. Fundamentally, the corporations were established as limited-liability, profit oriented companies. However, the central government maintained and control of port tariffs, which were set at a national level, ensuring cross-subsidization both between ports controlled by each IPC and between the IPCs themselves(OECD, 2012). Maritime transportation has recently significantly increased. International and domestic cargo proceed to the port related to export and import activity.

Port management carried out below the international standard of maritime transportation. AswicaHyono and Friawan (2007)stated that Almost all non-commercial as well as commercial ports suffered loss recently although the commercial public ports, in particular, are defined by their ability to generate their own revenue. In their view to cover the operational and maintenance cost, the government implements cross subsidy schemes

among the commercial ports. PT Pelindo is required to provide public services and produce income for the government. The organizations are given freedom to maintain the financial scheme in order to operate the port activity and meet the public services. In case of difficulty the financial support among the corporation, the PT Pelindo is needed to subsidize each other. Eventually, this environment creates lack of competition between ports and affects the port performance. In addition, the monopoly power has contributed the slow improvement.

The decision related to the tariff determination, PT Pelindo adjusting the tariff with evaluation from the Ministry of State-Owned Enterprises, Ministry of Transportation and Ministry of Finance, and approval from the Parliament. The flat rate tariffs apply in all PT Pelindo branch, especially for ports within the same PT Pelindo coverage area. However, the single tariffs that offered from PT Pelindo might not reflect efficiency because the port business lack of competition and the cross-subsidy system arranged by the government failed to encourage PT Pelindo services. According to Aswicahyono and Friawan (2007) these matter, such as, cross subsidy, port monopoly /lack of competition, and a single mechanism of tariff setting, have resulted in inefficiency in the Indonesia ports, disadvantage the port users, and created high operational cost.

5.1.2 Restructuring of the port sector: the Shipping Law 17/2008 (Port reform era)

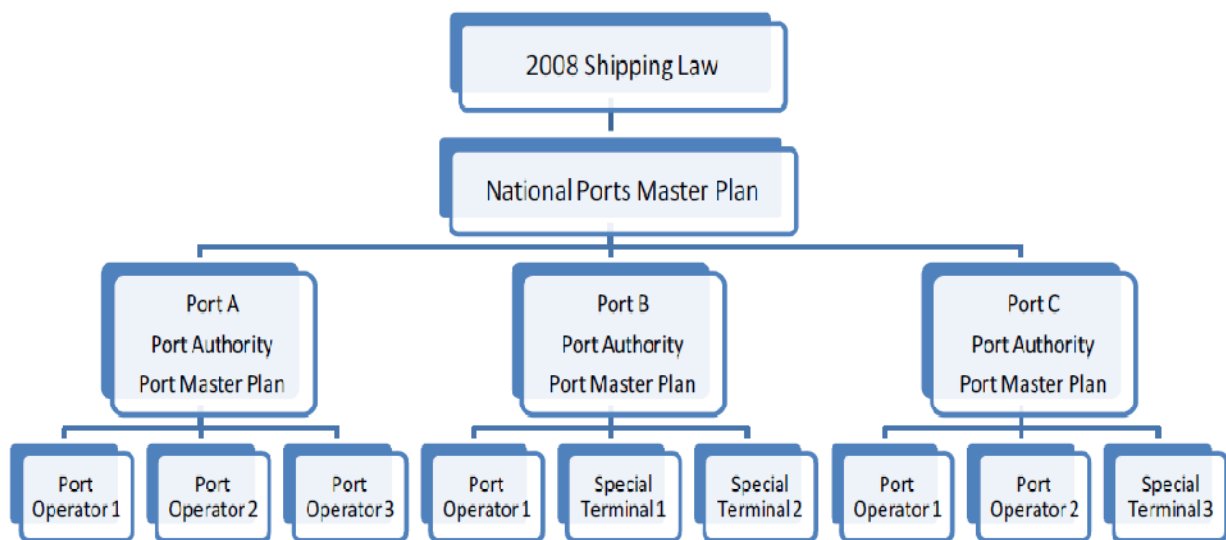
Implementation process of Indonesia port reform, involved two important regulations. These regulations use to support the restructuring the port sector. The regulations are:

- National Shipping Law 17/2008. The law separates the functions of port operator and regulator. (UU Pelayaran No 17 Tahun 2008)
- Government Regulation on Port Affairs 61/ 2009. The regulation about port administration arrangements and the nature of the relationships between the various actors. (PP Kepelabuhanan No 61 tahun 2009)

In the port reform era, there is fundamental change for the role of the port governance. National Shipping Law no 17/2008 point out that separation of port operator function and port regulator function. In manage the port administration, National Shipping Law 17/2008 forming the new port authorities. Port authorities will carry out function of regulation,

control, and monitoring activities of commercial port that previously performed by PT Pelindo. Under National Shipping Law 17/2008, domination of PT Pelindo in port business is removed. The regulation opens opportunity for other operators, private parties to involve in port sector. In the new regulation, PT Pelindo has same level in term of competition with other port operator to provide port services. Indonesia port governance arrangement is shown in figure 11:

Figure 11. Indonesian port arrangement according to National Shipping Law 17/2008



Source: OECD (2012)

In the port reform implementation, national government has an important role to play. This role showed in a national ports policy that required the parliament approval. Ministry of transportation is responsible to prepare and implement of this policy and involve the port community to arrange the port development policy. According to National Shipping Law 17/2008, the development of a National Port Master Plan (NPMP) at the long term is 20 years. In long term planning horizon, the plan and a draft port reform under control of Directorate General of Sea Transportation within Ministry of Transportation. This agency also responsible to make the plan and a draft decree for the implementation of the plan (OECD, 2012).

Port authority established based on National Shipping Law No 17/2008 and Government Regulation of Port Affairs 61/2009. Port of Belawan Authority is an implementing units

under the Ministry of Transportation and responsible to the Director General of Sea Transportation. The main function is as a regulator, control bodies and supervisor of port activities at the port of cultivated commercially. There are four Port Authority and the Harbor Master in each main ports in Indonesia; Jakarta, Surabaya, Medan and Makassar, Regulation of the Minister of Transportation. With the establishment of the port authority, the position of the government as a regulator and PT Pelindo I-IV as a port operator is clearly defined. In new regulation, contract of agreement with the private parties executed by Port Authority, formerly handled by the PT Pelindo 1.

In Government Regulation on Port Affairs 61/ 2009, the regulator actor and port operator are described in a clear function in port activity. Port enterprises and concession term that involved in port business showed in each section of regulation. Port authority is a new form of organization in port reform, concession system also explains in Port Affairs 61/2009 (2009). Several Chapter and article related to fundamental change in port structure as follows:

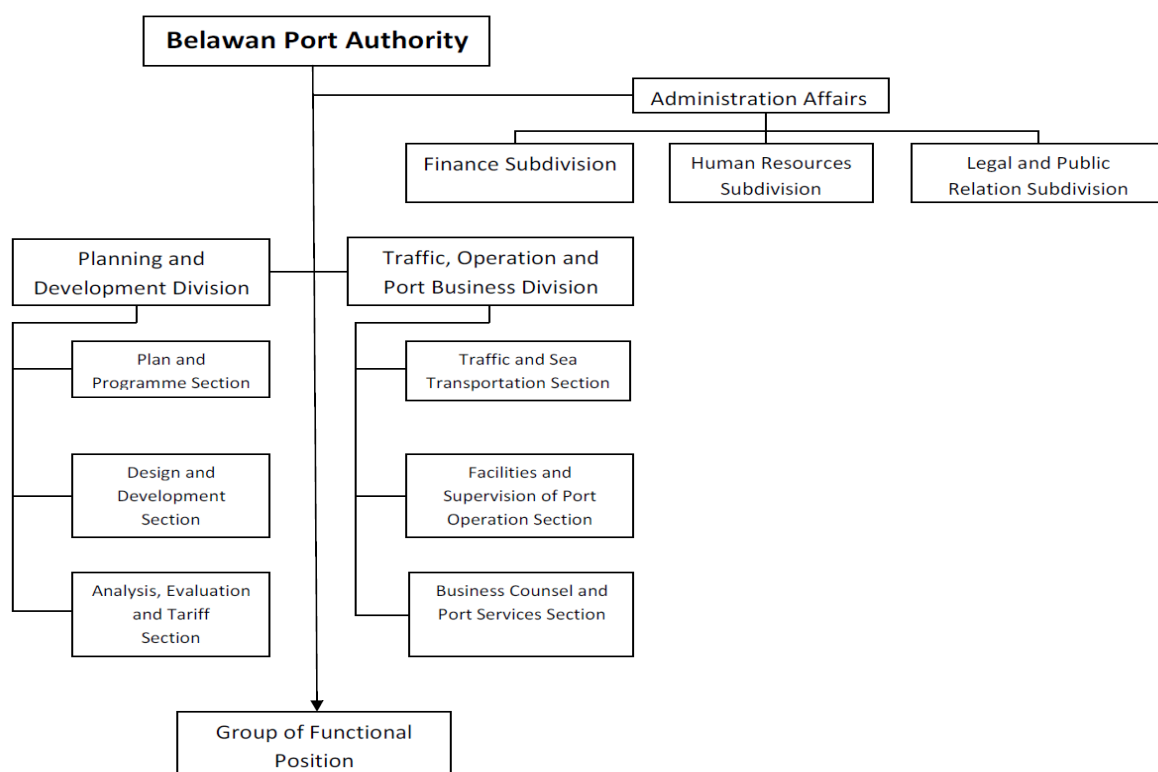
- Chapter 1, General Provisions, Article 1, Paragraph 10:
Port Authority is a government agency in the port authorities who carry out regulatory functions, control, and supervision of port activities are cultivated commercially.
- Chapter 1, General Provisions, Article 1, Paragraph 30:
Concessions are granted by the port authority to port enterprises to perform activities in the provision and/or services of port activity within a certain period and certain compensation.

Cooperation utilization through concession as referred to in paragraph 30 shall be issued within a period of 30 (thirty) years from the utilization of cooperation agreement was signed.

- Chapter 4, Port Operation, Article 38, Paragraph 3:
Port Authority and Port Operator Units may be in charge of one or multiple ports.
Port Authority role and responsibilities to:
 - b. Provide and maintain the break water, port basin, Canal, and road networks.

Under certain conditions the maintenance of break water, port basin, canal, and road network as described in letter “b” can be provided by the Port operator or terminal manager for its own interests as outlined in the concession agreement.

Figure 12. Port of Belawan Authority Organizational Structure.



Source: Minister of Transportation Decree No PM 35/2012 (2012)

5.2 Public and Private Role in Partnership

Port reform era is characterized by movement toward the private involvement management of public services throughout the port operation. This trend is especially marked in the commercial port or the main ports, where previously the port management under the control of the government or other public parties. The most implemented port type is public landlord port (World Bank, 2007). This port type promotes to transfer a terminal into the hands of a private operator. Through the delegation of design, construction, and operating

functions to the private sector, the partnership established between the port authority and port operators.

5.2.1 Public involvement of port project

The main point of National Shipping Law 17/2008 is integrated port planning. Port development is following the National Port Master Plan (NPMP) with a 20 year planning horizon. Directorate General of Sea Transportation is one of division in Ministry of Transportation that responsible to lead the other port community to arrange the port investment and port operation. Public administration also prepared the Plan and a Draft Decree for the implementation and also as a consultation bodies for stakeholder that involved in development process.

According to the National Shipping law, Indonesia's major ports remain with the central government responsibility (through the port authority structure) as well as Port of Belawan. Based on decentralization system, the Shipping Law also clearly explains that a local government has a role in the development of the port system, particularly collector and feeder ports(OECD, 2012). Under this regulation, port authorities and port management units as a central government representative in the port, within the Ministry of Transport. Theconsequence is port maintenance independently using the government budget, for example dredging the canal.

On the Article 38 of Government Regulation onPort Affairs 61/2009 (2009) mention that:
Port authority role and responsibilities are:

- a. Providing the land in port area and in water port territorial area.
- b. Providing and maintaining break water, port basin, canal and road network.
- c. Providing and maintaining navigational shipping aid
- d. Ensuring security and safety in the port
- e. Ensuring and maintaining environmental sustainability in ports
- f. Providing port master plan and determining dedicated port working area and port interest area.
- g. Determining port tariff by approval from minister for land and water area using, port facilities and port services.
- h. ensuring the smooth flow of goods

Under the national port authority and decentralization, the interests of ports development to provide hinterland connections rely on road and rail links become the central and local government domain. Both the Belawan port authority and the local government create the agreements to promote the intermodal infrastructure. The public bodies in charge of infrastructure for hinterland access rely on the shipping Law that implicitly state that the public sector to participate in port development and infrastructure investments. In addition, Belawan port authority responsible to accommodate traffic flows and maintains the cost effectiveness.

5.2.2 Private involvement in Port Operation

The main approach of National Shipping Law 17/2008 is encouraging Private Sector Participation and Competition. As a port service companies, a private sector operator offer services in ports by carry out port activities that previously resided in a public sector monopoly. PT Pelindo1 as a port operator is still trying to secure their strategic position by offering complementary terminal facilities located either in the foreland or hinterland. This practice is the main port activity in connection with containerized cargoes. The port operators engages in operating other facilities such as inland terminals, rail facilities, container truck or even entire port complexes abroad that normally the role of private port operator

Rail transport sector reforms begins when the Government of Indonesia has implemented the Regulation on Train and Railway No 23/2007 (2007) and supporting regulations 56/2009 and 72/2009. According to Dikun in (OECD, 2012) the new era for Indonesia railway showed in three basic rules:

- a. Eliminating the PT KAI [state-owned enterprise] monopoly and opening the opportunity for the private and the local government in the railway business.
- b. Allowing the separation of the formerly integrated operations and infrastructure and
- c. Assigning the Government as the advisor and the supervisor that responsible in the railway operations

A mechanism for private investment in rail infrastructure has arranged in two system of investment in the rail transport in Indonesia in this case North of Sumatera: Public-private partnerships and special purpose railways.

The term of special purpose railway is used to define that the railways will be used only by a single user. Promoting the development of railways in order to serve a specific commodity, and to serve a single producer that has a potential and importance benefit in Indonesia, as many of the profitable investment opportunities for rail system development are in serving the mining industry particularly coal in Sumatera and Kalimantan (Van der Ven, 2010).

The Public Private Partnership is intended to serve many users that cannot be developed in terms of 'Special Purpose Railway' system. The project proponents offer the proposal of the project at the national or sub-national level according to The PPP guidelines. By using the public tender process, the government chooses the private parties that has right to construct. In this scheme, the original proponent is on the same level with private parties and there is no guarantee of success. The railway facilities can be used by multiple above rail operators (HWTSK, 2011).

5.3 Planning and Development in Port of Belawan

Port of Belawan is operated by PT Pelindo 1, one of state owned company that is specialized in port operation. Government of Indonesia is 100% shareholders of the port ownership. Port of Belawan divided into two areas based on their activity: Multipurpose terminal and Belawan International Container Terminal (BICT). According to port type, Port of Belawan is belong to service port type (Trujillo and Nombela, 1999). However, port ownership and management model still carried out by public agencies. Port authority of Belawan is managed by Ministry of transportation under division of directorate general of sea transportation and port operator managed by PT Pelindo 1 (state owned company).

According to Commercial and Business Development Director of PT Pelindo1, Bambang Eka Cahyana (www.lnport1.co.id, 2012), Port of Belawan is planning for extending up to 700 meters of berthing area for container terminal in order to add port capacity. PT Pelindo as a port operator has signed an agreement with PT Hutama Karya (Persero) and PT Wijaya Karya (Persero) in terms of design and built contract agreement. The current container terminal has a length of about 950 meters, with the extension of the terminal, the total length of the container terminal will be 1,650 meters in 2014.

Public Relation PT Pelindo 1 Eriansyah stated that trend of container growth is triggered by the strategic geographic allocation of the Port of Belawan container terminal that located nearby

Malacca Strait, which is the busiest strait in the world. To handle the container flow, Belawan container terminal has 11 units of Container Crane(CC), 26 units Rubber Gantry Crane(RTG), 2 units of Mobile Harbor Crane(HMC), 10 units of Reach Stacker, Side loader 3 units, 55 units and 56 Headtruck Chassis units(PT Pelindo 1, 2012). In line with the extension of the container terminal berthing area, the improvement of cargo handling activity is crucial to support the increase of port productivity. The development target is increasing the container handling capacity from 1.3 million TEUs in 2011 to 2 million TEUs per year in 2014.

Figure 13. Port of Belawan development program



Source: www.Inaport1.co.id (2012)

5.3.1 Port of Belawan development Plan in 2012

Multipurpose terminal port developments begin with the slogan "Stabilization Year". Port of Belawanis focus on development of port infrastructure and port management to reach the target of productivity. The development program is implemented in order to re-regulate and re-manage the port of Belawan as the main port. This program is start with the construction of multipurpose terminal and arranges the port activity through relocation of passenger terminal, expanding some warehouses which are the priority agenda in 2012.

Belawan International Container Terminal (BICT) focusing the development in order to handle the Increasing demand in container traffic flows. As the one of four main port in Indonesia and the biggest port in Sumatera island, PT Pelindo 1 as an operators maintain the increasing trend of container traffic by provide the quantity of cargo handling equipment. The investment more focus on adding up container handling units such as 10 (ten) units Rubber Tired Gantry Crane (RTG) and 3 (three) Units Container Crane (CC).

5.3.2 Port of Belawan development Plan in 2013

Continuing the 2012 development progress, Port of Belawan more focus on establishing several new business units, according to its development plan in 2013. Through the subsidiary scheme, the plan is building up several subsidiary companies with different core of business but still relevant to port business. The subsidiary companies will support the main role of port, such as in logistic sector, Belawan Logistic Center (BLC), dockyard for ships maintenance known as UGK and from the health sector also has Port Hospital known as RSPM. On the liquid cargo investment, Port of Belawan manage the liquid cargo flow by added the pipelines to connect the terminal storage tank and shore tank.

Operational performance Port of Belawan included; ships call (gross tonnage), international cargo handling (ton), domestic cargo handling (ton), Container handling (teus) has increased and decreased as compared within period 2008 until 2012. Based on annual report PT Pelindo 1 in 2012, the cargo traffic flow from 2008 – 2012 in port of Belawan can be seen in table below.

Table 6. Ships Call (In Gross Tonnage)



Source: www.lnaport1.co.id (2012)

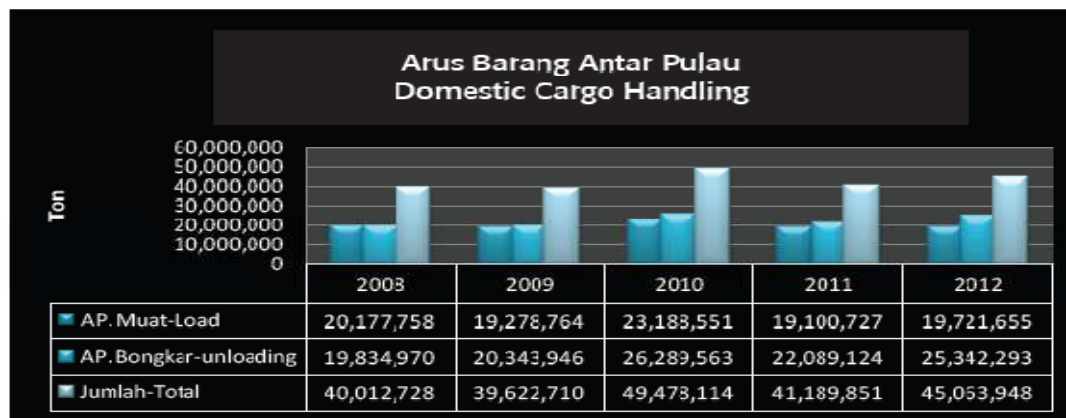
The ships call traffic tends to decline, so it has also decreased the revenue of ship services. For call unit, the ships call traffic has decreased in average of 4.92% per year in last five years 2008- 2011, but it has re-increased in 2012. Besides, it has been fluctuated but it has re-increased in 2012. Besides, it has been fluctuated since 2008-2012 for GT unit(PT Pelindo 1, 2012).

Table 7. International Cargo Handling



Source: www.lnaport1.co.id (2012)

Table 8. Domestic Cargo Handling



Source: www.lnaport1.co.id (2012)

Port of Belawan also increases totally in term of the volume of cargo handling (domestic & international), it is in line with the increasing of cargo trend until 2012, which the highest value of 80,643,411 ton in 2012 and 67,217 ton as the lowest value in 2009(PT Pelindo 1, 2012).

Table 9. Container Handling (Teus)



Source: www.lnaport1.co.id (2012)

In table 10 showed the container handling has been a decline in 2009, the flow of international container in TEUs and box's has increased over the last five years continuously. Then, it has increased drastically in 2010, 2011 and 2012. The flow of conventional container has declined over the last two years 2011 and 2012 in accordance with the decline of containers handling activity at the Port of Belawan(PT Pelindo 1, 2012).

5.4 Inland transport connection and services.

PT Pelabuhan Indonesia I (Persero) took many initiatives to strengthen the relationship between the hinterland and the port. This is done through cooperation with other state owned companies to build infrastructure such as railroads, and working with local governments to develop a concept of port development program that align the hinterland development plan. In addition to encouraging hinterland products competitiveness, the port development will also promote great opportunities to accelerate the entry of international trade and attract potential investors to invest and do business in the hinterland areas.

5.4.1 Roads

In port of Belawan, container and general cargo transport using truck as the main mode for distribution. The distribution of cargo by road became the main option in the spread of goods to the Hinterlands. Through the freight forwarders, shipper, carrier and consignee the cargo transfer has create cooperation in cargo delivery.

A road-based transport is the dominated mode for container transport in Belawan port. The road infrastructure has complete network to connect the port and hinterland by container truck. Largely container flow come from the north Sumatera hinterland and loaded into the ship in Belawan International Container Terminal (BICT), vice versa. According to logistics and forwarder Association of Indonesia (ALFI) North Sumatera, there are about 7000 container truck operating in Belawan port (News Analisa, 2014).

The container truck operator incorporated in Organda of north Sumatera. Organda (organisasiangkutandarat) is a land transportation organization. There are 25 special port transport operator under control by Organda of North Sumatera. PT Pelindo I as a port operator also has trucking business as the sideline business. They provide container truck to support the cargo flows in port of Belawan for maintaining the congestion.

Organda of north Sumatera and PT Pelindo I have an agreement to collaborate in Special Transport service for port of Belawan to improve Service Level Agreement (SLA). Improved SLA will be assisted by PT Pelindo I as a leading in port operator. The agreement involves the public and private parties to support and guaranty the private container truck operator to get the loan from the bank. By three partied partnership, PT Pelindo I, Organda of north Sumatera and Bank of Indonesia, the financial support for truck operation, maintenance and rejuvenation is easy to apply (www.inaport1.co.id, 2012).

To improve the private container truck productivity, PT Pelindo 1 fosters the special transport entrepreneurs in Belawan port. The vehicles operating procedure in port of Belawan set up by PT Pelindo 1 and private container truck operator to define the capacity of each operator according to the number of fleet they have. The constraints of container truck development is because lack of capital credit facility from banks and restrictions on foreign ownership of up to 49 percent of multimodal activity (Presidential decree no 77/2007, 2007).

5.4.2 Inland Rail

North Sumatera port rail infrastructure is largely a legacy of the colonial period. Railway has very important role for CPO transportation from port to the hinterland, vice versa. The North Sumatera rail system operated by PT Kereta Api (PT.KAI) government owned

company. PT Kereta Api Indonesia (KAI) Divisi I Sumut-NAD the main actor in CPO transport in port of Belawan. The CPO distribution operation area only within North Sumatera region, so it means the coverage area for railways transportation is limited area and only for specific cargo.

PT (Persero) KA Division I North Sumatra-Aceh report that the total cargo carried by railway in 2005 is 703 243 Tons. In 2006, the cargo increased to 752 755 tons and also in 1997 the total is 972 469 tons of cargo. As a report from 2005 - 2007, the trend showed that the total cargo roommates significantly increased used the railways every year.

PT Kereta Api Indonesia (Persero) has made the cooperation with private sector in providing liquid freight services. This cooperation made between State-owned company (PT KAI), port authority and private parties such as: PT Musim Mas, PT Smart, PT PHG (Permata Hijau Group), and PT Asian Agri Culture. Public-Private Cooperation between the government-owned companies also made to transport crude palm oil from plantations owned by the government such as: PT Perkebunan Nusantara (PTPN) III, PTPN IV. This type of liquid cargo loaded directly from the farm / factory and shipped to the port of Belawan and loaded to the ships for export and domestic distribution.

Especially for latex, cargo loaded from Garden Bunut PT Bakrie Plantation and discharge in Port of Belawan. The railway system serves the hinterland such as Rantauprapat, Tebingtinggi and discharging in port of Belawan. After arrived in the port, cargo is distributed to each company storage tank (PTPN III, PTPN IV, Bakri Sumatra Plantation) that located in port of Belawan.

CHAPTER 6

COMPARATIVE ANALYSIS

In this chapter, I provide a comparative analysis between the two ports: Port of Rotterdam and Port of Belawan. There are some items that are compared, discussed and reviewed: Policy and Regulatory Framework; Public and Private Role in Partnership; Planning and Development of the ports; and Inland transport connection and services.

6.1 Policy and Regulatory framework

In both ports, policy and regulatory framework are closely related to private sector participation. In the process of port reform, these two ports have dominant role of public investment in port development. Tax money becomes the main source to build infrastructure in the port. However, they should take regulatory reform to be addressed on an action to facilitate the partnership between public and private parties. In the Port of Rotterdam, the establishment of the Port working group became the first action of European port policy in 1974. This working group consists of representative of port Authority and was led by the Commission. Meanwhile, in Port of Belawan, there is fundamental change for the role of the port governance. The National Shipping Law 2008 point out that separation of port operator function and port regulator function must be clearly implemented. In manage the port administration, National Shipping Law 17/2008 forming the new port authorities that dedicated this position to Directorate general of sea transportation under the Ministry of Transportation.

The process of regulation change was implemented gradually. Port of Belawan started the implementation of National Shipping Law 17/2008 with the separation function of port authority and port operators. Port authorities will carry out function of regulation, control, and monitoring activities of commercial port that previously performed by PT Pelindo. And also, the regulation opens opportunity for other operators or private parties to involve in port sector. While in Port of Rotterdam, the commission appreciated the increase of a private participation in port activities, especially in cargo handling. The Commission accepted, under article 295 of the EC Treaty, the community must remain neutral with

regard to the private and public status of port operators. The regulation guaranty that public and private port should compete under equal condition as regards port services of a commercial nature. The similarity is both regulation open chance for private parties to involve in port operations. The differences is Port of Rotterdam supported by EU level of regulation that will equal implemented for all port that located in the Union’s coasts. Whereas Port of Belawan rely on National Shipping Law that implemented in national level.

The Port of Rotterdam development related to the port subsidization policy in Europe. Most of European governments subsidized their port development. The framework of regulating subsidization of infrastructure is important in port sector, the European Commission argued that basic port infrastructure investment, such as coastal works, port accesses, and operational infrastructure are not appropriate to support by state subsidy. For the operational infrastructure, the subsidy needs the European commission approval. In the Port of Belawan, the port development related to government Regulation on Port Affairs 61/ 2009, the port regulator and port operator described in a clear function in port activity. According to Chapter 4, Port Operation, Article 38 paragraph 3: Port Authority and Port Operator Units may be incharge of one or multiple ports. Port Authority role and responsibilities to: b. Provide and maintain the break water, port basin, Canal, and road networks.

In preparation and implementation of port policy, Port of Belawan follows the National Shipping Law No 17/2008. Government has a fundamental role in port development through National Port Master Plan (NPMP) at the long term, it is about 20 years. Ministry of Transportation is responsible to make the plan and a draft decree for the implementation of the plan. Differently, Port of Rotterdam Authority, Deltalinqs, the Municipality of Rotterdam, the province of SouthHolland and the State prepare and implement the Port Vision 2030(Port of Rotterdam Authority, 2012). All of these bodies agree the vision and ambitions from the plan and they signed the Port vision implementation Agreement as a commitment to the Port Vision 2030.

Table 10. The summary of differences and similarities of Policy and Regulatory framework

Description	Port of Rotterdam	Port of Belawan
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Legal framework	-Private sector participation	-Private sector participation
Policy and Regulation level	-European Union level	-National level
Port Authority role and responsibilities	-Provide and maintain Coastal works, port accesses, and operational infrastructure	-Provide and maintain the break water, port basin, Canal, and road networks
Port Ownership	-The Municipality of Rotterdam (approx. 70%) and the Dutch state (approx. 30%)	-Government of Indonesia is 100% shareholders of the port ownership.
The legal status of the private involvement	-DIRECTIVE 2014/23/EU on the award of concession contracts	-National Shipping Law No 17/2008
Master plan of development	-Port Vision 2030 (start in 2012)	-National Port Master Plan (NPMP) at the long term is 20 years

6.2 Public and Private Role in Partnership

In the port investment, public and private parties share the risk and benefit based on contract agreement. Public-private partnerships are used in ports to manage port operations, traditionally an exclusively government function. In the Netherlands, development of port accessibility and protection works is done for the account of the government with the port authorities obliged to pay one third of the relevant costs. Port of Rotterdam Authority acts as a regulator and concession grantor. The main role of the Port of Rotterdam Authority as a public parties are managing ships activity, cargo handling activity, traffic separation scheme and management of the port area. Similarly, Port of Belawan investment based on decentralization system, the Shipping Law also clearly explains that local governments have a role in the development of the port system, particularly collector and feeder ports. Development of accessibility from port to the hinterlands is independently using the government budget.

Private role in term of port operation, in Port of Rotterdam, port operators provided ships services and cargo handling activity. This development is requiring the expensive investment, because the private parties will provide the port with the technological equipment. Global port operator also build the terminal container for their cargo, but this terminal also can use for all cargo in the Port of Rotterdam. In case of Port of Rotterdam, there are several port operators that build container terminal within the port area through concession scheme. The concession agreement can be renewed when it finished and using combination model (Koppenjan, 2005). Differently, in Port of Belawan, the port operators is a state owned company (public) and use in operating port facilities such as inland terminals, rail facilities, container truck. The port operator also dominated entire port complexes abroad that according to the landlord port type it is the role of private port operator (Trujillo and Nombela, 1999). PT Pelindo 1 as a port operator is still keeping their position as in monopolistic era. The port operators still trying to secure their strategic position by offering complementary terminal facilities located either in the foreland or hinterland.

Table 11. The summary of differences and similarities of Public and Private Role in Partnership.

Description	Port of Rotterdam	Port of Belawan
Port accessibility and protection works	-Government -Port Authority (obliged to pay one third of the relevant costs)	-Central Government
Public role in port operation	-Port Authority (as a regulator and concession grantor)	-Port Authority (as a regulator and concession grantor)
Private role in port operation	-Port Operator/Private (building the container terminal)	-Port Operator/Public (State Owned Company)
Type of PPP Contract the most used in project	-Combination Model (Public and Private)	-Public Public cooperation (Government and State Owned company)

6.3 Planning and Development of the Ports

Port of Rotterdam and Port of Belawan did not begin the development plan of the port at the same time, but both at least have the same reason to develop their port. The key motivating factor is to deal with the port congestion in maintaining the port operation concerning in intermodal transport. The lack of government budgets result in slow development plan of the Ports. In Port of Belawan, the inability of government to attract the investment from private parties contributed to the unproductive of the port to handle the cargoes, whereas if the private parties involve in the port operation investment, it might help increase the port productivity through port development. In addition, development plan in Port of Rotterdam is part of port reform after the European commission promotes the cooperation between countries within Europe in 1974 (Van Hooydonk, 2002). Meanwhile, in Port of Belawan, it is also a part of regulatory reform on public involvement after the port congestion result in increase the turnaround time of the ships.

In the process of development, both ports have different ownerships status. In case of Port of Rotterdam, the port is operated by the Port of Rotterdam Authority, originally a municipal body of the municipality of Rotterdam. From a small town, the city of Rotterdam, the development started with building a new water way or a large canal to create navigable water for the ships and also to improve the connection to the North Sea. Different from Port of Belawan, government of Indonesia is 100% shareholders of the port ownership (PT Pelindo 1, 2012). Port authority of Belawan is managed by Ministry of transportation under division of directorate general of sea transportation and port operation managed by PT Pelindo 1 (state owned company). The development started with building the berthing area for the ships. This difference was caused by the plan and condition in the development process. The development process in Port of Rotterdam started with open the accessibility to and from the port area, while Port of Belawan started with increase the port capacity.

In the Port of Rotterdam, Municipality started the second plan with provided the area for liquid cargo handling as a response to oil company that want to build refineries in port areas. In 1955, the Rotterdam Municipal Port Management (RMPPM) had plans to build the Europoort ('Eurogate'). In this period, the plan also incorporated the necessary infrastructure, including a stretch of pipeline and the lateral canal (Hartel Canal). In addition, the first contours of the Maasvlakte were already visible in the plan. The municipal council

discussed the Europoort plan, but in 1965, before the Europoort was complete, the Directorate-General for Public Works and Water Management, in consultation with Rotterdam, began work on building the dams for the Maasvlakte. This would mean an expansion of three thousand hectares.

Differently, in the second steps of development plan Port of Belawan, government began to plan the construction of the container terminal in Gabion in 1980s. The development was funded by the World Bank. As a result, Belawan container terminal began operations on February 10, 1985. In this period government has prepared the development plan for infrastructure the container terminal and general cargo terminal. The Plan aims to adjust port capacity and cargo growth by building the new terminal and ware house. In addition, in the early stage, government tended to accommodate the international and domestic trade in terminal *Ujung baru* Belawan. The accessibility issue is not important in the early stage, because from the geography aspect Port of Rotterdam has natural deep water. This condition is as a reason that the canals not require heavy maintenance.

However, the development of the ports gradually dealt with more about lack of financial support. Quite different from Port of Belawan, Port of Rotterdam development project was support by central state and municipality. There for the development in Port of Rotterdam is covered a number of hectares of land, whereas in case of Port of Belawan, development only extension of berthing area for 400-600 hundred meters. In addition, the condition of Port of Rotterdam has more space to increase port capacity, so the focus not only build the new area but also handle the existing space more efficiently. But they realized that increasing of cargo due to global trade will make space is scare in Port of Rotterdam area. Consequently, Port of Rotterdam promotes intensive use of space and redevelopment of existing port areas through investment.

In Port of Belawan, governments focus on development of port infrastructure and port management to reach the target of productivity. The development program is implemented in order to re-regulate and re-manage the Port of Belawan as the main port (PT Pelindo 1, 2012). These programs are start with the construction of multipurpose terminal and arrange the port activity through relocation of passenger terminal, and also expanding some warehouses. In addition, Port of Belawan more focuses on establishing several new business units, according to its development plan in 2013. Through the subsidiary scheme, the plan is

building up several subsidiary companies with different core of business but still relevant to port business, whereas the port of Rotterdam development program is investing in three activities: infrastructure, increase capacity and renovation (Port of Rotterdam Authority, 2012).

In the Port of Rotterdam, they are creating better and more sustainable accessibility it call 'modal shift'. In 2012, the aims is investing in the expansion of infrastructure and innovative and sustainable transport concepts, in collaboration with relevant authorities and various market parties, among others. The focus is in the area of modal shift and accessibility on intermodal transport that consist of; Inland shipping, Rail, Road and Pipelines. Different from Port of Belawan, the investment in accessibility is not taking into account for this time. The investment is more focus on develop new terminal and cargo handling equipment.

Table 12. The summary of differences and similarities of Planning and Development of the ports

Description	Port of Rotterdam	Port of Belawan
Key of motivating factor	-To deal with port congestion	-To increase cargo handling
Type of ports	-Landlord port	-Service port
Development priority	-Open the accessibility	-Increase the capacity
Financial support	-Central state and municipality	-Central government
Governmental level of planning	-Regional level	-National level
The role of stakeholders	-All stakeholders have contribution to port planning and development	-Government has the full authority on port planning and development
Stakeholders	-Government (all level) -Industrial actors -Shipping company -Intermodal operators	-Central government -State owned company
Main focus of development in	-Modal shift and accessibility	-Develop new terminal and

2012	on intermodal transport	cargo handling equipment
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6.4 Inland transport connection and services.

In intermodal sector, the regulation is important to contribute to more efficient, interconnected and sustainable transport. In case Port of Rotterdam, they already addressed through the TEN-T policy (trans-European transport network) to develop hinterland connections. TEN-T are a planned set of road, rail, air and water transport networks in Europe. In general, TEN-T projects are mostly funded by national governments. Besides that, this projects also support by other funding sources include: European Community funds (ERDF, Cohesion Funds, TEN-T budget), loans from international financial institutions (European Investment Bank) and private funding. While, in Port of Belawan, Port Authority has an important role to strengthen the connection between the hinterland and the port. This project carry out through cooperation with other state owned companies to build networks such as roads, railroads, and together with local governments to develop a concept of port development program that align the hinterland development plan.

In the road-based inland transport connection and services, Port of Rotterdam is cooperated with some (regional) parties and authorities to improve the cargo flows of the port by road through the public-public cooperation scheme. A 15 motorway is a main transport corridor from the Port of Rotterdam to the east. To spread up the traffic, the alternative way is a solution to maintain traffic congestion. The alternative roads provided by surrounding municipalities and relevance stakeholders such as Deltalinqs, LTO-glaskracht, organisation for Transport and Logistics in the Netherlands (TLN), logistics promoter EVO and the Chamber of Commerce. In case of Port of Belawan, *Belmer* motorway is the main corridor from/to Port area. Until now, there is no plan to build the alternative motorway to maintain the traffic, because the congestion is not in the motorway access, but in the gate of the port. The development is focus on an agreement to collaborate in special transport service for Port of Belawan to improve Service Level Agreement (SLA). By three-partied partnership between PT Pelindo 1, Organda of North Sumatera and Bank of Indonesia, it will improve

the private container truck productivity and automatically support the cargo flows in Port of Belawan for reducing the congestion.

Figure 14. A15 Motorway



Figure 15. Tol Belmera



Source: Port of Rotterdam Authority (2012)

Source: Jasa Marga (2012)

Rail transport connection one of the important modes related to reducing of road-based transport. In Port of Rotterdam, government is responsible to connect mode and node in intermodal transport by building main rail link for access to the hinterland. Furthermore, the company will provide the inner rail line to connect with main rail link in the hinterland. While in the Port of Belawan, infrastructure is largely a legacy of the colonial period. The North Sumatera rail system operated by PT KeretaApi (PT KAI) government owned company. The rail line is independent rail without connection with other transport mode. Currently, railway is only use for CPO (Crude palm oil) transportation from port to the hinterland. Government is cooperated with private sector in providing liquid freight services, this cooperation made between Stated owned company (PT KAI), Port authority and private parties. So the railway development in Port of Belawan is more focus on create a partnership between port actors, whereas Port of Rotterdam is emphasis on development of rail link infrastructure.

In case of inland shipping, Port of Rotterdam promotes the increasing of distribution container from port to the hinterlands by inland shipping. Geographically, Port of Rotterdam has good accessibility through this mode. Differently, Port of Belawan has different geographical conditions, so inland shipping is not suitable for cargo transfer to the hinterlands in this port.

Figure16. *Betuwe Route* railway (160 kilometers in length from the Maasvlakte to the German border).



Source: Port of Rotterdam Authority (2012)

Table 13. The summary of differences and similarities of Inland transport connection and services.

Description	Port of Rotterdam	Port of Belawan
Intermodal policy	-TEN-T policy (trans-European transport network)	-No specific policy for intermodal transport
Transport connection funding	-Mostly funded by national governments -Other funding s: European Community funds (ERDF, Cohesion Funds, TEN-T budget), loans from international financial institutions (e.g. European Investment Bank), and private funding	-Central government -State Owned Company -Local government
Intermodal transport	-Roads, Railway, and Inland Shipping	-Roads, Railway (Only for liquid cargo)

Roads investment	-Public Public Cooperation	-Public Public Cooperation
Railway investment	-Government (all level)	-Central government -State Owned Company
Inland Shipping	-Nextlogic (joint approach between all actors in inland shipping) consist of: -Ministry of Infrastructure and Environment -Seaport terminals -Barge operators -Depots -Inland terminals -Shipping companies	-Not applicable

6.5 Lesson learned and possibilities of policy transfer

Fundamentally, there are some differences and similarities of Partnership on Port operation between Port of Rotterdam and Port of Belawan, especially related to four aspect of analysis that compared in this research: Planning and Development of ports, Policy and regulatory framework, Inland transport connection and services and Public and Private Role in Partnership.

Although Port of Belawan and Port of Rotterdam have different characteristic concerning the port system, port operation and port development, some positive of the Port of Rotterdam type of partnership and experience in operating intermodal transport can be learned and adopted in Port of Belawan to increase the private involvement and to encourage private investment in port business. The positive aspects that can be learned from the Port of Rotterdam experiences are:

1. Encouraging Partnership by maintaining the investment climate.

The main aspect that distinguishes the port operation system between Port of Rotterdam and Port of Belawan is private involvement in port development. Creating the good investment climate in port investment can attract the private parties to invest in port infrastructure development and port accessibility development. In the Port of Rotterdam, under the EU Ports Regulations and the EU Concessions Regulation (EU) Directive 2014/23/EU (2014) a law has guaranteed for the private sector to involve in port development and infrastructure investments. This rule clearly ensures the transparency of port funding and the private access of port services. This legal framework also will protect port operators against legal uncertainties and unfair competition and help attract investors. The transparency of the financial relationship between the government, ports authority and port operators is a requirement for an appropriate allocation of public money and for an effective and fair application of the government aid rules in ports.

Not only from the legal status, has the involvement of private parties in cargo handling been fully implemented in Port of Rotterdam. On the contrary, the involvement of private parties regarding port operation in Port of Belawan is not implemented in practice. The port operation merely dominated by PT Pelindo (State owned company) instead of private parties. In fact, a law has guaranteed the private sector involvement in port services, but the monopoly in port operation still happen in Port of Belawan. According to the National shipping Law No 18/2008 the function of the port regulator and port operator should be separated. The problem is the power balance between two of public agencies. The Port Authority as a regulator will lack of power when it has to face with the port operator that incidentally also public agencies. Additionally, according to World Bank (2007) there are several things that have worsened the investment climate in port business: Property registration, protection for investors, tax payment, and fulfillment of the contract and closing of a business. Consequently, it could decrease the trust of private parties relating to the equality, transparency and fair competition in port business. This experience suggests that legal framework, fully implementation of the rule and transparency are very important for encouraging private parties involvement in port operation. Therefore, Port of Belawan can take this experience from Port of Rotterdam.

2. Foreign ownership in Port facilities.

Another lesson from private involvement in the Port of Rotterdam is related to foreign ownership of port facilities. Port of Belawan can adopt the Port of Rotterdam experience in case of foreign ownership of port facilities that no limitation of the ownership if private parties want to invest in port development. This ownership issue could guarantee the private parties will get the profit in port business within agreed contract agreement and it can minimize the public funding in port development. In case of Port of Belawan, Indonesia still protects sovereignty in ports by restrict the investment. According to Presidential decree no 77/2007 (2007) port facilities can be built by foreign investment with a maximum foreign ownership of 49 percent. Moreover, sometimes the government does not perform its portion of obligation. For example, the government sometimes fails to maintain the navigable water, dragging, break water and port basin. This issue of foreign ownership is important to ensure the public and private responsibility in port investment security, because the ownership issue is strongly related to the share risk and profit in partnership contract (Brinkerhoff, 2002).

3. Intermodal transport collaboration.

In the Port of Rotterdam, for example the Maasvlakte project, by collaborating with all customers involved and other stakeholders, the port Authority wants to improve the Maasvlakte intermodal container product and encourage the improvement of the modal split. The project concentrates on bundling container flows for barge, feeder and rail, and on the exchange of containers on the Maasvlakte. To do this project the port of Rotterdam and terminal operator signed contract in term of BOT (Built Operate Transfer). However, Port of Rotterdam Authority provides the intermodal hinterland connections in order to attract the private parties to build their terminal in the port area. They build the railway called *Betuweroort* that connected Port of Rotterdam with the European country. And also, they built the A15 roads line to connect the port with the hinterlands through road-based transport. Furthermore, Port Authority also uses their river to transfer cargo in term of Inland shipping. Almost 40% of containers that unloaded in the Port of Rotterdam carried out by inland shipping into the European market. But in case of Port of Belawan,

geographically, the inland shipping is not appropriate mode to apply. The connectivity availability is very important for attracting the private parties to invest in port development.

Figure 17. Maasvlakte 2 Project



Source: Port of Rotterdam Authority (2012)

4. Port Model and management

From historical circumstance, there is an inherent conflict of interest when governments hold functions of port operator and regulator in Port of Belawan. Even after the port reform era, the basic infrastructure and operating responsibilities is still domain of public parties. In fact, the Port of Rotterdam typically belongs to the landlord port model. Through this model, port governance has been developed to delegate to the private sector port management and operating responsibilities, while title in the land and assets remains with the government. The organization structure consists of a lighter two-tier board system. This means, among other things, that the General Meeting of Shareholders is authorize to assign and dismiss Executive Board members. Under a “landlord” approach, the public sector is more focus on port planning, regulatory functions, and ownership of port-related land and basic infrastructure. While the private sector responsible for marine and terminal operation, construction, acquisition, equipment and as owners of superstructure. This means, even the share held by the Municipality of Rotterdam (approx. 70%) and the Dutch state (approx. 30%), but Port of Rotterdam is managed by professional team (Port of Rotterdam Authority, 2012). The Port model is very important to show to private parties about the port management responsibility.

CHAPTER 7

CONCLUSIONS, RECOMENDATIONS AND REFLECTION

7.1 Conclusions

From previous analysis we have seen that partnership in port operation both in Port of Belawan and Port of Rotterdam are important to be implemented. From the research can be derived some reason. The first reason is that partnership can help the port development with financial support, due to the lack of public funding in port development project. Secondly, Port operation should be carry out by private parties. Since the separation between regulator and operators function, the transparency of port funding and the private access of port services have to maintain. The legal framework should be guaranteed and preserve the investment climate in order to protect port operators against legal uncertainties and unfair competition. The clear public and private role in port operation will help to attract investors. Another point is the Intermodal transport can reduce the port congestion. Through the cooperation between public and private parties, port will provide with alternative transfer mode. The cargo not only transfer using single mode of transport but also spread up using roads, railway and inland shipping. Thus, private parties can contribute to develop the intermodal transport in port business.

We have seen that encouraging partnership in port operation of course will constraint with some factor. Inconsistency, lack of transparency, legal uncertainties, political system uncertainties and, monopoly are some of restrain factors. This is become a challenge for Port of Belawan to create formal commitment to any private parties and tries to attract them to join in port development. Otherwise it will retain a monopoly for port activities and resulting in port inefficiency and performance in order to maintain port congestion.

We have seen that partnership play important role in the port development. Current congestion problem in ports and port operation force us to look at partnership concept in port operation concerning intermodal transport. From the research can be derived that partnership concept in which the private involvement in port operation, contribute to solving the port problems, such as congestion and infrastructure development. Very essential for this partnership concept is that requires highly transparency and fair condition

for private parties in port project. For this reason, the research can be derived that private involvement in port operation concerning intermodal transport, such as built the container terminal, cargo transfer using two or more transport mode and promoting intermodal transport, are important assets for this partnership concept.

This research focus on how the Port of Rotterdam and Port of Belawan implement their partnership in port operation and what is the type of Partnership already implemented. It explains the dimension of theoretical framework, case studies, and comparative analysis. The next point is resuming of the research question answer, as follows:

The First question, *what is PPP, and what role can it play in port operation regarding the development intermodal transport?* PPP is a concept to achieve the mission, as a tool to get mutual success and interest by involved one or more parties in more business and in various length of time. This concept moves away from the traditional concept that government done the procurement and funding in public services and also infrastructure. More efficient and effective approach has been introduced by partnership concept that public and private parties improve the delivery of public services. A Partnership in intermodal transport is similar with other field. It is a formation of global alliances has taken inter-carrier cooperation to new high, with member sharing inland logistic information, technique, and resources as well as negotiating collectively with suppliers such as terminal, rail operator, feeder, barge operators etc. In case of Port of Rotterdam, the project concentrates on bundling container flows for barge, feeder and rail, and on the exchange of containers on the Maasvlakte.

The second question is *what is an intermodal transport system and what role does it play in port operation in general?* Through this question, the system of cargo transfer within a port area and their contribution in port operation will be explained. Intermodal transportation refers to the transportation of people or freight from their origins to their destination by a sequence of at least two transportation modes. In intermodal flow system, freight can move out by a particular mode of transportation to customers consists of different origins and destinations service by transport operators who are responsible for the transport of any cargoes. This is referring to consolidation transportation carriers and fundamentally all intermodal transportation systems are organized as so-called hub-and-spoke networks.

Intermodal transport increases the cargo distribution in ports operation and resolves the port congestion.

The third question is *how does PPP play a role in the intermodal transport system linked to the port of Rotterdam?* Through this research question, opportunities will be explored to improve the partnership on intermodal transport that can be applied in Belawan port. They create the comprehensiveness and integration between modes of transport. The Port authority and Terminal operators together develop port accessibility and cargo handling equipment. For example, if the Port authority wants to increase cargo transfer from port to the hinterland using railway, they will ask to the terminal operator through the contract agreement to focus on railway in cargo handling.

The next question is *which aspects of PPP in intermodal transport systems are relevant to the case of Belawan port?* Through this research question, some aspects of PPP will be explored to manage the intermodal transport in Belawan port. The important aspect of PPP is sharing of risk in port project between public and private parties. In PPP framework, degree of PPP formalization, contract type and time horizon of contract are some dimension and variable that important in create a partnership. In case of Port of Belawan, it is need to adopt the partnership type from Port of Rotterdam especially in Maasvlakte 2 project. In Maasvlakte 2 project, the public private partnership is carried out in forms of combination model (Koppenjan, 2005). Combination model emphasis on negotiation approach to determine the contract agreement. In this model the degree of PPP formalization not doing by government legal/statutory framework. So, the private parties can calculate the risk and profit that strongly related to time horizon of contract and contract type.

The last question is *what lessons can be learned from the case of Rotterdam for the development of Belawan port?* Through this research question, Will be assessed some kind strategies of PPP to get lessons from port of Rotterdam. As the explanations in Chapter 5, there are four lessons learned can be learned from Port of Rotterdam: Encouraging Partnership by maintaining the investment climate; Composition foreign ownership in port facilities; Intermodal transport collaboration and Port Model and management.

7.2 Recommendations

Port congestion will make the port is difficult to maintain the cargo flow. It is need some recommendation for increasing the port efficiency and productivity through the partnership concept in port development.

The differences characteristic between two port is as a reason that sometimes good implementation in one port not always success in others ports. The Partnership implementation concerning intermodal transport in Port of Rotterdam will not completely suitable with the Port of Belawan condition, but there are lessons from the Port of Rotterdam that offer the solution and could be transferred in Port of Belawan.

We have seen that port type and management model between two ports is different. From the research can be derived that need to adopt the landlord port model for Port of Belawan by strongly separated regulator function and operators function. In regulation framework, we have seen that both ports promote the private involvement in port development. The government should release the monopoly practices and guarantee the equality, transparency and security in port investment. Through the central government intervention, the land and assets of the port must be owns by Port of Belawan Authority. We have seen that from historical experience, the land and assets still remain by Port operators (state owned company). From the research can be conclude that it is not typically of *landlord* port model.

Related to the specific characteristic of Port of Belawan it will be suitable if the intermodal transport is more focus on railway and road-based transport. The cooperation between central government, local government, port authority and port operators is very important to develop the intermodal transport in Port of Belawan. Without partnership and cooperation between public and private parties, the development of accessibility and intermodal transport are difficult to be realized. Government commitment in promoting fair competition, transparency and save investment climate must be implemented.

From the research can be derived that encouraging the partnership is the main recommendation in port operation. We have seen that through public private partnership and public public cooperation, the port authority is able to accelerate the port development and facing an increasing of the cargoes in the port.

7.3 Reflection

In term of partnership concept developed in chapter 2, Port of Belawan represents the public public cooperation in port operation. The container terminal and commercial port services is owned and operated by state owned company (PT Pelindo 1). There is no evidence of public private partnership developed in Port of Belawan even the legal frameworks already guarantee it. In the concept of partnership, developing cooperation between actors is important to expand organization ability, involved in market competition, financial support, explore more resources and give maximum support by stakeholders. Port of Rotterdam is promoting the private involvement in port development. Unlike Port of Rotterdam, Port of Belawan authority does not have land and assets in the port area for optimizing the port services to response the demand. In the ownership issue, it is difficult for Port of Belawan authority in defining a contract with private parties. Additionally, in term of partnership in port operation, port authority has a role of regulatory body dealing with the overall port stakeholders. As a regulator function, port authority is responsible to ensure equal status of the port clients, fair treatment and maximal utilization of the potentials of a port. Therefore the organizational mode of port play important role in port development. The landlord port model that applied in Port of Rotterdam has advantage in encouraging public private partnership. The main advantage of this model is that both parties (public and private) invest in key resources, both carrying time and a part of the risk.

This research contributes to improve port development with some recommendations for the Port of Belawan. Although government authorities cannot do much for port development, they can influence and ask private parties for supporting port operation concerning intermodal transport. Government can even create the institutional cooperation for supporting port authorities. From the research can be derived several steps for improve partnership in port operation. The first, Port authorities can provide the port infrastructure and port facilities for increasing cargo flows. They can improve the port performance in terms of reducing port charges, improving port service quality on cargo handling, warehousing and freight forwarding, risk, safety and skills. The second, government supporting the port accesibility by providing the network between port with the hinterland. The government are planning and helping to carry out port development schemes, providing financial support for infrastructure improvement and coordinating with the

various port stakeholders to improve port performance. The third, all port stakeholders identifying and quantifying the important factors for encouraging partnership to avoid waste of resources. One purpose of this research in case of Port of Rotterdam was to aid port authority of Belawan in the practical task of formulating their operations strategy for encouraging partnership in port development. This practical relevance is valuable because of port of Rotterdam is able to solve port congestion by improving port development with specific recommendation in partnership for port operation.

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