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[Field Research]

## Comparative Studies on Ports Management System in Northeast Countries\*

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### Abstract

**Purpose** – The purpose of paper is to review and look into the process of port development of each country, and compare with their system of port management.

**Research design, data and methodology** – The methods to be taken is to examine a process of port development in terms of historic and regulated point of views, and each country's port is compared with various port models.

**Results** – China has evolved of port governance into 3 stages, which has lead to almost liberalized port management system in process of privatization slogan. Japan has three stages of port development, and key commitments have been done by local government, rather than national one. Korea has also several stages of port reforms, and national government has been deeply involved in port industry, as well as regional government and port authority in certain areas.

**Conclusions** – whatever port management system each countries has taken, it eventually aims to port productivity in country's port. To adopt most proper port management system may be answer for country to cope with environmental changes around port industry.

**Keywords:** The Port, Port Management, China, Japan, Korea, Privatization.

**JEL Classifications:** L32, L33, L95, L98.

### 1. Introduction

Traditionally countries located at Northeast region have structured of economic system of exports-oriented patterns, which means it has produced more goods that is mainly trade vol-

umes to sell its overseas countries. China, Japan and Korea has nearly similar with its economic system since it has developed economies from developing plan.

In this case, it is strongly required to develop its national port, together with establishing port system, which is most appropriate structure to cope with trade volumes that are flowing in and out country.

In early stages of port management system, usually national government has controlled most part of port-related administration, in either development or operations. This matters in concern is related to ownership, management and operations all together.

There are four main port management models based upon the respective responsibility of the public and private sectors. They included first, the public service port, second, the tool port, third, the landlord port, and then the fully privatized port or private service port. Each of these models concerns ports that it has different characteristics relating to the ownership of infrastructure, equipment, terminal operation, and that who provides port services such as pilotage and towage (Kim, 2015). While service and tool ports mostly exist to promote public interests, landlord ports attempt to balance public and private interests. At the other end of the spectrum, private service ports are maximizing the interests of their shareholders.

In this paper, it has tried to compare port management system of Northeast three countries, China, Japan and Korea, in terms of port reform in each country. Therefore, it outlines first some general ideas of port management systems, then it try to review historical aspect of port development, regulation and each countries' port model evolved. It also comments key concept of port management of three countries. Finally it has tried to compare with port industry especially for ownership, administration and operation side which has evolved to more private and liberalized way of development

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## 2. Port Reforms in the World

The remarkable trend in world port institutions is a transformation from governance of public-owned and national-managed ports to a system of (partially) private-owned and decentralized or corporatized ports (Slack & Fremont, 2005). The private sector has participated in the development of port infrastructure through institutional mechanisms such as leasing and concessions. Some port authorities have also restructured themselves as corporatized entities (ADB, 2000; Everett, 2005). These new institutional models have aimed to accommodate ports in the new globalization era by capturing the higher ground of global port competition. Competition and collaborations between newly rising transnational port operators and shipping lines also play a crucial role in shaping these new models.

Since the late 1980s and early 1990s, many countries have gradually adopted port policy reforms. The momentum for these reforms was the rise of a new age of globalization and the resulting global competition in the port sector. Although the practices and processes are not uniform throughout the world, the reform policies have focused on the restructuring of port ownership and management models.

The objectives in relation to port reform can be involved in need to modernize to expand container handling capacity, the desire to stimulate the growth of a distribution-based economy on a regional hub port, or the necessity to reduce government expenditures on the sector so that limited public funds can be applied to other more pressing social needs. In any case, the private provision of port services and infrastructure is only one tool among others that are available to officials to solve specific problems and to achieve specific public interest objectives. Thus, the decision process should begin with the consideration of the objectives that port reform is designed to achieve.

## 3. Four Models of Port Administration

The purpose of management as well as operation of port in these days can be differentiated depending on each port. Two aspects of characteristics can be highlighted as follows. First, it is main tendency for local government to manage port operations, and second, it has shown that both port and city has got along with together and tried to make a development in either short terms or long terms.

Generally, port authorities have been transformed into two types of organisation : port administrations and port corporations. Port administrations play a key role in port planning and regulation ; port corporations are responsible for port operation. The port corporations inherited all operational staff, assets and infrastructure, as well as credits and debts, from the former port authorities (Qiu, 2008).

Although most of the physical methods used within ports (e.g. loading and unloading) are nearly same between ports, some different form of port ownership and administration could be applied here. Moreover, it is sometimes difficult to define the extent of either public or private sector interest in a port. This reality does make it necessary to make a distinction between the alternative approaches to port ownership and administration (Goss, 1986; Stehli, 1978).

Usually four categories of ports have been illustrated, and it has four models as follows : first, the public service port, second, the tool port, third, the landlord port, and then the fully privatized port or private service port. These models are classified by how they are different with respect for such nature as (PPIAF, 2015) :

- Public, private, or mixed provision of service.
- Local, regional, or global orientation.
- Ownership of infrastructure (including port land).
- Ownership of superstructure and equipment (particularly ship-to-shore handling equipment, sheds, and warehouses).
- Status of dock labor and management.

Service and tool ports mainly focus on the realization of public interests. Landlord ports have a mixed nature and seek for a balance between public (port authority) and private (port industry) interests. Fully privatized ports focus on private (shareholder) interests.

### 3.1. Service ports

Service ports have a predominantly public character. The figure of service ports is falling. A lot of previous service ports are in transition toward a landlord port structure, such as Dar es Salaam (Tanzania), Nhava Sheva (India) and Colombo (Sri Lanka). However some ports in developing countries are still managed according to the service model.

### 3.2. Tool ports

In the model of tool port, the port authority develops, owns, and maintains the port infrastructure, together with the superstructure, involving cargo handling equipment like quay cranes as well as forklift trucks. The Port of Chittagong (Bangladesh) is a typical example of the tool port.

### 3.3. Landlord ports

The landlord port is identified by its mixed public-private orientation. Under this model, the port authority functions as regulatory body and as landlord, while port operations (especially, cargo handling) are performed by private companies. Case of landlord ports are New York, Rotterdam, Antwerp, and then, Singapore since 1997. In these days, the landlord port is the primary port model in medium and larger-sized ports.

### 3.4. Fully privatized ports

Fully privatized ports (which is commonly the type of a private service port) are not many in number, and has been shown mostly in the United Kingdom (U.K.) and New Zealand. Full privatization is regarded as the greatest form of port reform. It implies the government no longer has any significant interest or public policy involvement in the port sector. In fully privatized ports, port land is privately owned, different from the position in other port management models. This needs the shift of ownership of such land from the public to the private sector.

The <Table 1> presents the most common options for transferring specific categories of rights to reposition specific class of essential port services from the public to the private sector. The different port models indicated in the table are as follows.

<Table 1> Public-private Roles in Port Management Models

| 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| A | pu | pu | pu | pu | pu | pu | pu | pu | pu | pu | pu | pu |
|   |    |    |    |    |    |    |    | pr | pr | pr | pr | pr |
| B | pu | pu | pu | pu | pu | pu | pr | pu | pu | pu | pu | pu |
|   |    |    |    |    |    |    |    | pr | pr | pr | pr | pr |
| C | pu | pu | pu | pu | pr | pr | pr | pu | pu | pu | pu | pu |
|   |    |    |    |    |    |    |    | pr | pr | pr | pr | pr |
| D | pr | pu | pr | pr | pr | pr | pr | pu | pr | pr | pu | pu |
|   |    |    |    |    |    |    |    | pr |    |    | pr | pr |

A. Public service port, B. Tool port, C. Landlord port, D. Private service port  
 1. Model, 2. Port administration, 3. Nautical Management, 4. Nautical Infrastructure, 5. Port Infrastructure, 6. Superstructure (equipment), 7. Superstructure (buildings), 8. Cargo handling activities, 9. Pilotage, 10. Towage, 11. Mooring service, 12. Dredging, 13. Other functions

Source : PPIAF (2015).

## 4. Port Governance in China

### 4.1. Port reform in China

The central idea or rationale underpinning port reform in China is the objective of freeing the port from the authority of government, and to boost the efficiency and competitiveness of the port industry, especially concerning with the supplying of additional capacity. China's port infrastructure generally remains insufficient for satisfying future trade demand; capacity and efficiency upgrades have historically lagged behind the expansion of trade. In consequence, the port sector in China has not reached the standards that might be expected elsewhere (UNESCAP, 2004).

The Chinese port industry has gone through several stages of reform, from a central-control system with inadequate investment and poor efficiency to a large-scale and highly competitive system with various types of public-private partnerships. Today, the Chinese port industry is characterized by rapid growth, large-scale foreign investment, and liberalization of port policy. Of the top 10 container ports in the world, six are in China. This accomplishment is largely because of port reforms; in recent years, corporatization and joint venture have become the hallmark of port development in China (Guan & Yahalom, 2011).

The following topical discussion addresses the main features of Chinese port reforms, past and present (Wang et al., 2004).

- (1) Preferential Port Development Policies. Since the late 1970s, the Chinese government has proposed several policy packages in favour of port reforms.
- (2) Foreign participation. First foreign participation in China's ports showed in the early 1990s when Hong Kong-based Hutchison Port Holdings (HPH) started operations under JV agreement in Shanghai and Zhuhai in 1993. Internal and external pressures justified openings to foreign participation.
- (3) Reforms in public enterprises management. A significant break exists in policy formulation between the 1980s and 1990s.
- (4) Decentralization of power. Before 1980, the port industry traditionally dropped under extremely centralized control. The Ministry of Communications (MOC) managed almost all activities in ports while, in local governments, port authorities and departments were merely subordinates.
- (5) Legal system. China's legal framework in maritime affairs dates back to 1949. However, due to problems mostly of political characteristics, the lawful structure of the maritime sector was not established until the early 1990s when the Maritime Code was adopted.

### 4.2. Three stages in Chinese ports

The followings are the development of port management in China into three stages : 1979-1984, 1984-2004, and 2004-present (McKinnon, 2011).

#### 4.2.1. Planned economy : 1979–1984

The first period, 1979-1984, is reviewed by central management of the port sector. The Ministry of Communications possessed the ports, managed planning and strategy, controlled operational activities, and decided infrastructure priorities. During this period the Ministry of Communications neither favoured nor suffered from under-performing ports. Further a lack of funding restricted the development of the ports.

#### 4.2.2. Towards decentralization : 1984-2004

From 1984-2004, China began to decentralize control of its ports. 1984 noticed the categorization of 14 coastal cities, containing Shanghai, as 'open cities'. Increased foreign investment resulted.

Along with the trend towards decentralization of port governance, policies on port investment and management also changed dramatically during this period. Investment would be sourced not only from China's central government, but also from local government, foreign investment and through commercial bank loans (Cullinane & Wang, 2007).

In the 1990s, China established a law that accelerated local municipal governments to function as both regulator and landlord of the ports in their jurisdiction. Port authorities were either caused or shifted to municipal governments, and they were given with financial autonomy in the operations and administration of ports (Cheon, 2007).

#### 4.2.3. Decentralization and corporatization : 2004-present

From 2004 onwards the ports sector experienced more decentralisation and entered an era of corporatisation. The Port Act of the People's Republic of China ('Port Law') was adopted in 2003 and then local authorities acquired main responsibility (under a 'dual leadership' platform). These days the central government is no longer entailed in port ownership, but it reserves a control and management role in strategic planning.

#### 4.3. China's port law

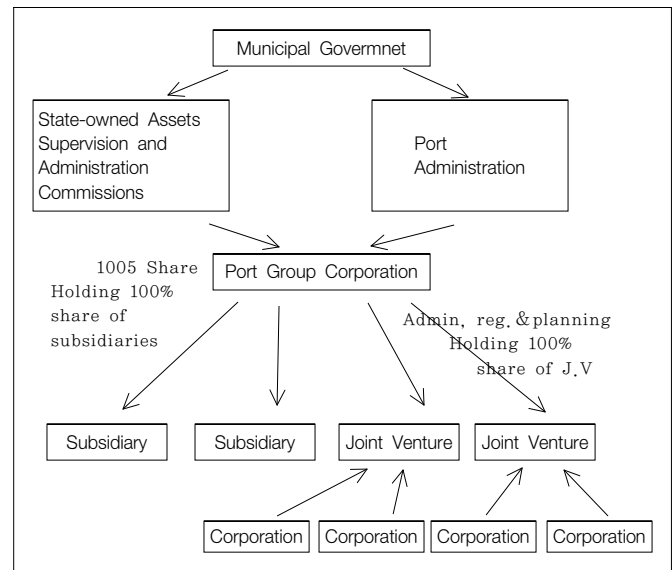
The Port Law of the People's Republic of China (hereinafter called "Port Law" for short), adopted at the 3rd Meeting of the Standing Committee of the Tenth National People's Congress on June 28, 2003, is promulgated, and it put into practice on Jan 1st in the year of 2004. The appearance of Port Law has ended up a history that China had no formal legislation for port operation and administration (Li, 2006).

According to the Port Law, the Chinese central government will no longer maintain any ownership of ports. The previous public ports possessed or partly possessed by the central government will be shifted to local provincial or municipal government. Under the control of the Port Law, interested group like the central government and the transportation department at the regional level are having a duty for strategic planning and planning regulations and policies for the development of the port network system at the level of both the province and the whole country, respectively. At the same time, the Port Law implicitly outlines the relationship between the strategic planning undertaken by local and central government.

#### 4.4. Three ownership models in China

Since the 1980s the ports industry in China has changed considerably. Physically the port system has expanded, as handling capacity has been increased to cope with steady growth in freight volumes. In order to expand port capacity and enhance the operational efficiency of ports, China has started to diversify ownership, with joint ventures formed to run cargo handling operations (Qiu, 2008).

There are three ownership models for Chinese port corporations. The first model is applicable to the majority of the port corporations <Figure 1>. In this model all port authority first-line staff and assets are transferred to the corresponding municipal state-Owned Assets Supervision and Administration Commission. In the case of ports, a municipal port group corporation is incorporated and the Commission owns 100 per cent of the corporation. Port groups frequently have a number of subsidiaries.



Source: Qiu (2008).

<Figure 1> Generic Model of Port Administration

The second ownership model applies in Shanghai <Figure 2>. The Shanghai International Port (Group) Co. Ltd (hereafter SIPG) was established in 2003 by reforming the former Shanghai Port Authority. The Shanghai Municipal State-Owned Assets Supervision and Administration Commission (hereafter the Shanghai Municipal Commission) was the sole owner of SIPG.

The last ownership model is the Shenzhen model <Figure 3>. Unlike other port cities in China, where the Ministry of Communications has invested in port facilities over many years. Shenzhen had many commercial organisations that were prepared to develop and operate port facilities. It has six developed port precincts., all of which were built and operated by

commercial organisations or consortiums. As a result, Shenzhen does not have a single port corporation that dominates the local port industry, as occurs in Shanghai and other port cities in China.

This means that today's ports in China have been strongly interrelated with economic growth which Chinese government aims to achieve in world market.

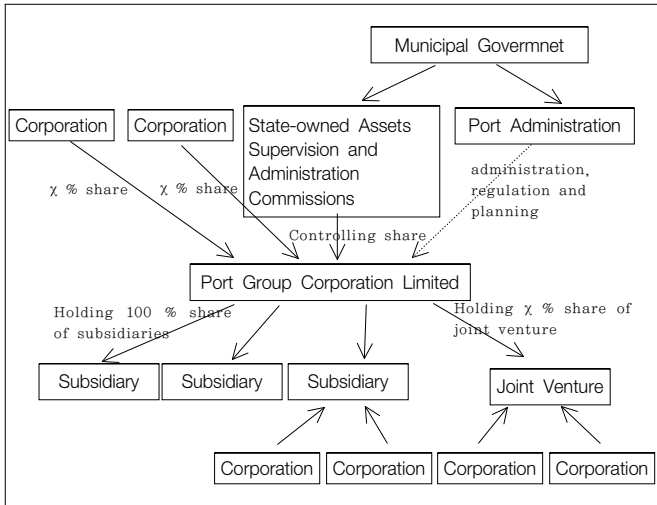
As far as economic move that is on the way is concerned, many features can be illustrated as follows. Foreign involvement and investment to Chinese economy is important development to Chinese whole industry, which has induced to make domestically as well as to upgrade international trade activities. Capital and technology has been flown in country and many industrial products have been produced in factory. Some logistics facilities, in particular seaport for international trade should be in operation effectively and efficiently as well. In order to do so, the role of government should be emphasized for better utilization of SOC including port.

As a more liberalized viewpoint to be looked into, Chinese ports are far from, so called, competitiveness, efficiencies and privatisation in terms of their economic and political system the country has, which has resulted in non-market economic system. Especially this comes from operational aspects of port, rather than infrastructure of port. The main key Chinese government has to handle is how to manage or utilize port facilities as country's national asset and how to improve productivity which is directly linked to national competitive surroundings.

For regulation terms, Chinese government have made an efforts to establish a certain kind of framework of port industry. Historically it has evolved 3 stages of development and it becomes to decentralize many part of administration commitments, which have been governed by central government that is symbol of inefficient outcomes. However, China's port law may be answer to able to deal with such a problem the Chinese government has been faced. Thus, port law has regulated hardware together with software parts of port industry, which means port law deals with construction and operation works at once.

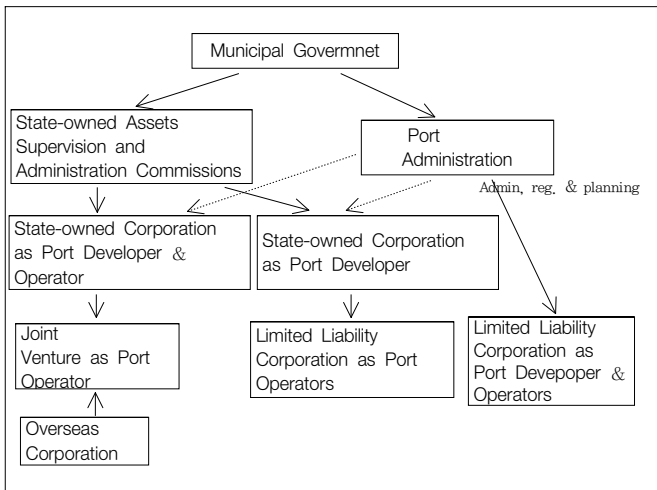
However, three port ownership model has been shown in China, which can categorize into municipal port group corporation, Shanghai international port and Shenzhen model. In essence, it relates to central government, municipal government and port authority, and to constructions as well as operations jobs involved.

In summary, Chinese port industry has been developed rapidly following economic growth of the country, and it should be admired that Chinese government has done all the way of evolving the port industry to come up with newly developed economic situations around country. Regulation, construction and operation has been also well developed in step with a certain level of movement for decentralization. Now Chinese ports belong to world ports and their evolvement has been recognized.



Source: Qiu (2008).

<Figure 2> The Shanghai Model of Port Administration



Source: Qiu (2008).

<Figure 3> The Shenzhen Model of Port Administration

#### 4.5. Comments on Chinese port

Chinese ports have got involved in economic situations in China from opening the door to foreign market. Market is booming and rate of economic growth has hiked as well. As trade volumes have been growing rapidly, many ports in China have been expanding to cope with such a larger volumes of export and imports goods in and out of country's ports simultaneously.

### 5. Port System in Japan

#### 5.1. Preface

Across the world, port management is increasingly adopting a

scheme of separating infrastructure and operations; this is also the case in Japan. In the midst of this global trend, Japan experienced the Great Hanshin and Awaji Earthquake in 1995 and the Great East Japan Earthquake in 2011, both of which destroyed major ports, compelling Japan to face unexpected challenges concerning with Japanese port management system. In addition, with major earthquakes expected to strike again in the future, it is urgent for Japan to solve the current problems. The challenges that Japan faces have much similar with those done by foreign port management (Takahashi et al, 2014).

## 5.2. Three period of regional port management

Sixty years after the Port and Harbor Law was enacted, however, the inefficiency of management by local governments became widely recognized, which led to the introduction of the port management company system. This system used private companies to manage ports, thereby separating port infrastructure from port management.

### 5.2.1. The first period

This is a kind of management by public corporations. The national government enacted the Foreign Trade Terminal Public Corporation Law in 1967, establishing two public corporations, Keihin and Hanshin. The corporations took sole responsibility for regional port administration, wielding authority over port authorities (local governments). The corporations also constructed and managed the regional container terminals necessary to manage marine container logistics. As part of administrative reform by the national government striving for small government, however, the corporations were dissolved in 1982. Port administration was returned to local governments.

### 5.2.2. The second period

It is the introduction of private management through the Super-hub Port System. The national government revised the Port and Harbor Law and introduced the Super-hub Port System in 2005. In three areas — Keihin, Hanshin, and Ise Bay — the system enabled a single private company to manage contiguous, multiple container terminals as a whole, allowing it to pursue economies of scale in its operations. This revision created the current system of regional port management by private companies.

### 5.2.3. The third period

It belong to private regional management through the port management company system. The national government revised the Port and Harbor Law a second time in 2011, establishing the scheme that separates infrastructure and operations. This revision has entrusted port management to free management by private companies, creating conditions for them to engage in regional management. More than sixty years after the Port and Harbor Law of 1950, the regional management system has become a reality.

## 5.3. The port and harbor law of 1950

The Port and Harbour Law of 1950 for the first time clearly defined the status, roles and obligations of port authorities. The Port and Harbour Law was enacted to provide guidelines for port planning, construction, management and administration in the aftermath of the Second World War, which had left much of Japan's infrastructure in ruins. It was a landmark in Japanese maritime administration, for it represented the first conscious attempt to codify regulations governing port development and administration. This law has revised as final draft in end of year of 2012 (MLTMA, 2012).

Port management bodies and the national government (Ministry of Land, Infrastructure and Transport) are both responsible for the development of port and harbor infrastructure base facilities (waterways, anchorages, breakwaters, quaywalls and port traffic facilities available for public use). All construction costs for private port and harbor facilities, however, are borne by the private sector (MLITT, 2015).

This comprehensive legislation, containing sixty-two articles, provided definitions of concepts, allocated roles among various port-related interest groups, and placed ports into various categories. The Law, which took effect from April 1951, and the fundamental principle behind the Law was that "ports and harbours belong to local residents." But it was made clear that port development was not solely a local affair; rather, ports had national importance and thus merited central government involvement. The key provisions of the Law were that (Ayodeji, 1997):

- (a) local governments should be responsible for the management of their respective ports;
- (b) port development would be a joint enterprise between the central and local governments, with the latter being primarily responsible for planning its own port(s);
- (c) a well-defined ratio for funding port infrastructure development was established;
- (d) the national government, through the Ministry of Transport, had the right to review and authorize the master development plan of major ports; and
- (e) port management bodies were prohibited from engaging in port related activities that could be undertaken by the private sector.

## 5.4. Some comments on Japanese port

As like some other world ports, Japan has also suffered from difficulties as far as port system is concerned, and it is not so easy to cope with any problems which has been occurred in Japan by natural disasters, mainly earthquakes. It makes port system be in question which model has to be constructed and operated, and what kind of system is better methods to manage ports in Japan. As it is well defined that port has two main functions, which are port as infrastructure facilities to be constructed, and as operational aspects to be managed. Japan is

not a exception.

As local autonomy system has been established politically, it could be easy-going approaches that local government takes over regional port located in their region, and makes it as incomes sources. However, it is also permitted by national government to supervise its ports. Furthermore, port and harbor law was set up, which has included the definition of roles and activities of central and local government in terms of infrastructure and operation matters. it aims to get some kind of inefficiencies over that public sector may occur, so to transfer private system to cope with market properly.

It is well recognized that local government in Japanese political system is also institutional mechanism not entirely different from central government, which means lack of market functions could bring about at any part of port systems in whether infrastructure or operations together. This means that as far as port is concerned, it should be managed by those who has commercial sense of management in field, and who has a capabilities to operate in one way or another, and who has worked near the real markets. So, the choice of Japanese port is to make a close to market, which means that private port system is answer to organize their port more efficiently as well as to be competitive one in the market.

## 6. Port Governance in Korea

### 6.1. Brief history

In Korea, MOMAF has controlled and governed to entire administrative works about port, and has been in charge of management and operation of port as real port owner who is involved into port development, management, operation of port facilities, environmental preservation of port and attraction of private capital, etc. The structure of MOMAF is composed of regional maritime and fishery office and headquarters <Table 2> (Lee & Song, 2007).

<Table 2> Korean Port Administration in History

| Year | Organization  |
|------|---|
| 1976 | Korea Maritime and Port Administration (KMAP)       |
| 1989 | Korea Container Terminal Authority (KCTA)           |
| 1996 | Ministry of Maritime Affairs and Fisheries (MOMAF)  |
| 2003 | Busan Port Authority (BPA)                          |
| 2005 | Incheon Port Authority (IPA)                        |
| 2008 | MOMAF abolished                                     |
| 2013 | Ministry of Ocean and Fisheries(MOF) re-established |

Source : MOF's Homepage (2015).

The management and operations by MOMAF is divided in both direct operation by regional maritime and fishery office, and lease operation, and BCTOC has been rented to the management and operations of container pier. But Busan and Incheon

has introduced to port authority which has managed and operated from 2004 and 2005 respectively. As far as operation of pier facilities is concerned, it has adopted to privatization way to rent to terminal operator who has paid for (Park, 2006).

### 6.2. The stages of port development

Port policy from 1945 to 1961 can be categorized in reconstruction periods to seek port development under the condition that are not fully established, and from 1962 to 1986, it is time to start to expand port facilities and to set up management policy as well as policy of economic policy according to 5 years economic development plan. Form 1987 to 1996, port policy has focused in pursuit of stable port development and advanced port operation aggressively. From 1996 to 2006, it has taken liberalization and an autonomy policy, taking into account fierce competition market and expansion of market economy system, following to environmental changes such a trade liberalization as WTO (GSIS, 2014).

### 6.3. Port privatisation in Korea

Korean government has been in pursuit of investment of port infrastructure strongly by heavy congestions of national ports following a lack of port facilities due to not enough port investment since early 1980. This is opportunity to deeply realize the necessity to introduce private capital and innovation in terms of operation and development of port, which makes national ports improve in port management system from inflexible structure of state-owned and state-operated. The year of 1990, Korean Container Port Association has been established, and privatization process has been in progress by selling the right of port operation of national government. and then port operation company has begun to take over the general ports in 1997 (Jung & Sung, 2003).

### 6.4. The act and models of Korea port

As far as Korean ports is concerned, The management and development has been carried out by the Harbour Act (since 1967). Korean port development has three acts - New Port Construction Promotion Law, the Harbour Act (both under MOMAF), and the Law of Private Participation in Infrastructure (under the Ministry of Finance and Economy). Furthermore, two acts related to Busan and Incheon Port Authorities are to be set up for the effective and efficient promotion and management of those ports.

Port governance model in Korean fits into neither the public nor private model, but somewhere between the two extreme and scarce cases – that is, either public/private or private/public port models. In other words, the port governance model in Korea is a combination of public and private involvement.

## 6.5. Some comments on Korean port

It is nearly same approaches for Korean port to develop its administrative system, comparing with world ports, which means it is required to cope with trade volumes rapidly increased following economic development in the country. It has been key issue for Korean port industry that it looks for more efficient and effective way of dealing the port productivity and that what kind of institution should be established.

It is important to cope with and respond market situations as quickly as possible and some measures should be done in order to look for solution for problems in troubles. But, it is much more different from port management systems that other countries has exercised, which means Korean government has governed and exercised over entire administration systems it has to be implemented.

MOMAF has controlled over port-related commitments of either constructions or operations, and sometimes it gives lease or take care by itself. It seems to be basis on perception for port that is still public goods, and that it is not a good approaches in modern port management today. However, a little step forward has been shown as port authority systems, like Busan and Incheon. It is much more liberalized and privatized move for port authority to be concerned with port administration to seek port's competitiveness. In that sense, more ports in Korea is desirable to have port authority systems in the future.

## 7. Comparative Views Between Countries

### 7.1. Port management systems

It has been changed in 3 stages in terms of port policy in China. First, central government are in charge of development and operation in one hand. Second, central government has owned port facilities and regional government has managed and operated port facilities respectively. Lastly, the property right of central government has transferred to regional government, which full management of port in both owning and operation belongs to regional government. Especially, management of port service goes to private port corporations, which means port privatization. Furthermore, integration movement between ports has been a tendency in Chinese port industry.

Since Meiji Yushin period, national government has developed, managed and operated Japanese port directly, however these commitments have turned over to regional government from national one by the enactment of port law of 1950. Since then, regional government has controlled most of works related to port facilities autonomically. (Jung & Sung, 2003). Traditionally, port management in Japan has based on the decentralization system to make balanced-development of region, which leads regional government to take a port administration and operation in details (GSIS, 2014).

In Korea, central government has taken a mission of port development, management and operation in port appointed as

trading and costal port all together, and regional government has controlled in regional port. However, port privatization as well as the decentralization system should be needed by the reason of lack of experience and expertise by public sectors, and of attracting investment resource, etc.

### 7.2. More flexible port management

The essence of port administration system in China is larger port corporation that has developed and operated port facilities, which has achieved the most excellent port in the world.

In Korea, it is not so easy for port authority to set up subsidiary company to better off port service, and to make commercial activities, but port corporation of China has been endowed with perfect corporate autonomy. Chinese port management system has developed to systematic advance in many part of areas such as investing into foreign ports, establishing subsidiary company, being listed on stock exchange market, and autonomy to raise a capital (Kim, 2009).

In Japan, it is evident that it is much more liberalized into establishing the port policy. General citizen and interested group has got involved in policy forming by the result of exchanging their opinions fully, which aims to understand and cooperate what to plan in port policy in concerned (GSIS, 2014). It has also been in pursuit of super-hub port project to promote hub port that is equipped with competitiveness, and investment has been focused upon major ports. It has targeted to recover competitiveness in area of service and of cost to overrun major ports in northeast ports.

In Korea, privatization of port has purpose to introduce competitive system between ports, and piers by transferring from national owned and operated to national owned and private operated in terms of port management system. Port land and facilities has been invested and owned by national government, however right of operation has authorized to operation company by contracting out. Furthermore, active foreign investment into Korean ports has been able to stimulate port operation system to be more competitive, liberalized and autonomous. It will also be one of factors to accelerate port privatization in the end.

## 8. Conclusions

It has been said that institutional mechanism to administer port in certain country is strongly related economic situations the country has faced, and how shipping and port industry has developed in the international market as well. The market is changing all the time following the pattern of transport service, containerization that leads to multimodalism, port automation, larger ship, hub and spoke concept, and strategic alliance etc. In this cases, port has to be more concerned with these newly introduced patterns of market changes. Port has to make an efforts to seek what kind of service and administration structure can come up with present maritime situations.



In terms of port management system, four models such as first, public service port, second, the tool port, third, the landlord port, and then the fully privatized port or private service port, are distinguished by how they differ with respect of such a nature as public, private, or combined supplying of service, and local, regional, or global orientation, and ownership of infrastructure (including port land), and ownership of superstructure as equipment (in particular, warehouses, ship-to-shore handling equipment, and sheds), and status of dock labor and management.

In Northeast countries, they have adopted to one of models described above. China, Japan and Korea, some evident changes of port reform have been shown notably since 1980s, which has mainly three stages of development in port policy reform that is aiming to improve more competitive and efficient way of port management. From the public approach to private one, these countries have looked for port management system, that is learning by doing. Port controlled by national government has resulted to either inefficiency or lack of competitiveness in the port industry. It makes national government to think and take an action to cope with market by moderating or re-establishing the port system of ownership, management and operation matters. Since China has an history of port development, and port act and model, though their efforts, it come to get close to better port service, and to achieve trade volumes to hike, and to make Chinese port best world port ever. Japan has also taken some measure of port reform, especially turning over port functions to regional government, and Korea has also changed to port management system as well, which giving regional government to control their own port.

In conclusion, these three countries have tried to take most proper port model to reflect market situations of port industry step by step and continuously, and it is also a way of privatization road which aims to both from centralization to decentralization, and improve port's productivity in their country. To cope with port industry that is rapidly changing is directly related to port competitiveness.

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