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# Potential for the Development of Inland Port Network

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### Abstract

By 2025, inland waterway will handle 35 million tourists, of which the number of passengers passing through the port will reach 9.5 million. 50% of inland ports serving tourism will be upgraded according to the standards of service classification and investment in upgrading and new construction of 3-5 inland ports. By 2030: Inland waterways will handle 55 million tourists, of which the number of passengers passing through the port will reach 20 million. 100% of inland ports serving tourism will be upgraded according to the standards of service classification and investment in upgrading and constructing 5 to 10 inland ports. To accomplish this goal, the Ministry of Transport proposed solutions to develop inland port infrastructure for tourism development. Specifically: Encouraging the upgrading of inland waterways wharves to serve tourism in famous tourist sites with large tourist flows into inland waterway ports exclusively used for tourism. Northern region: Priority is given to the investment in a system of inland waterway ports exclusively used for tourism at places of spiritual tourism, sea and island tourism and tourism in the lake bed. In the Central Region: Priority is given to the investment in a system of inland waterway ports exclusively used for tourism in famous places, landscapes, and eco-tourism. In the South: To prioritize investment in a system of inland waterway ports exclusively used for eco-tourism, river water and tourism of lake bed.

**Keywords:** inland port, transportation network, developing plan

### 1. Introduction

Report of Department of Transportation Hai Phong said that in 2005, the city had 25 wharves and 5,892m wharves; in 2010, there will be 37 wharves and 8,374m wharves; in 2017, it increased to 44 wharves and 11,012m wharves. The volume of goods through the port increased from 13.5 million tons in 2005 to 38.4 million tons in 2010 and sharply increased in 2017 to 92.05 million tons. The number of vessels passing through the port system in Hai Phong increased from 9,016 in 2005 to 15,170 in 2010 and 18,659 in 2017. However, the scale and capacity of transport infrastructure still reveal many inadequacies. , connectivity between transport modes is limited. The system of railways and inland waterways connecting with the seaports is not synchronized. The railway connects to Hai Phong seaport via only one Hai Phong-Hanoi railway with 3 specialized railway lines connecting the Hanoi-Hai Phong route with harbors along the Cam river from Vat port area How to Chua Ve port. However, this railway has been built for a long time, single track, narrow gauge, lack of modern auxiliary facilities, which limits the ability to operate and often causes traffic congestion at train hours running through the routes. City. The volume of goods transported by rail accounts for a low proportion, lack of dry ports and transport hubs by rail. Regarding inland waterways, Mr. Nguyen Duc Tho, Director of Hai Phong Department of Transport, said that inland waterways connecting Hai Phong port area have 5 main routes, but in addition to the sections associated with the sea channel (such as those with sections running through Lach Huyen, Bach Dang and Cam rivers) with good running depth, most rivers have certain limitations. For example: narrow river bed, shallow channel, many sharply curved sections, many shallow rapids in upstream areas (Kinh Thay river, Kinh Mon river); some rivers are influenced by high or low flow (upstream of Ha Ly and Lach Tray rivers); Some river routes are restricted by stateless bridges, pontoon bridges (Ha Ly, Hoa, Thai Binh river). In addition, the inland waterway ports have not been synchronously planned yet, lack of technical infrastructure, low-level loading and unloading technology, the maintenance of

channels, the system of buoys and signboards has not yet been started. Proper investment, limited land-waterway connection. Another issue to be mentioned is the proposal of Hai Phong Port Joint Stock Company on the proposal to deliver Vinalines (via Hai Phong Port Joint Stock Company) directly to invest in 2 ports and logistics service area in the port area. Lach Huyen to relocate Hoang Dieu port in accordance with the urban planning of the city. Hai Phong. While this is the largest integrated port in the North. When Hoang Dieu port stops operating without any

alternative ports, Hai Phong Port will reduce 8-10 million tons of cargo throughput every year and affect thousands of workers here. Therefore, it is necessary to urgently invest in building a new port before relocating Hoang Dieu Port. Hai Phong is one of the few localities currently having 5 types of transportation: road, maritime, railway, aviation, inland waterway. Traffic system in Hai Phong has been invested heavily but it has not yet met the requirements of connecting to the sea gate of the Northern provinces.



**Fig. 1:** Old inland port in Vietnam

The current port system is crowded but not strong, while the goal of Hai Phong port is not for the development of the city but for the North. How to develop waterways and seaways in a synchronized manner? How to ensure that water transport divides the flow to avoid conflicts of shipping with passenger transport along the river. It is necessary to enhance the role of inland ports in Hai Phong. Inland ports need to be divided into two types: inland ports connected to maritime ports (for export and import) and inland ports to serve the needs of Hai Phong and the region. Proposing relevant departments to do research and propose to the Ministry of Transport master plan to exploit the full potential of Hai Phong. The railway system must be like a hand connected to the seaport. It is necessary to formulate ICD (dry ports) to consolidate goods, thereby loading and unloading into waterways to go to sale places in order to bring into full play the advantages of waterways. According to the survey, the development of inland waterway transportation will be encouraged through a number of policy mechanisms: invest in infrastructure development; To encourage the development of inland port, waterway infrastructure; to Encourage the development of inland waterway vehicles; To encourage the development of inland waterway transport activities; Invest in logistics infrastructure and accelerate the socialization of logistics services. Specifically, will reduce corporate income tax of 30-50% in the first 5 years of exploitation for investors building the inland water port with the system of warehouses yards for logistic activities; Modern passenger port.

## 2. Shortcomings

In recent years, tourism activities, water-based resorts with many ecotourism attractions, attracting thousands of ships

and boats serving tourists have emerged as a potential factor of the area. The area, bringing income to people and localities. Although the transport mode has many outstanding advantages, the efficiency of inland waterway transportation in the Mekong Delta has not matched the current potential.

According to the Inland Waterway Department of Vietnam, the inland waterway network in the Mekong Delta is 13,000 km long, but the transportation operation is too weak. There are currently only five of the more than 2,500 inland waterway ports in the region capable of loading and unloading containers. Statistics from the Ministry of Transport show that 70% of the goods of the Mekong Delta still have to convey to the port of Ho Chi Minh City and Cai Mep by road, which now incurs transportation costs higher than 10 to 60 %. Meanwhile, inland waterway transport capacity can hardly be increased due to inadequate infrastructure, lack of dedicated docks capable of handling containers. In view of the state management, the Vietnam Inland Waterway Association, said that the biggest inadequacies limit the efficiency of inland waterways, the proportion of investment in this mode in the Mekong Delta provinces is too few compared to the investment in the whole industry. Transport specialists have reported: "While transportation of TNM accounts for about 48% of the total transport load of the country, 80% of transportation investment is spent on expanding the road network." Being in the planning of seaport group No. 5 (port cluster in Ho Chi Minh City, Dong Nai, Ba Ria - Vung Tau), the inland waterway system of Dong Nai province has potential for economic development. However, the inland waterway system still remains at a potential level. According to Dong Nai Department of Transport, the inland waterway system in the province is

over 2,600 km long. Of which, about 200 km of waterway of 14 routes is being exploited well; The four ports of Dong Nai, Nha Be, Long Tau and Thi Vai are also planned to have port docks, a total of 44 ports, but currently only 15 are invested. Specifically, the port of Go Dau - Phuoc A port is planned eight ports, so far five ports come into operation. Specifically, the port of Go Dau - Phuoc A port is planned eight ports, so far five ports come into operation. In the Nhon Trach district, only seven terminals were planned and 26 remaining were not built. Dong Nai ports serve more than 11 million tons of cargo each year, accounting for more than 15% of the plan (reaching over 80 million tons of cargo traffic by 2030). Based on the analysis of factors affecting the success of the port as well as the trend of seaport development in Asia - Pacific and Vietnam, together with the basis from the system development planning, Vietnamese seaports until 2020, with orientations to 2030, the orientations for development of Vietnam's maritime and seaport focus on:

-About shipping, improve the quality of sea transport services, meet the needs of domestic shipping, improve the market share of import and export goods to reach 27-30%, combined with freight leasing. Foreign countries on international transport routes. The volume handled by Vietnamese fleet was about 110-126 million tons in 2015; 215-260 million tons by 2020 and by 2030, increasing by 1.5-2 times compared to 2020; the number of passengers reached 5 million in 2015; 9-10 million in 2020 and 2030 increase 1.5 times compared to 2020. To develop the Vietnamese fleet of ships in the direction of modernization, focusing on the development of special-use ships (container ships, bulk cargoes, oil ...) and large tonnage ships. In 2010, the total tonnage of 6-6.5 million DWT; by 2015, the total tonnage of 8.5-9.5 million DWT will be 11.5-13.5 million DWT by 2020. Gradually rejuvenate the Vietnamese fleet until 2020 reaching the average age of 12 years.

Regarding the shipbuilding industry, by 2020, to develop our country's shipbuilding industry up to regional advanced standards, newly build ships of up to 300,000 DWT, passenger ships, petroleum service ships and ships. Rescue and rescue, maritime security, constructions.

Regarding the orientation of developing the seaport system in the coming period, in addition to upgrading, intensive investment, promoting the capacity and efficiency of existing ports, it is necessary to focus on the construction of transshipment ports. In addition, there are some specialized deep-water ports for loading and unloading containers, coal and oil, large-scale oil, modern equipment, etc.

International trade between Vietnam and the world has seen strong developments, and this has really become a very favorable condition for the development of Vietnam's shipping industry. And in that development process, the requirements for the development of shipping services towards modernization with increasing quality, reasonable cost, safety, limiting environmental pollution and saving energy. ; Increasing competitiveness of shipping is essential for Vietnam's shipping industry to actively integrate and expand shipping markets in the region and the world. /.

### 3. Planning for development

The adjustment of the Planning is to ensure that through the entire volume of import and export goods and exchanges between regions and regions in the country by sea, it meets

the country's socio-economic development requirements with the planning capacity. of the seaport system at the planning time. In addition, to focus on building international gateway ports in Hai Phong, Ba Ria - Vung Tau and the key economic region of the Central Region (when possible) to receive ships of up to 100,000 tons (8,000 TEU container ships). ) or larger, capable of incorporating an international container entrepot role; large-scale specialized ports for metallurgical complexes, petrochemical refineries, coal-fired thermal centers. Regarding the content of planning, according to territories, Vietnam's seaport system to 2020, with orientations to 2030, there are 6 groups of ports: Group 1: Northern seaport group from Quang Ninh to Ninh Binh; Group 2: North Central port group from Thanh Hoa to Ha Tinh; Group 3: The group of central seaports from Quang Binh to Quang Ngai; Group 4: The group of Nam Trung Bo seaports from Binh Dinh to Binh Thuan; Group 5: Southeast seaport group (including Con Dao and on Soai Rap river in Long An province); Group 6: seaport group in the Mekong River Delta (including Phu Quoc and the southwest islands). According to the scale, functions and tasks, the Vietnamese seaport system has the following types of ports: The national general port is the main port in the Vietnamese seaport system, including: Hai Phong and Ba Ria international gateway ports. - Vung Tau and Van Phong international entrepot port, Khanh Hoa province (Type IA); Regional hub port (Type I), including: Quang Ninh, Nghi Son (Thanh Hoa), Nghe An, Ha Tinh, Thua Thien Hue, Da Nang, Dung Quat (Quang Ngai), Quy Nhom (Binh Dinh), Thanh Ho Chi Minh City, Dong Nai and Can Tho. Local general ports (Type II) have an attractive scope and serve primarily within the locality (province or city). Specialized ports (Type III) directly serving concentrated industrial establishments, goods handled by ports with specific characteristics (crude oil, petroleum products, coal, ores, cement, clinker, passengers, etc.) and is an item in the overall industrial facility. Particularly for ports specializing in transshipment of imported coal for thermal power plants, there will be a common receiving and transshipment hub for each cluster of plants. Potential ports identified in the plan are developed when there is demand and investment capacity, mainly invested in the later stages of planning; It is necessary to reserve adequate land fund to develop these ports to meet the economic-technical requirements in order to ensure future investment efficiency. The total funding for the development of Vietnam's seaport system till 2020 is estimated at between VND 80-100 trillion (excluding investment funding for specialized ports and wharves); in which, public infrastructure of seaport is about 40-50 thousand billion dong. According to the Master Planning for Inland Waterway Transport to 2020 (Decision No.16/2000/QD-TTg on 2.2.2000) with the orientation of exploiting the natural advantages of waterways In bulk shipping at a lower cost and less impact on the environment. In particular, the plan also aims to achieve vertical integration in the inland waterway transport sector by synchronizing the development of roads, ports, loading facilities, Capable of managing the ship and meeting the need for passenger cargo with higher quality and safety. At the same time, develop an air transport infrastructure to form an interconnected system with other modes of transport and in collaboration with the irrigation and hydropower sectors. As well as upgrading the fleet to a

more efficient, As well as upgrading the fleet to a more efficient configuration, Safe and reasonable, suitable for canals and rivers. It is necessary to expand the financial foundation of the sector, in which the public sector is focused on river transport and in cooperation with the private sector in port development service of loading and unloading cargoes and development of multi-modal transportation; To reserve a suitable land fund for investment projects on the construction of inland waterway ports and wharves, especially container handling ports. According to the draft, to encourage the development of inland waterway means will support 20-30% interest rate of bank for the transport business to build new means of transport with large tonnage, Self-propelled container ships Having a large capacity for transporting goods by inland waterway; Supporting 20-30% interest rate of banks in investing in modern high-speed passenger transport vehicles to operate on the inland waterways. At the same time, it supports the cost of fuel for this type of transportation, especially on the pressure reducing routes for road transport. Besides, the organization will provide the best support services (signaling system, channel notification, anchoring position, entrance, exit, port, loading and unloading, warehousing, transport connection ...); Forecast, information about the source of goods for business; To create favorable conditions for transport business enterprises and individuals to access and enjoy preferences from the Government's support policy, such as tax, fee and credit policies In addition, the planning also targeted with large fleet: capacity up to 12 million tons; In traffic flow, the increase in length. International experience shows that the modernization of the fleet is a necessary development objective to increase the proportion of inland waterway transport in total freight relative to the current situation; Paralleling is the improvement of transport cost effectiveness for fuel consumption and maintenance of equipment, while reducing greenhouse gas emissions per tonne per kilometer. Apply modern technology to existing ships and their operations such as improving propulsion with significantly lower emissions; Install the propeller head to improve thrust; Installation of articulated barge systems, ... Planning and conducting construction with state-of-the-art technology to support fleet improvement and new or more effective. Attractive financial regimes will also provide incentives for new investment or upgrading of existing fleets.

Vietnam has developed its fleet size over the past few years, but its average shipment capacity is still relatively low. So, the potential to expand the size of Vietnam's VG fleet is still great. Luis C. Blancas and M. Baher El-Hifnawi, authors of the book "Promoting Trade through Transport with Low Competitiveness and Low Emissions", argue that scale expansion will bring economic benefits. Depending on the load of the ship, each time, the load of the ship increased by 1%, transport costs decreased by more than 1%. Not only reducing fixed costs such as labor, capital, and insurance on DWT, large vessels can save more fuel, resulting in reduced fuel costs and CO<sub>2</sub> emissions. The authors also commented that the expansion of the fleet size in Vietnam has not been influenced by clear public policy interventions. This is proof that the transportation industry is flexible enough to meet the growing transport volumes while modernizing and expanding. But it is predicted that Vietnam will have difficulty using large size vessels,

especially network infrastructure bottlenecks that limit the development of inland waterways or the use of ship river-sea ferries. In Western Europe in general and the Netherlands in particular, rapid expansion is supported by government tax incentives and other financial measures.

In order for the inland waterway industry to develop, it is imperative that we take action in the areas of waterways, wharves, fleets, logistics, and infrastructure. When considering the financial budget of Vietnam, it is necessary to focus investment in waterways and ports of the main transport network. Ensure regular maintenance of priority waterways to facilitate better circulation of this market. Incorporating inland water transport and shipping has become a major option for transport companies, and supports the development of multimodal logistics warehousing. So, the main waterway traffic in Vietnam is the Red River Delta (18 provinces), the Mekong Delta (in 15 provinces). At general cargo traffic of these provinces, the proportion of inland waterway traffic and inland waterway traffic predominates. Inland waterways have the first online trading platform under developed logistics "drags down" the competitiveness of the business. According to statistics, 13 provinces and cities in the Mekong River Delta do not have any formal logistics or seaport center of the sector or economic zone. More than 70% of goods from the Mekong Delta have to move to HCM City or CAI Mep - Thi Vai port at Vung Tau to be exported abroad, not directly from the Mekong Delta. The Mekong Delta now accounts for over 50% of the country's total agricultural exports. However, the lack of an air cargo logistics center, a seaport officially becomes a bottleneck of the export of goods in this area. Nowadays, in order to transport large quantities of cargo from seagoing vessels at the ports of CAI Mep - Thi Vai area (BA Ria - Vung Tau), most shippers have to go through many intermediary channels to collect dozens of barges waiting at the port for immediate loading and unloading as soon as the vessel comes in, avoiding the costs incurred.

However, the mobilization of many barges at the same time that the loading and unloading capacity at the port is limited, leading to the condition of the barge must be empty waiting for the turn, sometimes up to more than 10 days. Meanwhile, other shippers often find it difficult to find barges to carry their goods.

The application of technology in the inland waterway transport sector is feasible, which can solve the problem of unbalanced supply and demand of transport vehicles. According to him, through smartphone application, barge owners can connect directly with shippers, reduce waiting times and improve barge performance.

In particular, the process of registration - posting in just a few simple steps, the application has a friendly interface, so users without technology are also easy to operate. Operating under the online trading platform model, shippers looking for carriers or owners of the means of transport need to post on the IziFix transport platform. As the information is public, the parties will view and select the appropriate partners, then contact by phone, email or email, then negotiate and sign the service contract. All the processes on the app are completely free, users only need to make sure their phone has an Internet connection. If before, when the barge has not goods, only find information through the familiar and waiting partners now, media owners can take advantage of posting on IziFix, direct

access to hundreds of shippers to Shorten the spare time, optimize the transport extraction. In contrast, the source information from IziFix also helps owners actively find the means to meet their transportation needs. Through the system, users can easily manage and monitor vehicles being transported in real time using GPS. Another feature of IziFix is being bargained by barge owners who are "bargain trading" with clear, transparent information that contributes to the regulation of supply and demand for vehicles, minimizing redundancy or shortage Means of transport on the market.

#### 4. Conclusion

Seaports are the gateway to the national economy and play a particularly important role in contributing to the budget revenues of the port provinces, so the local interest in investment and development. Seaports, improving cargo throughput and port operation efficiency are extremely correct, which is praiseworthy, Ministry of Transport fully supports. However, the development of ports, how to distribute goods, which transportation routes will follow the rules of market economy and the regulation of the State by macroeconomic tools, in which the direct tool, the most basic is the planning, not the locality wants to keep it. Each seaport and port in the Port Group No. 5 has been specifically identified with its functions and role in the national seaport system as planned. The effective investment and exploitation of ports in accordance with the plan will both ensure the requirements and growth targets of the localities and ensure the stable and efficient development of seaports, thereby step by step will gain maximum convenience and minimum cost for each ton of regional export and import goods. Therefore, the basic solution that the Ministry of Transport has been and will be consistently implementing is to improve the quality of planning and coordinate closely with localities to organize the management and implementation of a master plan. Earnestly. Logistics system includes a combination of many service stages and many fields, of which logistics services in the field of transportation and transport infrastructure are just one stage, one component of which. Seaports are the gateway to the national economy, so developing related logistics services and connecting to ports is considered one of the most important parts of the system. Recognizing the role and significance of the completion of logistics services in the field of transportation in general and seaports in particular, the Ministry of Transport has now completed the project of logistics development in the transport sector up to the year. 2020, orientation to 2030 to submit to the Prime Minister at the end of 2013. For port group No. 5, right from the time of studying the planning for development of seaport system, the Ministry of Transport has coordinated with localities to regulate plan the land fund for developing logistics centers to serve the operation of seaports and ports in the region. In addition, the synchronous development of transport infrastructure is planned to harmonize transport modes, develop multimodal transport to make the most of transport modes, reduce costs. Transportation, logistics development in the field of transport is also a basic goal that the transport industry is trying to implement not only for the Port Group No. 5 but for the national transportation infrastructure system.

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