

# The Orientation for the Development of Waterway Transportation

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**Abstract**—With GDP ratio of about 200%, Vietnam's demand for efficient logistics systems is huge. Meanwhile, with the integration and reduction of tariff barriers, the export competition is increasingly dependent on factors such as quality, labor productivity, and especially low transport and logistics costs. At the same time, Vietnam's proportion of middle-income population is increasing, their consumer demand is also increasing, especially in fast-urbanized areas, and thus requires shipping is growing. Since 2000, the volume of goods transported per ton - km in Vietnam has been constantly increasing at an average rate of nearly 10% per year, higher than the GDP growth rate (averaging 6.4% per year). Data on the fleet capacity in 2018 shows that inland waterway transport accounts for only about 17% of the national freight share, while the proportion of road transport is about 77% and the river transport is 5%. Inland waterways is an advantage of Vietnam, where there is a large network of rivers, not large investment, low water transport costs, which bring very high efficiency with the utilization of natural exploitation. In terms of inland freight, the Vietnamese ship fleet has basically taken over nearly 100% of inland shipments, except for some specialized vessels such as LPG and cement... With container ships, now the number of Vietnamese container ships inland has increased to 39 ships. The cargo throughput of seaports by means of VR-SB in 2016 is estimated at 12.9 million tons with approximately 12,000 ship turns. However, the inland waterway transport is more open. This paper presents policy solutions to improve the transport capacity for Vietnamese domestic fleet.

**Keywords**— Ship fleet, domestic transportation, policy solution, transportation capacity.

## I. INTRODUCTION

Statistics show that there are 3,500 rivers and canals flowing into the sea through 124 river mouths with a total length of about 80,500km, of which 42,000km of river mouths are capable of developing water transport. In addition, there are 272 inland waterways ports and 8,730 seaports. This is really great potential for developing Vietnam's inland waterway transport industry. Compared with other types of transport, waterway transport has the advantage of being able to transport in very large quantities. Specifically, a small barge can be transported by 25 trucks running on the road. Shipping charges are only half to one third of the price of road transport. There is such a great potential, but in recent years, Vietnam's inland waterway transport industry has developed very slowly, mainly due to lack of investment. In the period of 2011-2015, the proportion of road investment accounted for more than 70%, railways were 15%, maritime 4.%, aviation 7.6% and the lowest inland waterway with about 2.2%. For a long time, thinking is familiar with the concept of water transport exploitation based on nature. Means of exploiting water

transport are mostly old and backward. Investment in infrastructure, maintenance and maintenance has not been given adequate attention; transport business model is still fragmented and small; connection with road, rail and sea transport modes is not appropriate and there is no proper planning to create a network. As a unit that manages and operates a fleet of bulk carriers, tankers and container ships, the road Inland waterways must have at least routes and berths that need to be clearly planned, but the reality is that the plan always follows economic development, always following the needs of the market. How to "awaken" the potential that nature has favored Vietnam's inland waterway transport industry? In fact, to develop, investment resources must be commensurate with potentials; must ensure the planning of inland waterway transport routes; building connection points, forming and developing transport service systems, developing specialized vehicle systems; training of a highly specialized labor force ... The Ministry of Transport and Transport must be the lead agency to re-evaluate market issues to help the Government and localities recognize these issues; build clear lists and mechanisms for domestic and foreign private enterprises to consider investment. To concentrate on resolving bottlenecks, connecting inland waterway ports with roads, railways, highways, industrial parks and seaports ... to make the most effective. For example, My Tho port (Tien Giang), under the port of ships can carry 40-50 tons, but the road from there to the highway only carries 20 tons. Or from My Tho port is 30 km from the industrial zone, but there is no way for the container truck to enter, it is considered that the port is useless. Therefore, it is necessary to have enough load roads to connect to the ports for the car transporting goods from the port up. In 2016, the total volume of transport carried by the Vietnamese fleet is estimated at 123.8 million tons, an increase of 4% compared to 2015. Business situation of shipping companies in Vietnam in the past year is continuous with many difficulties due to excess supply of ships, low volume of goods, reduced freight rates. Many shipping companies, including large ones, continue to suffer losses. In particular, the market share of import and export of Vietnam's fleet in recent years has remained at 10-12%. The import and export market of Vietnam's sea-going ships is mainly Middle East, Southeast Asia and Asia, and a small number of Vietnamese ships have exported to Eastern European countries. For dry-bulk import and export, Vietnam's fleet occupies about 12% of the market. There are direct trains to markets Eastern Europe, Middle East, South America but in small quantities. For export and import of crude oil for export, Vietnam's fleet only gained

modest market share. The reason is that the Vietnamese marine fleet has not met strict requirements on quality, safety standards, prevention of environmental pollution ... of foreign import-export companies. According to the Vietnam Ship Owners Association, in order to develop Vietnam's fleet from now to 2020, the Ministry of Transport and Vietnam Maritime

Bureau should soon develop a program and plan for the development of the fleet according to the Government's direction. To submit to the Government a mechanism and policy to provide capital support for Vietnamese transport enterprises to invest in restructure the fleet.

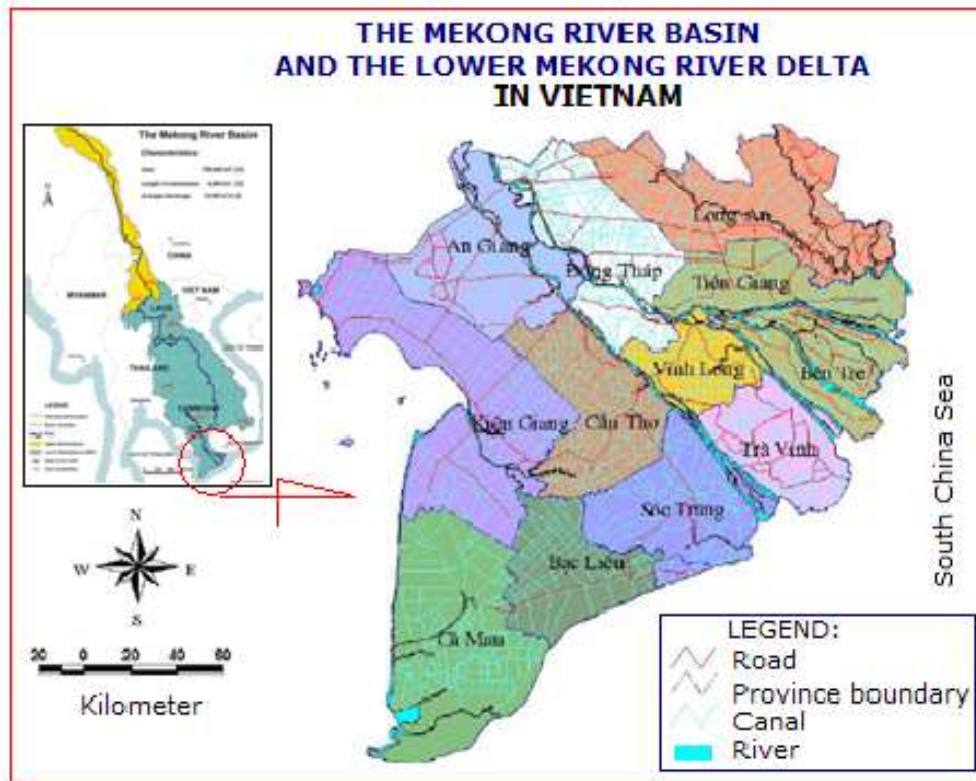


Fig. 1. The Mekong delta for inland waterway transportation

With the development of road transport, the development of inland waterway transport is now a key task of the transport sector. Recently, Vietnamese Inland Waterway Administration has completed the detailed outline of the inland waterway system in the North to 2020 with orientation to 2030. In the future, the system of waterway ports will become the center connects to other modes of transport, contributing significantly to socio-economic development in the localities

**II. DEVELOPMENT OF INLAND WATERWAY TRANSPORTATION**

Orientation of development of inland waterway transportation of Vietnam to 2020 by the Ministry of Transport is to make the best use of natural conditions while concentrating investment plans to maximize the advantages of Inland waterway transport (bulk cargo transport, super-heavy cargoes, low cost, minimizing environmental pollution), meeting the requirements of socio-economic development and economic integration To ensure sustainable development. Total investment capital for development of inland waterway transportation infrastructure until 2020 is about 37.000 billion VND. According to a survey of the Transportation industry, Vietnam is one of the countries with the largest river system

and largest river density in the world. However, investment in water transport is still limited (about 2.5% of investment in transport), thus not fully promoting the potential of inland waterway transport. Both the waterway network in the north is currently over 4.500 km are exploiting transport, of which the national route is 2.664 km, running through most of the economic centers, urban areas and industrial parks. From the birth of Hydropower reservoir Hoa Binh, Son La, Thac Ba, Tuyen Quang and other hydroelectric power plants future such as Lai Chau, Huoi Quang, Ban Chat (Da River) contribute to regulate and reduce the amplitude of the oscillation of flood level, reduce sedimentation downstream of rivers; Contemporaneous also creates reservoirs hundreds of kilometers long and is the ideal transportation route. According to economic zoning, the North has formed clusters of clue ports clue: Ha Noi, Ninh Binh, Viet Tri, Hoa Binh, Ha Bac, Quang Ninh, Da Phuc. Other have addition there are 30 other ports serving the export demand, coal consumption of thermal power plants, cement, ship industry, transshipment super-heavy cargo. The growing rate about transportation is shown in Fig. 1.

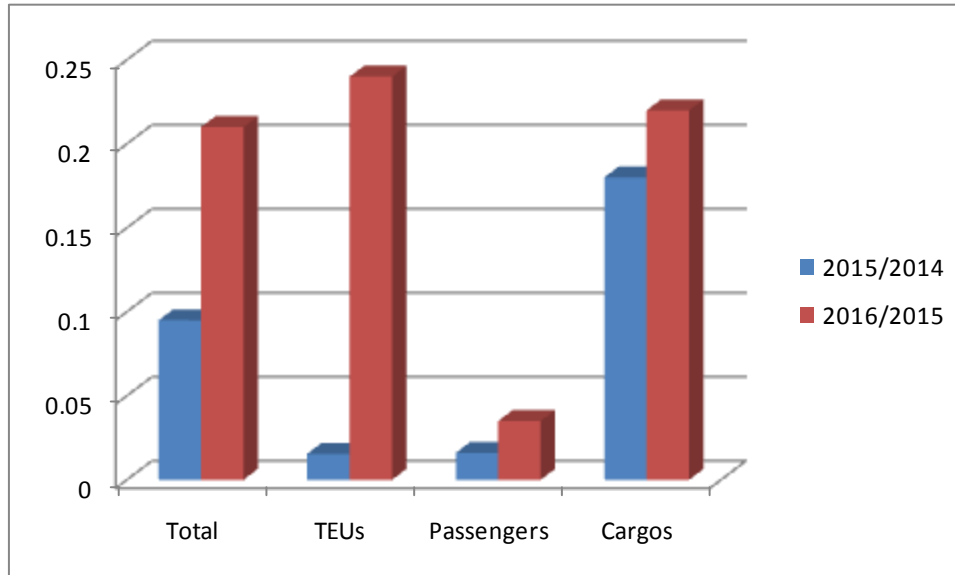


Fig. 2. The growing rate about transportation in 2015, 2016

However, since most of the river ports in the North were built in the 1980s, the old, backward works, equipment and loading equipment were disrupted. Commodities through port terminals are less than 60% designed, mainly bulk goods; Coefficient of using wharves and warehouses low. There is not yet a river port that qualifies for container elevating. Many temporary wharf ports, which are not up to the technical standards for exploitation, are not regularly inspected (for stability, bearing capacity, anchorage ...). Environmental pollution and degradation of landscapes in ports and wharves have been and will continue to increase rapidly if will not restrictive measures. The domestic waterway of cargo fleet in VietNam which is planned until 2020 will be about 7,8 – 10.2 million tons of vehicles, there will be 6.8 -8.8 million tons to satisfy with development and 1.0 – 1.4 million tons to change the old ships which need to sell. About passenger fleet will be 90 – 125 thousand seats, there will be 10 thousand seats to satisfy with development and 80- 115 thousand seats to change the old ships which need to sell.

According to the above orientation, waterway traffic will be developed in a synchronous way to the route flow, harbor, loading and unloading equipment, means of transport and management capacity to meet cargo and passenger transportation requirements with higher quality, reasonable price and safety. Investment in inland waterway infrastructure linking other traffic networks form a seamless, uninterrupted system.. Combining the development of inland waterway transport with other sectors such as irrigation, hydropower. Open new routes such as coastal, international and container liner routes. To develop the transport fleet towards rejuvenation (average age of ship is 5 - 7 years), reasonable structure (tugboat pushes 30-35%, self-propelled ships 65-70%); Total fleet tonnage is 12 million tons; Increase the length of inland waterways managed and operated; Modernize the signaling system; Channeling of river sections through large urban areas. The Ministry of Transport has also planned to modernize some key ports and ports in key economic zones

and specialized ports; Improving the rate of mechanized loading and unloading for local ports; Construction of a number of passenger ports. By 2020, it will be able to transport 190-210 million tons of cargo and 530-540 million passengers. According to the above orientation, waterway traffic will be developed in a synchronous way to the route flow, harbor, loading and unloading equipment, means of transport and management capacity to meet cargo and passenger transportation requirements. With higher quality, reasonable price and safety. Investment in inland waterway infrastructure linking with other transportation network to create smooth, continuous system. Combining the development of inland waterway transport with other sectors such as irrigation, hydropower. Open new routes such as coastal, international and container liner routes. To develop the transport fleet towards rejuvenation (average age of ship is 5 - 7 years), reasonable structure (tugboat pushes 30-35%, self-propelled ships 65-70%); Total fleet tonnage is 12 million tons; Increase the length of inland waterways managed and operated; Modernize the signaling system; Channeling of river sections through large urban areas. The Ministry of Transport has also planned to modernize some key ports and ports in key economic zones and specialized ports; Improving the rate of mechanized loading and unloading for local ports; Construction of a number of passenger ports. By 2020, it will be able to transport 190-210 million tons of cargo and 530-540 million passengers. To support the development of inland waterway transport, the Ministry of Transport is encouraging all economic sectors to participate in transport business. SOEs only hold a market share of around 10-15% to ensure a leading role, focusing on major flows, some key commodities. According to reports of the Vietnam Maritime Bureau after more than 02 years of operation, coastal transport has achieved certain effects in the transport of goods, reducing the pressure for road transport, especially in the past The Ministry of Transport has resolutely implemented many synchronous solutions, including the work of controlling the load of road

vehicles to develop the transport market has a reasonable structure, so vehicles VR-SB has been very More convenient to grow. According to the statistics of the port authorities, goods shipped through VR-SB through the port in 2016 reached nearly 12 million tons, of which about 8 million tons of goods shipped from the port to, To leave the seaport and vice versa; With more than 13 thousand vehicle passes. In general, the number of means of transport and goods transported from seaports to seaports accounts for about two thirds of the total number of VR-SB vehicles carrying freight on the route. But besides the positive side, there are still many inadequacies. The VR-SB fleet now has more than 1,000 vessels and has a tonnage of over 20,000 tons (Compared to within 2 years of the opening of the route, no VR-SB vehicle was officially put into service on the route). This shows that the development investment for VR-SB vehicles is very hot, while the quality of crews working on means has not met the quality of service provided by VR-SB. Unprofessional and demanding safety of vehicles is not guaranteed, and hot development has led to fierce competition for cargo that has potential risks not only for lost Maritime safety but also imminent danger of breaking the structure of the shipping fleet inland. On the other hand, the size of VR-SB vehicles is currently growing beyond the planned development of river it was minister of Transport in Decision No. 4291/QD-BGTVT on December 24, 2013 Approve the master plan for development of river and river transport up to 2020 and orientation to 2030. About accident and incident. Since the implementation of coastal transport to date, there have been 10 accidents. The main causes of these accidents are technical breakdowns, bad weather effects, inexperienced crew members dealing with marine situations, improper operation of the lanes, etc. However, when the VR-SB vehicles have been accidents, maritime incidents have been directed by relevant agencies and units and port authorities to promptly provide rescue and support so no damage is caused to them. people. According to current regulations, VR-SB vehicles are not equipped with AIS equipment, EPIRB, so management agencies have not managed, monitored and monitored on the route of the means, especially when Means of accident, incident cause many difficulties for the specific location of the accident to conduct timely rescue. The thin body structure of the VR-SB vehicle is low, so the risk of an accident while traveling on the sea in bad weather. Along with that, the crew working on this means are lack and weak. At the same time, according to the Vietnam Register, it is very difficult for ships of II and III to operate too far away from the shore, so there is always the danger of unsafety and environmental pollution. The interdisciplinary coordination plan to ensure inland waterway traffic order and safety in 2017 continues to be carried out under the theme of "Building Youth Transport Culture, with the goal of human life is above all." Accordingly, in 2017, the interdisciplinary 3 Department will focus on solving the outstanding and complex issues of traffic order and safety on the roads of the country, prevent the violations of law especially Means of doing business on waterways; Carry out the census of the number of inland waterway means and crew members, riders, shipping

companies. At the same time, to coordinate with the inspectors in, strictly handle and suspend the operation of, for violations of, such as: overcompensation, overloading of waterway means at inland ports, violation of registration and registry In addition, inter-agency coordination will strengthen the inland waterway traffic safety corridors and investigate the Potential danger poses the risk of traffic accidents.

According to the Inland Waterway Administration of Vietnam, the top issues in the national transportation sector are the situation in which businesses are not allowed to operate properly and unsafe conditions have not been fully resolved. It is common to have vehicles that carry too much water safely. In addition, at some cross-river passenger stations, large passenger traffic, leading to the situation of carrying more people allowed on the vehicle continuously occur. On the other hand, the situation of mining sand, gravel and minerals are not in accordance with regulations on the inland waterway is still quite complicated. Particularly, drivers who do not have proper diplomas or certificates; The status of the vehicle by the registry expiration date is still used. The Inland Waterway Administration of Vietnam estimates that these are important causes of many serious waterway accidents that have occurred over time. In order to strengthen the resolution of these violations, the objective of the interdisciplinary plan will be to promote propaganda and focus on handling violations committed by owners, . In addition, the 3 departments continue to strengthen the development of inland waterway infrastructure and review and adjust the signaling system in line with the current situation; Survey and locate traffic black spots to have a clearing plan. In addition, another important task of inter-agency coordination is the strict control of river crossings, vehicle registration, passenger vehicle conditions, Will be focused. At the same time, strengthening the management at inland waterway ports and wharves, inspecting and only allowing vehicles with safe conditions to be exported. For passenger transportation, On the other hand, the training must also be renewed and strengthened to ensure sufficient number of operators of the means to ensure that the driver possesses a professional certificate, in accordance with the conditions of the means.

The domestic waterway transport rate is 17.72%, 4.1% of passenger transport. Vietnamese Government Policies is to grow the rate of transport volume up to 11.20% in cargo and 2.5% in passengers by 2015 to 2020. This means, 393.89 million tons of cargoes, 170 million passengers; 3.45 million of TEUs; 17.1 million tons of sea-river transport volume. By 2030, the domestic waterway transport will about 15.48% and 1.9% of passenger transport per total transport volume. The average growth rate in transport volume will increase up to 5.20% in cargo and 1.41% in passengers. Currently, the road is taking on about 77% of the transport market share. This ratio is too big for waterways and other sectors. There are many reasons why waterway transport has not been developed such as: infrastructure (railway, road, port access) connecting to ports and wharves is not synchronous, many operating wharves are not allowed to cause competition. unhealthy; low river transport costs but high transit rates; low investment capital for waterways leads to difficulties in maintaining,

maintaining and improving infrastructure; the mobilization of socialized capital to invest in infrastructure is difficult. Although the market share of inland waterway transport is increasingly being concerned by enterprises because the freight rate of this type is the lowest, only 30% compared to the road and very suitable for container transportation. However, inland waterway transport in our country has not developed evenly. In addition, this type of transport has not been promoted because the infrastructure of inland waterways is still mainly taking advantage of natural conditions. In particular, the biggest limitation is the uneven flow of routes on the main transport routes (curvature radius, the navigation compartment of bridges crossing rivers and irrigation sluices still have many limitations, and some places have big obstacles for operation. of waterway vehicles. In addition, inland waterway transport has been socialized, but the scale of operating organization is still fragmented and unfocused by the main means of private and household vehicles. family hold; means of transporting containers, equipment for loading and unloading containers at inland water ports with large capital sources have not been paid much attention by enterprises. The northern area does not have an inland waterway port for container loading and unloading, so this cargo is mainly transported by road to industrial parks and export processing zones. People living in some difficult areas have not received basic training in waterway safety knowledge, leading to the risk of insecurity when participating in waterway traffic. There is still a situation where the water transport routes are not uniform; The phenomenon of exploiting natural resources in the river bed is not in accordance with the planning or technological process (mining sand and gravel ...) often occurs widely in almost all rivers and canals across the country. The signaling system is not synchronized between the signal of inland waterway management unit and the signal of the owner. Activities of loading and unloading goods and managing inland ports and wharves are still inadequate. The rapid development of the means of transport is uneven but only concentrated in some urban and industrial areas. To overcome these shortcomings, thereby helping the development of waterways and policies to encourage the development of inland waterway transport in Vietnam with many policies to encourage the development of inland water transportation. However, so far, only a number of mechanisms such as increased maintenance capital have been implemented, the remaining preferential mechanisms for developing transport and fleet (corporate income tax, interest rate) have not been specified. . The specific development objectives of Vietnam's inland waterway by 2020 include: focus on improving and upgrading major transport corridors, improving management and maintenance capacity of inland waterways and other River and sea transport routes ... contribute to increasing the cargo transport market share from 18.62% to 21.5% of the whole industry. The industry strives to upgrade and renovate 2,000km of waterway by 2020, the total inland waterway transport means of about 20-22 million tons, the total number of inland waterway transport means about 780,000 seats; In which, there are more than 1,000 VR-SB-level vehicles (sea-phase river) participating in sea and river

activities. In order to achieve the above objectives, the Vietnam Inland Waterway Department proposed solutions. That is, mobilizing all resources to develop transport infrastructure; improve investment efficiency, ensure connection of transport modes; focus on developing multimodal transport. Strengthening solutions to ensure inland waterway traffic safety; strengthen training and development of human resources. At the same time, promote the application of comprehensive science and technology, strengthen the application of information technology in management and administration and strengthen inspection, examination and propaganda information on inland waterway transport. In addition, developing mechanisms and policies to develop multimodal transport, logistics services; encourage investment in equipment for loading and unloading goods with large volumes and container goods at inland water ports.

### III. CONCLUSION

In order to achieve the above objectives, the Vietnam Inland Waterway Department proposed solutions. That is, mobilizing all resources to develop transport infrastructure; improve investment efficiency, ensure connection of transport modes; focus on developing multimodal transport. Strengthening solutions to ensure inland waterway traffic safety; strengthen training and development of human resources. At the same time, promote the application of comprehensive science and technology, strengthen the application of information technology in management and administration and strengthen inspection, examination and propaganda information on inland waterway transport. . In addition, developing mechanisms and policies to develop multimodal transport, logistics services; encourage investment in equipment for loading and unloading goods with large volumes and container goods at inland water ports. The industry will encourage the development of inland waterway transport through a number of mechanisms and policies such as investment in the development of line infrastructure; encourage the development of inland port and wharf infrastructure; developing inland waterway means forces; development of inland waterway transport activities; invest in developing logistics infrastructure and speed up socialization of logistics services. Specifically, the industry will reduce corporate income tax in the first 5 years of operation for investors in the construction of major inland ports with a system of warehouses and yards to serve logistics activities; Modern passenger port. At the same time, support for land rent for construction of inland port and port infrastructure system for cargo handling and multi-modal transport development; reserve an adequate land fund for investment projects to build inland ports and wharves, especially container loading and unloading ports. Along with that, organize the best support services (signaling system, channel announcement, anchoring location, procedures for entering, leaving ports, wharves, loading and unloading, warehousing, transport connection ...). Concentrate information on goods sources for businesses; creating the most favorable conditions for businesses and individuals conducting transportation

business to access and enjoy incentives from the Government's support policies, such as tax, fee and credit policies.

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