

Management Strategies for Port Management Corporations

Koji TAKAHASHI*

Port and Airport Research Institute, National Research and Development Agency*

Abstract: In 2011, the government of Japan announced the policy to introduce the Port Management System, which would be applied to public-build private-management system and private sector financing methods to container terminals at 23 main ports operated by local governments, and to establish one port management corporation at each port in order to improve the productivity of container terminals throughout Japan. Port management corporations have already been established at some ports such as the Hanshin Port, and will be established at the remaining ports before the deadline of March 2016. The purpose of establishing port management corporations for container terminals is to amend the rigid port management system by local governments, and to be prepared to provide a quick response to global economic changes and the wills of cargo owners (shippers) and shipping companies. Current port management corporations, however, are facing various problems of management due to local governments' participation in their management. For instance, they are forced to give priority to the interest of local governments rather than for themselves, and also the restriction of the integration and transfer of their business between several port management corporations. These problems make their initial objectives difficult to achieve. On the other hand, under the current economic environment, port management needs to make new capital investment to cope with the issues such as the tightening of carbon dioxide (CO₂) emissions regulations, and the improvement of an industrial safety and health environment. Therefore, in this paper, the author would like to firstly analyze the issues that current port management corporations face, and then propose solutions for them, followed by proffering effective methods and three scenarios to implement the solutions, as management strategies for port management corporations.

Keywords: port management corporation, management strategy, integration

1. INTRODUCTION

To get this paper started, the author present an overview of the current state of stakeholders concerned with port management of Japan. Stakeholders of Japan are very complicated as well as more numerous than that of the world as shown at Table 1.

The authority and responsibilities of Port management are given to 'Port Management Body' by the Port and Harbor Law of Japan. According to

this law, 'Port Management Body' shall be 'Port Authority' governed by local parliament, 'Local Government', or 'Administrative Association' which consists of two or more 'Local Governments'. There have been established 933 port management bodies in Japan. 926 of them are 'Local Government', 6 of them are 'Administrative Association' and one of them is 'Port Authority'. All port management bodies have never been independent from the local governments. Unless it is necessary to discern them exactly in this paper, 'Port Management Body' can best be described as 'Local Government'.

The local government has to plan, construct and manage its ports by the law. If the local government needs the national government's support and the national government determines to be necessary to intensively support based on the national strategic policy, the local government can receive subsidies for construction of port facilities such as deep-sea breakwaters, deep-sea quays and so on.

The national government has never done nothing, but its participation in port management is limited to subsidy, vicarious construction of port facilities and suitability examination of port plan to the national strategic policy.

Insofar as container terminals, port management by the local government is not productive. Therefore, many policies for improving the productivity of container terminals have been carried out in Japan such as spinning off profitable

business, privatization, and concession which is so-called 'scheme of separating infrastructure ownership and management'.

Major local governments established 'Public/Private Port Terminal Corporations' to manage container terminals instead of themselves. Port terminal corporations constructed container terminals and leased them to terminal operators individually. However, this situation caused a result to be unproductive that one port had a complicated mix of container terminals where a port terminal corporation or local government contracted with terminal operators. Furthermore, some of terminal corporations fell into absolute insolvency, because these corporations had to construct deep-sea container terminals by their own resources as well as manage them.

With the purpose of improving this situation, the only port management corporation to manage all container terminals in one port has been established based on scheme of separating infrastructure ownership and management by the leadership of the national government. In the background that local governments had agreed to the establishment of port management corporations, there were circumstances that local governments had been plagued by the absolute insolvency of terminal corporations and had expected port management corporations to cancel almost the debt owed to the local/national government and commercial banks.

What kinds of advantages is this port management corporation system expected to have? The port management corporation barrows cheaply the real estate and port facilities constructed by the national/local government and lend them at a reasonable price to terminal operators as container terminals. In other words, this corporation is the real

Table 1 Stakeholders of Port Management

U.S.A.	Japan
Port Authority	National Government
Terminal Operator	Port Management Body
Labor Union	Port Authority
EU	Local Government
Port Authority	Administrative Association
Terminal Operator	Port Management Cooperation
Labor Union	Terminal Operator
U.K.	Port Terminal Corporation
Terminal Operator	Port Transport Business
Labor Union	Prime Provider
	Shipping company
	Warehousing company
	Pure-play company
	Sub Provider
	Pure-play company
	Labor Union

estate lease business to run with a profit margin by subletting port facilities. As the only port management corporation manages all container terminals in one port, this corporation is expected to improve the productivity of them not only by concentrating investment on latest container terminal but also by cleaning up surplus container terminals. In other words, this corporation may promote reorganization of container terminals of Japan. In the future, through the integration between port management corporations, one corporation becomes possible to manage all container terminals productively.

A terminal operator contracts port transport companies to handle container cargoes. Terminal operators are composed of three business groups historically which are affiliated with a shipping company, a warehousing company and a port transport company. When port workers are short, these companies may contract with sub providers as an original prime provider. Port workers, who are working at port transport companies, warehousing companies, port truck companies and so on, organized an industrial labor union. The industrial labor union does not dispatch port workers to container terminals, which is different from the labor unions in USA such as 'International Longshore and Warehouse Union: ILWU' and 'International Longshoremen's Association: ILA'.

Port management corporations have been established for realizing the policy of International Container Strategy Ports, as private stock companies that play a role in managing container terminals. However, now, they face various managing issues that make their initial objectives difficult to achieve. There has not been many exhaustive analyses focusing on the issues and scenarios that provide specific solutions for them. Therefore, the author has

been undertaking comprehensive analyses on port management, and its various researches that have been presented as the following series of the author's past researches on port management.

Takahashi et al. (2013e, 2013f) stated the need to integrate facilities for container terminals by reducing surplus facilities, in accordance with Japan's geographic characteristics from the perspective of physical geography, in order to improve the productivity of container terminals in Japan. Takahashi et al. (2013b, 2014d) and Kasugai et al. (2013) argued that the fiscal conditions of local governments as port management bodies had been deteriorating due to an increase in the capital costs and administrative and maintenance expenses of the ports to be reduced and integrated. Takahashi et al. (2013c, 2015) pointed out that a rise in the capital costs and administrative and maintenance expenses should be compensated by injecting local taxes. Takahashi et al. (2013d) also verified the current port management system operated by local governments with the objective of Japan's legal system, and pointed out the situation of a global port operation being constrained by the Local Autonomy Act of Japan. Furthermore, Takahashi et al. (2013a, 2013g, 2014a) insisted that an integrated operation of container terminals throughout Japan is necessary, in order to realize powerful port management, which is resistance to large-scale natural disasters expected to occur in the future. According to Takahashi et al. (2014b, 2014c), what is inevitable to implement solutions for the issues is not leaving it to the initiative of local governments but the powerful leadership of the national government.

On the other hand, under the current economic environment, port management needs to make new capital investment to cope with the issues such as the tightening of CO2 emissions regulations, a lower

birth rate with longer longevity, and the improvement of an industrial safety and health environment for port workers.

For this reason, the author conducted intensive surveys on cargo owners, shipping companies, port transport business providers, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), and port management bodies, in order to specify the factors that were high hurdles to resolving the issues and to clarify the current economic environment of port management. Based on the analyses, finally, this paper propose the management strategies for port management corporations. This paper shows detailed solutions, as well as conclusions of the author’s past researches mentioned above, to the issues on the current port management system of Japan.

2. ISSUES THAT PORT MANAGEMENT OF CONTAINER TERMINALS FACE

Figure 1 is a correlation diagram of concerned parties of the port management corporations. The author conducted an interview survey with the concerned parties on port management of container terminals, and asked about the issues they were facing. According to the answers, the issues can be classified into three groups based on the group that solves them (Table 2). Table 3 shows the issues and their classification.

The problems categorized as “Group A: issues that need to be resolved with their own effort” could not be found in the answers from cargo owners (shippers) and the three Japanese shipping companies, but only in MLIT, port authorities and port transport providers. This is because cargo owners (shippers) and the three Japanese shipping companies are under the competitive situation in which the issues are shaken out due to their

automatic improving function, which can be seen in the process of pursuing their interests as private companies. However, on the other hand, MLIT and the port authorities are public sector organizations in which the automatic improving function cannot be seen, and up to now, port transport providers have maintained business practices in which a competitive principle has hardly ever existed since the postwar period.

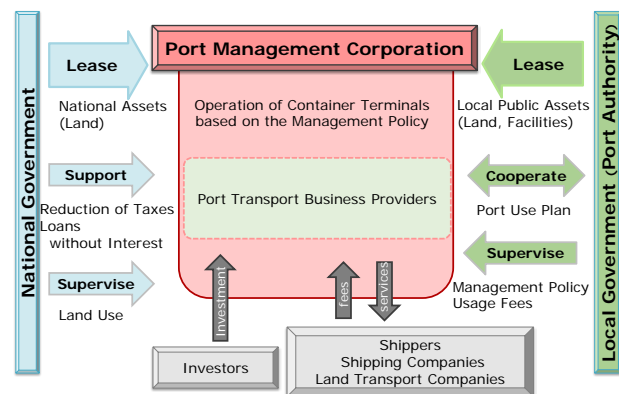


Figure1 Correlation Diagram of Concerned Parties of the Port Management Corporations

Source: Made by the author based on documents released by MLIT

Table2 Classification of Issues

Group	Characteristics of Issues
A	Issues that need to be resolved through one's own effort
B	Issues that are closely connected to more than one concerned party of the port management in one port
C	Issues that need to be resolved by third parties as they cannot be solved with the effort of concerned parties of port management at one port

Table3 Issues that Port Management of Container Terminals Face

Source: Based on interview surveys that the author conducted

Player	Main Issues	Classification
Shippers (Cargo Owners)	Even though the market share of Japan's transportation in the North American direct line has relatively decreased, the line remains of high importance to Japanese private companies; hence, cargo owners (shippers) need to maintain the direct route in order to continue to stay in business in Japan going forward. However, the government of Japan has discussed the importance of shipping routes focusing only on the market share of Japan's transportation under scrutiny on port management.	C
MLIT (Ministry of Land, Infrastructure, Transport and Tourism)	The Ports and Harbours Bureau of MLIT, with jurisdiction over port management, has the ability to analyze the economic trends of cargo owners (shippers) and shipping companies; however, since it has lost a network of contacts with shipping companies, the ability to collect credible information has fallen behind.	A
Port Authorities (Local Governments)	The port authorities have to take policies providing a priority on local public entities, which are called local egos, and consequently, excessive investment in port facilities out of the sense of rivalry to neighboring ports, possession of surplus facilities rarely used, shipping routes invited forcibly by using incentive subsidies without paying attention to the market principles can be commonly seen.	A
Japanese Shipping Companies	At container terminals of shipping companies with lowered operating rates, the reorganization of port transport providers at the shipping companies has been advanced. It would be better if the reorganization could be implemented in the whole port transport industry including the transport provider group specializing in transport and the warehousing group; however, the two groups have not shown their intention to reorganize themselves.	C
Port Transport Providers	The economic situation has been deteriorating due to a decrease in the load of containers handled at ports across Japan. Surplus facilities and excess personnel need to be reduced.	A
Port Management Corporations	The local governments which are port authorities, are large stockholders of the port management corporations, therefore, they have a strong interest in management. Since the port management corporations have to follow the policies of the local governments as large stockholders to conduct their management, they are required not to give priority to their own benefit, but to the benefit of the local governments.	C

There are a few issues classified into “Group B: issues that are inseparably connected to more than one of the concerned parties of the port management in one port.” The only problem which can be found in the group is about human resources. In order to tackle the issue, changes need to be made in the policy of human resources between port management corporations, port authorities and private companies.

“Group C: issues that need to be resolved by the third parties as they cannot be solved with the effort of the concerned parties of the port management in one port”, can be seen in the answers from cargo owners (shippers) and the port management corporations. In other words, the third parties are expected to work on solving the issues in Group C.

As a result of the classification of the issues, the following points became clear;

- a. The National government, port authorities and port transport providers cannot be expected to use self-help efforts to improve the current situation.
- b. The issues that the cargo owners (shippers) and port management corporations have need to be solved by the third parties.
- c. The mutual point of all the issues is that the third parties need to tackle them in order to resolve them.

3. CHANGES IN A SOCIAL ECONOMY

Measures to deal with socio-economic issues such as an industrial safety and health environment, disaster prevention, the environment, a declining birthrate and an aging population, and fiscal reforms must be taken by the country as a whole. Port management is no exception—this sector must also take measures to

tackle these issues in step with the country.

In particular, in order to comply with CO₂ emissions regulations, improving productivity in response to a lack of human resources, and enhancing the safety of a working environment to realize a zero rate of work accidents, the swift introduction of “a. Introducing automation to loading and unloading facilities” is anticipated. However, according to the author’s research, the introduction has pros and cons. In order to overcome the cons, taking the time for coordination between stakeholders, securing temporary sites and considering developing a compensatory system are needed beforehand. Meanwhile, it is necessary to transplant perfectly knowledge of experienced port transport workers with a high degree of skill into an automated system. As it will be too late to transplant this knowledge after the experienced workers have retired, this will have to be completed while they are still actively working. As there is a risk that the automation of loading and unloading facilities could lead to an excess of port transport workers, before the system is started, it will be necessary to ensure that positions ready to accept excess port transport workers as well as a safety net to pay those workers compensation are developed. Also, since among port transport providers, those specialized in port transport businesses traditionally respect their prestige and reputation, measures which respect these trade customs will be required.

4. THE STRENGTHS AND STOCKHOLDER STRUCTURE OF PORT MANAGEMENT CORPORATIONS

In Section 2 and 3, problems that port management of container terminals have, and issues that the stakeholders of port management need to tackle in order to deal with socio-economic changes, are

shown. Here, what are the strengths that port management corporations in charge of managing container terminals are expected to have? In other words, what are the issues that port authorities have with restrictions as local governments? Behind the establishment of port management corporations as private companies, as the National government and port authorities (The parent organization are local governments.) are public organizations, there is a fact that restrictions such as the prohibition of unequal treatment, budget measures based on a fiscal year, and the approval from the Diet to implement budgets, and new policies are placed prevents the realization of highly productive port management. On the other hand, in the case of private companies, guarantees of contract confidentiality, new investment unrestricted by a fiscal year or the Diet, and the integration between port management corporations can take place. When compared with management by public organizations, in the degree of freedom, private companies have a considerable advantage. This point is the strength of the private companies, which is not available for port authorities.

Port management corporations are stock companies, and as such, are bound by company law to follow the will of their stockholders. The port management corporations are in a position where unless the big stockholders, namely the National government and the port authorities, express their clear views, management policies of port management corporations cannot be made.

What is a code of conduct held by local governments? Local governments, according to the Local Autonomy Act, are seen as entities which “pursue the fundamental of promoting the welfare of residents, and take a broad role to conduct governance independently and comprehensively

within the district (the Local Autonomy Act, Section 1.2).” As shown in Table 3 and by Takahashi et al. (2013d), this role of local governments, which conduct local governance, is a high hurdle to port management which conforms to market principles. In the same way, the involvement of these local governments, as large stockholders, is a high hurdle to port management which conforms to market principles. In order for port management corporations which conform to market principles to display their strengths, local governments must put aside their local egos.

5. NEW NATIONAL TARGETS AND SOLUTION POLICIES

The author has stated in this paper that in order to solve various issues, intervention from third party organizations is necessary. Furthermore, in order to solve the issues of port management corporations and bring out the strengths of management companies which conform to market principles, a clear goal of the National government as a stockholder, as well as the elimination of the local egos of local governments are necessary.

Now, what kinds of goals should be set by the National government, and how can port management corporations utilize their strengths in management? Table 4 shows all the possible solutions for the challenges of port management. However, these are under the premise of adjustments of various restrictions and vested interests. The details will be described later.

What is shared by these solutions is they all exclude interference in management by port authorities and the National government, aim at management that maximizes profits as private companies, and suggest overseas expansion from

Table4 Solutions for the Issues on Port Management

<p>1. Realizing management that can promptly respond to the global market trend</p> <p>1.1 Logistic systems by the port management corporations which comply with wishes of cargo owners (shippers)</p> <p>Ex. Meeting the objective of increasing the amount of cargo handled at ports through negotiations (luring shipping routes and cargos, and focusing on port sales) with cargo owners (shippers) and shipping companies for Japan as whole, by gradually promoting cooperation, investment and integration with port management corporations across the country.</p> <p>1.2 Reducing the Power of the Port Authorities (Local Governments) that Represent Local Benefits</p> <p>1.3 The Relaxation of Regulations</p> <p>Ex. Improving the cooperation and unification of the port transport business.</p> <p>Cooperating with domestic and international shipping companies (the relaxation of cabotage regulations including the introduction of a tag-end cabotage system).</p>
<p>2. Pursuing Economies of Scale by the Port Management Corporations</p> <p>2.1 Collective Management of Loading and Unloading Systems across Japan</p> <p>Ex. Reducing costs by procuring loading and unloading facilities at several ports.</p> <p>Receiving maintenance business for port facilities from port authorities (Local Governments) throughout Japan, by accumulating human resources and know-how regarding maintenance of port facilities.</p> <p>Introducing automation to port activities such as loading and unloading systems.</p> <p>2.2 Integration of the Computer System</p> <p>2.3 Expanding Business to Growing Overseas Markets</p>
<p>3. Rationalization of Container Terminals in Japan</p> <p>3.1 Reorganization of Container Terminals in Japan</p> <p>3.2 Reorganizing the Port Transport Providers in Japan</p> <p>3.3 Sorting out the Complicated Relationship of Owning and Leasing Facilities</p> <p>3.4 Accelerating the Transparency of the Financial Situations of Port Authorities (Local Governments)</p> <p>3.5 Diversion and Sale of Surplus Port Facilities</p>
<p>4. Reinforcing the Port Management Corporations</p> <p>4.1 Cooperation and Integration of the Port Management Corporations throughout Japan</p> <p>4.2 Hiring and Training Regular Employees</p> <p>4.3 Training the Ability to Deal with Problems at the Time of Disasters</p>

Japan, where the domestic market has remained contracted, to realize economies of scale. Next, the consistency with the policy of International Container Strategy Port, Japan's latest port policy, will be discussed. Comparing the solutions in the Table 4 with the policy of International Container Strategy Port, the following points become apparent, showing that the policy does not suit the present condition.

- a. The National government will need to shelve the objective of the policy of International Container Strategy Port, which is a reduction in the rate of a foreign transshipment, and ask port management corporations to aim for management to maximize their profits as private companies.
- b. Port management corporations will need to undertake port management to maximize their profits according to market trends and invest in foreign port management in consideration of the economic rise of Asia.

In other words, according to the above points, the National government will need to revise the policy of International Container Strategy Port in order to effect the policy.

6. THREE SCENARIOS

Section 5 has detailed the solution policies to solve issues. In order to realize these policies, various restrictive requirements and vested interests need to be considered in creating the scenarios. Among the solution policies, some are easy to implement, and others need greater coordination with numerous stakeholders. Thus, the author proposes three scenarios ranging from a 'minimum requirement' business due to automation, a safety net is necessary to distribute profits through dividends, along with the investment of merged companies.

scenario to achieve an initial goal of port management corporations, to a 'middle scenario,' and the most effective scenario requiring greater coordination.

6.1 Scenario 1

Scenario 1 is comprised of items which can be carried out through the port management corporations' own efforts without infringing any vested interests under existing restrictions.

6.2 Scenario 2

Scenario 2 is comprised of items which, within existing restrictions and vested interests, the National government and port management corporations need to improve going forward, and port management corporations' performance improves. In particular, in this scenario, in order for port management corporations to utilize the public-built private-management system fully, the following points are pivotal:

- a. Accelerating cooperation and unification of port transport businesses.
- b. Promoting rationalization of systems by organizing complex owner-tenant relationships for facilities.

The former has been carried out in all ports but the three largest in Japan. For example, the introduction of automation at the Port of Hakata has led to the cooperation and unification of port transport providers. It is thought that movements toward cooperation and unification at the largest three ports will be stimulated by the introduction of automation. However, in respect of providers who are forced out of business, or will have to cut down

In the latter, the process of changing from foreign trade port public corporations, and port

companies, to port management corporations over time, has resulted in the complex relationship between the rights and liabilities to rent facilities. Reorganizing the rights to rent facilities is needed, by putting the debt management of facilities and privately owned facilities back into the hands of port authorities for the public interest.

6.3 Scenario 3

Scenario 3 is comprised of all items which should be carried out, and with the added relaxation of cabotage regulations, and the introduction of tag-end cabotage to be used at main ports from Scenario 2. Against the background of including the relaxation of cabotage regulations, a serious shortage of Japanese seamen is predicted in domestic shipping, the same as other industries, and “Low Cost Carriers” in shipping are expected to come into Japan with the explosive expansion of Asia’s economy.

Furthermore, the coast of the Japan Sea has practically no domestic shipping routes served by domestic shipping companies. South Korean shipping companies fulfill a role of Japan’s domestic shipping business using the Port of Busan as a hub and are connected to foreign routes across the world through this hub. The relaxation of cabotage regulations may potentially cause the management of existing domestic shipping companies to deteriorate; however, this is considered to mainly lead to a strengthening of shipping capacity in most domestic shipping routes including the coast of the Japan Sea. In addition, even if the relaxation of cabotage regulations does not lead to a comprehensive cabotage system, an increase in shipping capacity can be expected by introducing tag-end cabotage to be used in main ports.

If the domestic shipping function of the Japan Sea Coast can be recovered, the Port of Kitakyushu

and the Port of Hakata will become geographically more convenient, bringing about the expectation that this will allow not just these two ports, but the entire country of Japan to benefit greatly.

The three scenarios shown in Section 6 are a menu of the solution policies. The powerful leadership of the National government is necessary as shown by Takahashi et al. (2014c).

7. CONCLUSIONS

The objective of establishing port management corporations for container terminals is to improve a rigid port management system by the local governments, and develop a port management system which can rapidly adapt to global economic changes, and the intentions of cargo owners (shippers) and shipping companies. The author has analyzed the current system of port authorities theoretically in the author’s existing researches, and has pointed out that there exist diverse problems in the system. However, as those involved in port management face various challenges, the administration of port management corporations has not proceeded smoothly.

Thus, the author has decided to find out the challenges which are high hurdles to the process by rigorously examining the actual conditions of organizations and trade practices, among other factors.

By carrying out a rigorous survey of those involved in port management, and analyzing issues requiring measures for port management to achieve their initial objectives and adapt to changes in social economy, the following trends detailed below by subject have been found:

a. The improvement of the National government,

port authorities and port transport providers cannot be expected simply through their own efforts.

- b. The issues for cargo owners (shippers) and management require solutions made by stakeholders, other than concerned parties.
- c. These issues all share the attribute of requiring solutions from third party organizations.

Next, with respect to these issues, solution policies utilizing the strengths to be expected from port management corporations as private companies are indicated. These solution policies, in comparison with the policy of the International Container Strategy Port, have been shown the need for the following management strategies:

- a. The National government will need to shelve the objective of the policy of an International Container Strategy Port, which is a reduction in the rate of a foreign transshipment, and ask port management corporations to aim for management to maximize their profits as private companies.
- b. In order to pursue economies of scale as private companies, port management corporations will need to undertake port management to maximize their profits according to market trends and invest in foreign port management in consideration of the explosive expansion of Asia's economy.

Further, based on these management strategies, to solve the problems of port management, the author has suggested the need for the involvement of neutral and expert third party organizations to form public opinion, and provide authority. The author has also proposed three scenarios, namely the scenario carried out with the minimum adjustment for interests, the middle scenario, and the most effective scenario requiring a great deal of adjustment for the

interests, and the processes for implementing these scenarios.

The research result of this paper, in combination with the author's existing researches, is considered to have the achievement of systematic research of Japan's port management system.

8. ACKNOWLEDGEMENT

Lastly, the author would like to express my gratitude to those who cooperated with the research.

REFERENCES

- Kasugai, Y., Takahashi, K., Muraoka, T., Zen, K., Hashimoto, N., Fukuda I., 2013. A Concept for Preparedness against Level 2 Disaster Risk, Internet Journal for the Society for Social Management Systems Vol.3, SMS13-1140, December 2013 (Website References)
- Takahashi, K., Iyama, S., Watanabe, T., Kasugai, Y., Fukuda, I., Kozawa, K., 2013a. Research on Strengthening Cooperation between Ports during Large-Scale Disasters, Internet Journal for the Society for Social Management Systems Vol.3, SMS13-3669, December 2013 (Website References)
- Takahashi, K., Kasugai, Y., Fukuda, I., Uchida, Y., 2013b. Analysis and Future Prospects of the Factors which Increase the Capital Costs and Maintenance Costs of Japan's Ports, Journal of Coastal Zone Studies, Vo.26 No.1, pp.53-65. Japanese Association for Coastal Zone Studies, Tokyo, Japan (Journal)
- Takahashi, K., Kasugai, Y., Ishihara, H., Fukuda I., 2013c. Research on the International Competitiveness, Disaster Recovery Functions and Debt Reduction of the Port Authority in Japan,

Internet Journal for the Society for Social Management Systems Vol.3, SMS13-2222, December 2013 (Website References)

Takahashi, K., Kasugai, Y., Fukuda, I., 2013d. Research on Legal Problems of Port Management Systems in Japan, Internet Journal for the Society for Social Management Systems Vol.3, SMS13-4897, December 2013 (Website References)

Takahashi, K., Kasugai, K., Fukuda, I., 2014a. Port Placement Theory in Consideration of Geographical Characteristics and Disaster Risks in the Case of Ocean Space Utilization, OMAE2014-24345, ASME2014 33rd International Conference on Oceans, Offshore and Arctic Engineering, URL: <http://www.asmeconferences.org/omae2014/> (Website References)

Takahashi, K., Kasugai, Y., Fukuda, I. 2014b. Disaster Risks and Port Management Systems: Involvement of the National Government in Disaster Risk Management in Port Operations, Conference Track 1247. The 5th International Disaster and Risk Conference Davos 2014 (IDRC DAVOS 2014), Switzerland. URL:<http://idrc.info/> (Website References)

Takahashi, K., Kasugai, Y., Fukuda, I., 2014c. Powerful Leadership of the National Government in Port Policy, pp.275-292, Innovative Methods in Logistics and Supply Chain Management, Hamburg International Conference of Logistics (HICL), epubli GmbH, Berlin, Germany, ISBN 978-3-8442-9878-9, URL:<https://hicl.org/publications>(Book)

Takahashi, K., Kasugai, Y., Fukuda, I., 2014d. Reinforcing Existing Port Facilities to Withstand Natural Disasters: An analysis of increased construction costs, International Maritime and Port

Technology Development Conference (MTEC2014), Maritime-Port Technology and Development, pp73-pp82, CRC Press, Norway, ISBN 978-1-138-02726-8(Book)

Takahashi, K., Kasugai, K., Kondo, T., 2015. Smooth Redemption Policy of Port Facilities in Cases of Ocean Space Utilization, OMAE2015-41026, ASME2015 34th International Conference on Oceans, Offshore and Arctic Engineering, URL:<http://www.asmeconferences.org/omae2015/> (Website References)

Takahashi, K., Urabe, S., Fukuda, I., 2013e. Research on Port Placement with Consideration for Japan's Geographical Characteristics, Journal of the Japan Society of Ocean Policy, No.3, pp.52-69, Japan Society of Ocean Policy, November 2013 (Journal)

Takahashi, K., Urabe, S., Kasugai, Y., Fukuda, I., 2013f. Port Placement Theory in Consideration of Japan's Geographical Characteristics, Internet Journal for the Society for Social Management Systems Vol.3, SMS13-6034, December 2013 (Website References)

Takahashi, K., Urabe, S., Umeno, S., Kozawa, K., Fukuda, I., Kondo, T., 2013g. Port Logistics Policy of the Japanese Government for Strengthening Global Competitiveness of Industries in Cases of Ocean Space Utilization, The ASME 2013 32nd International Conference on Oceans, Offshore and Arctic Engineering, OMAE2013-11226, June 2013 URL:<http://www.asmeconferences.org/omae2013/> (Website References)