



Original article

## The orientation for the development strategy of seaport system in Ho Chi Minh city by key measures to enhance the efficiency of port system management

Xuan Phuong Nguyen<sup>a</sup>, Van Tai Pham<sup>b</sup>

<sup>a</sup>Ho Chi Minh city University of Transport, Ho Chi Minh city, Vietnam. Corresponding Author: [phuong@ut.edu.vn](mailto:phuong@ut.edu.vn)

<sup>b</sup>College of Foreign Economic Relations (COFER), Ho Chi Minh city, Vietnam

### Abstract

Along the 3,200km-long coastline, Vietnam has a significant number of seaports, which are relatively large and named as the keys to economic development. However, most ports are relatively small with obsolete facilities and poor supporting services. Among three largest ports countrywide, Ho Chi Minh City seaport has had the highest throughput and productivity per annum of the country for years, assumed the role of the major port in the south, where cargos and containers come and go from all industrial parks in the southern region. Situated on what was the outskirts but is now the outskirts or suburbs of Ho Chi Minh City, it has however shown some drawbacks, i.e., expansion of the port is not an option regardless of the high throughput. Apart from the inadequate infrastructure, ports are facing another setback due to backward pricing. The rapid increase in number of ports also created a “race to the bottom” situation, where Vietnam ports have reduced their price to attract customers. The direct results are lower service quality and an inability to reinvest into port development. Therefore, the restructuring of Ho Chi Minh City seaport system has been launched since 2006 whereby the plan not only resolves the limited size, obsolete facilities and traffic issues, but also becomes more efficient as the new port complex is located conveniently among the region’s industrial parks and export processing zones of Ho Chi Minh City, Binh Duong, Dong Nai, and Ba Ria – Vung Tau. In line with this plan, the paper will mainly aim to provide the outstanding constraints which Ho Chi Minh City seaport system faced, including illogical distribution among ports/terminals regardless the scale, capacity and geographic locations; ineffective and insecure mooring and anchorage buoys; undeveloped logistic services centres and lack of connecting infrastructure. As so, the recommendations for single issue will be provided.

*Keywords: seaport, port development, restructuring, orientation, economic integration*

## 1. Introduction

The Vietnamese seaport system is categorised into 6 groups, with 45 ports (272 terminals): 2 IA-type seaports (international seaports); 12 Type-I seaports (consolidated regional seaports); 18 Type-II ports (consolidated local ports) and 13 Type-III ports (offshore petroleum ports). These seaports are comprised of kilometer 92.2-length terminals, with total capacity of 550 million tonnes of cargo per annum. Looking backwards to 2000 when the first year of planning implementation, the Vietnamese seaport system has increased 4.4. times in terms of terminal length(Dang and Pheng, 2015).

Among others, Ho Chi Minh City seaport, a part of Southeast regional seaport group (Group 5), plays the vital role in import-export activities, boosting socio-economic development for Ho Chi Minh City and the southern area, connecting key economic regions, such as Dong Nai, Binh Duong, Tay Ninh, Ba Ria - Vung Tau provinces (Southeast region) and Long An and other provinces of Mekong Delta(De Meulder and Shannon, 2019). This seaport is planned as a consolidated regional seaport (Type-I seaport), comprised of terminals alongside the Saigon riverbank, Cat Lat terminal in Dong Nai River, terminals in Nha Be, Hiep Phuoc and Can Giuoc - Long An(Lovells et al., 2016).

Given that Ho Chi Minh City seaport has reached remarkable milestones of development over years, the efficiency of managing and exploiting activities of such port however is still low, which is incompatible with the fiery investment(Hung, 2018). The quick growth of Ho Chi Minh City seaport in the period of 2000 - 2008 derived from the short term vision and pro-business driven factors(Dang, 2018). Particularly, there is a plenty of small-scale, isolated terminals without the logistic services facilities to support the ports' operation. Meanwhile, the improper policy towards the port management, such as the imbalance exploitation of 03 container terminals, i.e., Sai Gon Port, Cat Lai Port and Hiep Phuoc Port, also contributed to the inefficiency of Ho Chi Minh City seaport system as a whole(Tran and Takebayashi, 2015b). The fact that number of terminals are overloaded with a numerous quantity of containers passed daily while others are operated much below the designed capacity due to the substandard infrastructure and the lack of necessary logistic services suppliers(Liu

et al., 2018). In addition, the strategic planning did not pay attention on the necessity of further stages of expansion, such as the availability of lands and connecting infrastructure, as well as the "value-for-money" criteria when making investment decision that become burdensome for Ho Chi Minh City infrastructure system(Liu et al., 2018).

Regarding above issues, Ho Chi Minh City seaport system's sustainable development are facing significant constraints as to solve that recommendations and solutions are urged to provide(Yoon and Doan, 2018).

In this paper, using the several methods which are collection, selections, analyzing and classifying to synthesize information, documents and related research. In order to update the realities, receive the contribution comments for the article, gathering experts' opinions method (reality survey); the method collaboration with related authorities (Ho Chi Minh port authority) and maritime enterprises in the city are applied.

This paper uses SWOT analysis method to analyze and review the status of management of seaport system in Ho Chi Minh City. Some suitable solutions are proposed in the article to improve the efficiency of managing the seaport system in Ho Chi Minh City.

## 2. Major constraints in investment, managing and exploiting Ho Chi Minh City seaport system

### 2.1. Ports and terminals infrastructure

Ho Chi Minh City seaport system is categorised into 4 main areas, including Cat Lai terminal in Dong Nai River, terminals in Saigon River, Nha Be terminal and Hiep Phuoc Port in Soai Rap River (Can Giuoc District, Long An Province)(Tran and Takebayashi, 2015a). Despite this area as one of the largest seaport system nationwide, such terminals are mostly in small scale, with the largest capacity to 50,000-DWT vessel, partly due to the geographic characteristics, i.e. the sharp-curved fairways of Saigon River system. The advantage is that those terminals are able to meet the requirements of many types of cargo during storage and transportation, varied from varied from container shipment, agricultural products, fertilizers, minerals, coal, clinker and industrial equipments and end-products(Thuy et al., 2018).

The system is comprised of 38 terminals (84 docks) with the length of 14 kilometre: 23 docks for cargo ships, with the capacity to 25,000 DWT vessel (which 5 docks are also utilised for passenger transport); 5 docks for containers and 15 docks for supplying services for container vessels (up to 50,000 DWT) and cargo vessels (up to 45,000 DWT); 10 cement docks with capacity to 20,000 DWT; 6 others for vegetable oil, construction materials, gypsum, training, etc., with the capacity from 20,000 to 40,000 DWT; 17 petrol and liquefied natural gas terminals for 40,000 DWT vessels; 7 wharves; 4 shipyards; 4 floating docks for maintenance, repair and new building of vessels(Nguyen et al., 2018).

**Table 1: Statistics on docks, terminals in river areas**

Area	Docks/ Terminals quantity	Maximum payload of vessels
Sai Gon	10/42	Gas, LNG: 3,000 DWT; Container, cargo: 45,000 DWT.
Dong Nai	06/11	Container: 50,000 DWT; Cargo: 45,000 DWT; Gasoline/petrol: 32,000 DWT.
Nha Be	11/20	Cargo: 20,000 DWT; Gasoline/petrol: 40,000 DWT (reduced weight).
Soai Rap	11/11	Container: 50,000 DWT; Cargo: 20,000 DWT; Gasoline/petrol: 40,000 DWT.

Source: Ho Chi Minh City Marine Port Authority, 2018.

### 2.2. Mooring buoys, anchorage areas

There is the weak management of mooring buoys and anchorage areas because of the lack of detailed planning. Particularly, mooring buoys at this system are not arranged following the capacity to receive vessels or the types of cargo that causes to the waste of resources use, environmental damage, negative effects to residence and ecosystem(Dong and Chapman, 2017). Moreover, mooring buoys are located in inappropriate area and unable to meet the requisitions as stated in standard specifications, not in conformity with the principle of “the exploiting of mooring buoys and anchorage areas shall not affect to the normal ports' operation, ensure the safety in marine activities, and prevent any risk of pollution” stipulated by Vietnamese Ministry of Transportation.

In worse, the mooring buoys and anchorage areas have directly competed with ports regarding the mooring and cargo transitting fees that reduces the efficiency of ports' operation. While the mooring buoys are set up with the purposes of queueing and storm sheltering, these facilities are allowed for vessels with the limited weight and draught level in the conditions of level 6 of Beaufort wind (22-27 knots/ 10.8-13.8 metre per second measured at 10-metre altitude above water)(Nguyen et al., 2017).

### 2.3. Models of port management in Ho Chi Minh City

Ho Chi Minh City does not apply any clear management model for its seaport system. In general, there could be categorised as follows:

- *Model of (not entirely) public-services port*: The State has invested to construct the port and then transferred to 100-percent State stake company (one-member limited company) who directly operates such infrastructure(Kuo et al., 2017). This company will be granted the land-use right, water-use right and run the port's operation daily, including maintaining equipment, hiring manpower to provide logistic services (e.g., loading/unloading cargo, transportation, storage and other auxiliary services within the port). This model is applied in Sai Gon Port, Ben Nghe Port, Tan Thuan Dong Port, Navioil vegetable oil terminal, Nha Be petrol general storage, VK102 Port, etc(Nguyen and Tran, 2018).

- *Model of (not entirely) port owner*: The State holds the land-use right and water-use right and already built public infrastructure, such as fairways, mooring buoys/ anchorage areas, turning basin, etc. The private entity will lease the land-use right, and invest to build port infrastructure, including berths, loading/unloading facilities and equipments, storage, hiring labour, and provide services within the ports. The term of port exploitation will be limited with the term of land-use right lease. This model is applied in VICT Port, Cai Lan Calofic vegan oil terminal, Thang Long cement port, etc(Daudey and Matsumoto, 2017).

In general, the operation of Ho Chi Minh City seaport system is driven towards the rent-seeking of enterprises who are running such terminals regardless the overall benefits of the region, and in the substandard level in comparison with the port management of neighborhood countries. Even the unfair competition among its terminals has not been properly concerned that eliminates the advantages of Ho Chi Minh City seaport system,

diminishes the regional economic development and legitimate interest of stakeholders (Weinrit and Neumann, 2015).

Recognising that the supply-demand equilibrium and volume of cargo handled over these terminals are essential for evaluation of ports' operating efficiency in order for planning, boosting investment and sustainable development of this seaport system in the next stage. According to the statistics of Ho Chi Minh City Marine Port Authority, the total volume of cargo undergone Ho Chi Minh City seaport is continually increasing over years which will reach the targets soon (Hoa and Haasis, 2017). However, taking into account between the growth rates, the volume of cargo recently and planned capacity of this seaport system (excluded mooring buoys and anchorage areas), the expansion of port infrastructure will not be crucial in the short term, because it still has the room for improving the performance, particularly the control and distribution of cargo flow among its terminals (Nguyen et al., 2018).

**Table 2: Volumes of cargo and passengers in Ho Chi Minh City seaport system in 2011 - 2018**

Year	Total volume		
	Cargo (tonne)	TEU	Passengers
2011	68,606,911	3,565,192	72,365
2012	71,609,014	4,080,354	43,401
2013	75,631,478	4,357,725	45,366
2014	84,355,239	5,098,874	52,903
2015	93,150,706	5,400,636	41,722
2016	100,516,842	5,716,639	37,604
2017	107,229,105	5,956,810	85,032
First half of 2018	54,031,596	2,849,344	38,575

Source: Ho Chi Minh City Marine Port Authority, 2018.

### 3. SWOT evaluation of Ho Chi Minh City seaport management

#### 3.1. Strength

Owning a diversified seaport system and meeting all import and export goods and consumer goods in the world.

There are great advantages of geographical location and natural conditions; connecting water transport with seaports and other economic areas. The Saigon - Vung Tau fairway operates stably, with little sedimentation.

The operation of seaport exploitation has a solid foundation when the volume of cargo through the port has increased steadily for many years.

City Ho Chi Minh is leading the country in logistics activities, logistics services are being improved positively.

City Ho Chi Minh always leads, pioneering in administrative procedure reform in seaport industry activities.

#### 3.2. Weakness

Seaport infrastructure lacks uniformity, most seaports are deep in the inner city, there is no land fund to expand; Transport infrastructure connecting with the port is still limited, not ensuring timely cargo circulation.

Port infrastructure (wharves, warehouses, equipment) in comparison with other countries in the region is generally outdated, slow cargo speed.

Seaports mostly focus on loading and unloading and warehousing activities, contrary to the trend of world seaport management - the port is a package distribution center, logistics distribution center.

The State's specialized management system in port operation is not yet streamlined, many agencies and departments participate in management, leading to overlap.

Cumbersome administrative procedures, many shortcomings, especially customs services, prolong the release time.

#### 3.3. Opportunity

Global economy and shipping industry have many signs of prosperity and stable recovery

The amount of goods going through the port will continue to rise if the Kra canal project (Thailand) is completed.

Activities of seaport exploitation and infrastructure development are closely connected with the Government's concern and management levels in the current period.

Reforming administrative procedures is being paid

attention and promoted.

Many policies are beneficial for seaport activities such as ASEAN Single Window and National Single Window; The WTO Trade Facilitation Agreement (TFA) has been adopted.

#### 3.4. Threats

The shipping company alliance is established to dominate the source of goods and destination ports in the transport and port operation.

The movement of shipping industry to larger capacity vessels and container ships puts pressure on the existing seaport system.

The devaluation in transport services, terminal services and storage of goods ... difficult to control and overcome. If this situation is prolonged, not well controlled, it will not ensure the re-investment capital and improve the port infrastructure equipment, leading to the obsolete seaport system in the future.

The planning of wharves and harbors still has no unified policy on the scale of bridges, warehouses, service areas ... there is a risk of recurring small and scattered investment situation like the last time leading to shortcomings in management.

Ho Chi Minh City seaport is facing direct competition from the current Cai Mep - Thi Vai port area and Dong Nai, Long An and Can Tho port areas - forecast by 2030. In logistics activities, the outsourcing trend is not good, leading to competition with foreign enterprises is limited, lack of links in seaport exploitation activities.

## 4. Recommendations for enhancing operation efficiency at Ho Chi Minh City seaport system

### 4.1. Policy in port construction

There reveal the major constraints in the current mechanism of planning, investment, maintenance, maintaining the technical standards of terminals in Ho Chi Minh City seaport system as stated in section above. Therefore, it calls for short-term solutions as follows:

- To provide the prerequisites for seaport business, i.e. the requirements of minimum scale, the length of docks, acreage of storage facilities; to set the framework of renovation and upgrading the existing seaports which is aimed to avoid any break of strategic plan, to ensure the

efficiency of port operation as a whole; to set the timeline for self-upgrading programmes, or force them to participate in joint venture or merge into others to replace the outdated facilities; to guarantee the comprehensive of scale, capacity of seaport system in association with logistic services (e.g., storages, connecting infrastructure of local and regional area);

- To guarantee the coordination between the Ministry of Transportation and local governments in process of planning, developing seaport; to unify the model of port operation/ management (as further detailed in sub-section 3.1.5);

- Local governments are required to reserve the proper land lots for dredge disposal where should be within the planned area to develop seaport (strip of land or lowland to use dredging products for levelling); the government, the Ministry of Natural Resources and Environment are urged to issue and enforce the regulations in regards of periodic dredging, maintenance of seaport fairways, water zones and water areas. The inspection of sludge shall be performed by independent contractors;

- To ensure that the planning of resident and urban areas shall not break the existing planning of seaport. For example, in case of Cat Lai terminal, the damages were estimated to thousands billions of Vietnam Dong; however, it did not work effectively. The Law on Planning (No. 21/2017/QH14 dated 24 November 2017) and relevant regulations do not detail any provisions in relation to arrangement of industrial zones, export processing zones: regarding the nature of industrial zones, export processing zones, the minimum distant from the fence of such areas to resident is 50 metre;

### 4.2. Recommendations for management models

In the period to 2023, the following actions should be performed:

- Issuing and implementing the electronic process at seaports in the light of administrative procedure reform, public services transparency, time and cost saving for businesses;

- Enhancing oversight activities regarding marine activities, particularly at seaports, to guarantee the management, exploitation of ports, health-safety-environment protection, fire fighting, preventing risk of pollution, controlling services price table;

- Building the institutional capacity, land-use right and

water-use right management, launching the comprehensive development programme for seaport as a whole system, in line with other economic sectors, long-term sea planning, and boosting logistic, inland container depot (ICD) respectively.

For further stage towards 2025, it should complete and implement the model of “Management Board of port investment and operation” which is legalized in Article 87, 88 and 89 of Maritime Law No. 95/2015/QH13 (dated 25 November 2015) and “Port Owners” management model. The benefits include ensuring the development of port infrastructure following the strategic plan (comprised of the appropriate time and focusing point of investment), in line with the connecting infrastructure (roads, highways), logistic services centres and urban development; governing the port exploitation properly in accordance with the market supply-demand rules; incentivizing the engagement of other economic sectors (private firms, foreign investors) in building ports and terminals; taking advantage of geographic location; selecting competent port operators; price optimization.

#### *4.3. Recommendations on strategic planning of seaports and connecting infrastructure*

##### *4.3.1. Strategic planning of seaport infrastructure*

###### *4.3.1.1. Ports/ Terminals*

- Ports/terminals in Dong Nai river: there will not allow to construct any new port/terminal in this area because of the overloaded capacity. After 2030, it plans to move Sao Mai (Hocilm) cement and Ha Tien cement terminals to Hiep Phuoc port; to move Saigon Shipyard and SaigonPetro terminal from Dong Nai river to Nha Be Port. The existing ports/terminals in Dong Nai river will focus on container shipment and consolidated inland container depot (in accordance with current strategy) connected to Belt Road No. 2 and inland water facilities.

- Ports/Terminals in Saigon river: to foster the move of cargo ports to Hiep Phuoc, and shipyards, petrol terminals to Nha Be; at the same time, there will not allow to upgrade the existing facilities. After 2030, activities in Tan Thuan II upstream port will be terminated or converted their functions when the expiry of land-use right (comprised of VICT, Tan Thuan Dong Port, Ben Nghe Port, Saigon Port, ELF GAS).

Moreover, when the prerequisites of port-related businesses are provided, the government shall boost the

merge of small-scale facilities to others in order to create the comprehensive system of ports/terminals, storages, equipment and manpower, etc. For example, Lotus port will be merged into Vegetable port; Bien Dong port will be merged into Tan Thuan II port.

- Nha Be river: it will allow to invest, upgrade and expand of terminals, storages serving the oil tankers and LNG tankers while also concentrate on land reserve for ports moved from other locations to this area. The target is that such area will focus on the development of petrol terminals, shipyard and auxiliary services, dry docks and ship disposal.

- Hiep Phuoc Port: to continually improve the facilities; to convert the function of Hiep Phuoc Power Plant’s terminal (being closed since 2009) to syndicated services port for serving activities within Hiep Phuoc Industrial Zone.

###### *4.3.1.2. Mooring buoys, anchorage areas*

In order to govern the marine safety, prevent any risk of pollution, recommendations are provided as follows:

- In the period to 2025: it will not issue any new construction permit in the area of Sai Gon, Nha Be and Dong Nai rivers. The mooring buoys and anchorage will be gradually re-arranged in accordance with strategic plan; to terminate the operation of any substandard mooring and anchorage facilities, or not in conformity with the plan, or expiry of exploitation term (10 years);

- To relocate the mooring and anchorage facilities in Sai Gon, Nha Be and Dong Nai river to Soai Rap area to reduce the reduce the traffic density of ships and inland waterway vessels through the canal; at the same time, to decrease the transport costs (due to vessels from the southwest would not have to take a long distant to ports inside Saigon). The re-locating plan is also needed to prioritize the current mooring/anchorage operators (through bids or public-private partnership programmes) who are able to launch the facilities in the new area before 2030;

- The location of mooring/anchorage should be categorized in accordance with the vessel tonnage and types of cargo to prevent any risk of pollution, environmental damage, to be consistent with the seaport system (including the connecting infrastructure: roads/highways, railroad, inland water routes);

- There needs more insightful in regards of the role of

mooring and anchorage facilities in further stages (post-2030): being determined to implement the policy “proactive strategic plan for seaports to foster the regional socio-economic development”, “mooring/ anchorage buoys shall be the integral part of seaport system rather than the short-term, temporary solutions as usual”.

#### 4.3.2. Connecting infrastructure, logistic services centres

##### 4.3.2.1. Navigation channels, sea zones, water zones

- To improve the capacity of navigation channels by renovate the sharp-curve areas, or sand strips in the middle of river: Ganh Rai bay, Dan Xay, Kervella, L'est cape, Da Han;

- In the period of 2018-2020: dredging Soai Rap channel to maintain the minimum depth of -8.5 metre CD as the same as the Saigon – Vung Tau channel to increase the volume of vessels passing over this area. In the next stage (post-2025), the dredging to the level of -9.5 metre CD should be concerned;

- To establish the mooring/ anchorage for storm sheltering and emergency cases: the survey, construction and operation should be commenced before 2020;

- To terminate the operation of Thieng Lieng mooring location, and relocate to Go Gia mooring, Hiep Phuoc port for safety and efficiency.

##### 4.3.2.2. Road/Highway traffic

The Ministry of Transportation and Ho Chi Minh City People's Committee should prioritize the investment to road/highway projects which directly impact on the seaport operation, particularly in the duration between 2020 and 2025:

- The belt road 2 and 3;
- The road connecting Cat Lai and Phu Huu terminals to the belt road 2 and reduce the traffic jams on Nguyen Thi Dinh Street;
- Upgrading the North-South axis route connecting from Hiep Phuoc Port to belt road 2 and 3;
- Building Cat Lai Bridge (as approved by the Prime Minister to replace the former ferry terminal); furthermore, broaden the 25B Provincial Road link Ha Noi highway to Cat Lai terminal;
- Upgrading bridges in Saigon River, Dong Nai river, Kenh Te channel, Phu Xuan River, Muong Chuoi River to maintain the minimum clearance of 7.5 metres for 54

TEU barges to operate, to reduce the pressure on existing facilities.

##### 4.3.2.3. Railway

To complete the railway routes and cargo stations in the period of 2025-2030:

- High-speed railway from Ho Chi Minh City to My Tho – Can Tho (planned to Ca Mau province in the next stage), connecting to existing North-South railway at An Binh Station, with the estimated length of 174 kilometres;
- Specialised railway connecting to Hiep Phuoc Port, with the length of 38 kilometres;
- Tan Kien Station: combination of passenger and cargo transportation, loading/unloading cargo arrived to/depart from Ho Chi Minh City;
- Long Dinh cargo station connecting to Hiep Phuoc Port and loading/unloading cargo for industrial zone cluster in Ben Luc District, Long An Province (around 15 ha.).

##### 4.3.2.4. Inland water transportation

In order to strengthen the connection, reduce the traffic jams and optimize the freight, logistic services costs, it urges to launch the upgrading programme for inland water traffic routes: (from 2018 to 2025):

- Project of inland water route connecting Saigon River and Dong Nai River through Rach Chiec canal, Ong Nhieu canal;
- Project of renovation and exploitation of inland water routes linking ports from Hiep Phuoc to Nha be; rach Dia– rach Doi – Phu Xuan River – Nha Be River; Ong Lon 2 – Phuoc Kien River – Muong Chuoi River; rach Tom – Muong Chuoi River; rach Doi – Kinh River (Dong Dien River) and rach Dua – Giong River – Kinh Lo River;
- Projects of inland water connecting ports, fairways to ICDs, including Sai Gon – Ben Suc route linked to An Son ICD (Binh Duong Province); Sai Gon – Moc Hoa route link to Ben Luc ICD (Long An Province).

##### 4.3.2.5. Inland container depot (ICD)

The development of ICD shall be in consistent with the seaport system as a whole, requires the tight collaboration between Ministry of Transportation, other Ministries and local governments. As doing so, recommendations are provided:

- To build the legal framework regarding investment and

exploitation of ICD, including major issues: minimum scale, capacity, storage, service prices, management model, incentivizing mechanism, land-use right lease for ICD businesses;

- Local governments where there are planned ICD should accelerate the investment and building ICD shortly, particularly through the model of public-private partnership (PPP): the State invests to build the connecting infrastructure while the ICD entity constructs the ICD, logistic services centre; or the State invests the whole system and the enterprises lease such facilities for operation.

#### 4.3.2.6. *Logistic services*

To enhance the competitiveness of domestic logistics industry against the rivals, suggestions should be included:

- To continue the administrative procedure reform to level playing field, to facilitate logistic services suppliers with more transparent policies;

- To establish two logistic services centre in accordance with Prime Minister's Decision No. 1012/QĐ-TTĐ dated 3 July 2015 approving strategic plan for logistic services nationwide to 2020, with vision towards 2030.

- To perform the plan of equalisation of State-owned enterprises, joint venture, collaboration with international and domestic services suppliers to broaden the network and business opportunities, to complete the full supply chain of logistic industry.

## 5. Conclusion

After reviewing the situation of Ho Chi Minh City seaport system and on-going development trend of international marine industry, given that such system has reached remarkably progressive milestones over years, the efficiency of managing and exploiting activities of such port however could not meet the demands of quick-growing transportation of goods by sea within this area. The constraints which the seaport system is facing are compounded with illogical distribution among ports/terminals regardless the scale, capacity and geographic locations; ineffective and insecure mooring and anchorage buoys; undeveloped logistic services centres and lack of connecting infrastructure. In order to enhance the operation efficiency of such port in particular and for Group 5 ports (southeast ports) there urges the

systematic solutions in the perspective of longer term and comprehensive vision. This paper has provided 3 major groups of recommendations as follows:

- Recommendations on legal framework and institutional capacity to manage the ports;
- Recommendations on strategic planning of seaports and connecting infrastructure;
- Recommendations for enterprises/ ports operators.

To achieve the optimal result of such recommendations, the interdisciplinary actions are required and the timeline of such actions is the key factor of success that requires the tight collaboration among State authorities, port businesses, vessels and relevant stakeholders. Besides, the strong political will warrant the strict implementation of strategic plans and make Ho Chi Minh City seaport system more competitiveness and efficiency.



## References

- Dang, G. and Pheng, L. S. (2015). Vietnam—Economic, Trade and Infrastructure Overview. *Infrastructure Investments in Developing Economies*. Springer.
- Dang, L. (2018), Intelligent Transport System and its application in Ho Chi Minh city.
- Daudey, L. and Matsumoto, T. (2017), Integrating urban resilience and resource efficiency into local green growth strategies: the case of fast-growing cities in Southeast Asia. *International Journal of Urban Sustainable Development*, Vol. 9, No. 2, pp. 226-241.
- De Meulder, B. and Shannon, S. (2019), The Mekong Delta: A Coastal Quagmire.
- Dong, T. P. and Chapman, D. M. (2017). Seaport Development in Vietnam: Evaluation Using the Analytic Hierarchy Process. *Using Multi-Criteria Decision Analysis in Natural Resource Management*. Routledge.
- Hoa, H. T. T. and Haasis, H.-D. (2017), Improving Value Chain Through Efficient Port Logistics. *Management*, Vol. 5, No. 4, pp. 321-335.
- Hung, N. M. (2018), Vietnam in 2017: Power Consolidation, Domestic Reforms, and Coping with New Geopolitical Challenges. *Southeast Asian Affairs*, pp. 407-428.
- Kuo, T. C., Chen, G. Y. H., Hsiao, Y. L., Dang, H. T., Chiu, M. C. and Hsu, C. W. (2017), Investigating the influential factors of sustainable supply chain management, using two asian countries as examples. *Sustainable Development*, Vol. 25, No. 6, pp. 559-579.
- Liu, C., Wang, J., Zhang, H. and Yin, M. (2018), Mapping the hierarchical structure of the global shipping network by weighted ego network analysis. *International Journal of Shipping and Transport Logistics*, Vol. 10, No. 1, pp. 63-86.
- Lovells, H., Boots, S. and Harris, J. (2016). Vietnam infrastructure: Needs and challenges. *The Principles of Project Finance*. Routledge.
- Nguyen, H. T. M., Do, H., Kay, A., Kompas, T., Nguyen, C.-N. and Thang, T. C. (2017), The political economy of policy exceptionalism during economic transition: the case of rice policy in Vietnam.
- Nguyen, N. T. and Tran, T.T. (2018), Raising opportunities in strategic alliance by evaluating efficiency of logistics companies in Vietnam: a case of Cat Lai Port. *Neural Computing and Applications*.
- Nguyen, T. L. A., Saleh, A. S. and Safari, A. (2018), The impact of government policies on FDI decision of multinational corporations: an application to the Vietnamese service industry. *International Journal of Economics and Business Research*, Vol. 15, No. 2, pp. 204-222.
- Thuy, H. T. T., Loan, T. T. C. and Phuong, T. H. (2018), The potential accumulation of polycyclic aromatic hydrocarbons in phytoplankton and bivalves in Can Gio coastal wetland, Vietnam. *Environmental Science and Pollution Research*, Vol. 25, No. 18, pp. 17240-17249.
- Tran, T. A. T. and Takebayashi, M. (2015a), The Recent Trend of Viet Nam Based Maritime Container Shipping and Its Implications for Ports. *Journal of Coastal Zone Studies*, Vol. 3, No. 3, pp. 93-105.
- Tran, T. A. T. and Takebayashi, M. (2015b), Time Series Analysis for Viet Nam Container Cargo Movements- Implications for Port Policy Management. *Journal of the Eastern Asia Society for Transportation Studies*, Vol. 11, pp. 2392-2411.
- Weintrit, A. and Neumann, T. (2015). *Information, Communication and Environment: Marine Navigation and Safety of Sea Transportation*, CRC Press.
- Yoon, D.-G. and Doan, T. B. T. (2018), A Study of the Logistics Development in Hai Phong Port. *Journal of Korean Navigation and Port Reserch*, Vol. 42, No. 2, pp. 137-142.