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Environmental pollution problem in the inland waterway transportation

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Abstract

In the process of operation of inland ports and wharves, there are dust, noise, solid waste and wastewater discharges ... these wastes cause environmental impacts. Items that cause unpleasant odors such as sulfur, petroleum, fertilizer, and animal feed are volatile goods, which are unpleasant to those around the area. In addition, noise in the port area has a rather large negative intensity caused by boats operating and repairing at ports; due to excavators, due to cranes, due to goods conveying belt that cause noise pollution causing occupational deafness for people operating in that area. Emissions from transportation vehicles, construction machinery operating on ports and under rivers can pollute the air environment, increase greenhouse gas emissions ... causing climate change. The wharves and yards are usually not covered by roofs, or materials to shield them, goods are kept outside the yard, usually bulk goods, construction materials such as sand, stone, coal, ore, wood, fertilizer ... not shielded when there is wind to sweep sand dust, stone dust, coal, ores far away, affecting the health of people living in the surrounding area (causing respiratory diseases: pneumonia and bronchitis chronic). When it rains, rainwater will wash these goods down the water causing pollution of the water environment. The quality of inland waterway vehicles in Vietnam is often not high, many vehicles are too old, backward, fuel combustion efficiency is low and there is no exhaust treatment system ... so many toxic gases were emitted such as SO₂, CO₂, CO, NO₂, CxHy. It can be said that this is the source of pollution for the air environment, increasing the greenhouse gas effect of the inland waterway industry.

Keywords: inland transportation, environmental pollution, waterway traffic

Introduction

Currently, there are nearly 7,000 inland ports and wharves in the whole country, but only about 100 ports are divided into 3 main groups: the main port, the main port of the locality and the specialized port group. Terminal ports (such as Hanoi, Viet Tri, Nam Dinh, A Cau, Thu Duc ports ...) are raising alarms about environmental pollution. The environmental pollution in ports and wharves exists in many forms, but the most common and alarming is pollution due to dust, water and garbage. Mainly dust is on the way out, the yard of goods and internal ports, on the means of access. Another form of pollution is that the goods are spilled into the river during loading and unloading, the cleaning of the cargo holds, and the rainwater flows down through the filtration system. The main pollutants are coal, iron ore, construction materials, chemicals, pulp, clinker and some other chemicals such as sulfur, sodium ... along with the waste of boats such as domestic waste, waste cleaning machines, oil-contaminated ballast water, mops. Across the country today there are nearly 300 inland water ports divided into 3 types: focal ports and areas managed by the central and local authorities; Specialized ports and wharves managed by factories and enterprises; Free ports and wharves are managed by communes, districts, cooperatives and private enterprises. Currently, the collection of waste at ports and wharves is still fragmented and incomplete, the collection and treatment equipment is only symbolic. The work of preventing environmental pollution, controlling wastes at inland ports and wharves according to the standards of environmental quality mainly related to the air environment and water environment, especially the environment gas. Currently, the application of science and technology, technology, modern equipment to handle environmental pollution in ports and wharves is not

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much. Some large cement, coal and petroleum ports are equipped with equipment such as dust and mist spraying systems to limit dust. The ports and wharves also select technology to transfer goods to the ship according to conveyor technology, this funnel is also one of measures to limit dust spread to the environment. Currently, the application of modern technology, techniques and equipment to handle environmental pollution in ports and wharves is not much. Only a number of big cement, coal and petroleum ports are equipped with equipment such as dust filter, mist spraying system, and cargo transfer to the ship according to conveyor and hopper technology to limit dust. Environmental monitoring in the field of inland waterways, there is currently no center or technical department invested in technology and technology to perform this function. Supervision has just stopped at the inspection, check the actual status of operations at the establishments and monitor and supervise through the inspection of records and documents provided by establishments. . This is a major shortcoming in environmental monitoring for inland waterway activities.



Fig.1: Environmental pollution in the inland transportation

The transport sector in Vietnam, an energy-intensive industry and greenhouse gas emissions, is increasing in the future as it implements activities to meet the needs of socio-economic development; What this means will increase the impact of climate change. The Ministry of Transport has set up the Environment Department to assist the ministry in environmental protection, economical and efficient use of energy, and response to climate change. The branch has environmental centers and project management boards having full-time or part-timers to carry out environmental protection activities for investment projects. Most of the units have the counseling, monitoring and implementation of environmental protection. However, at present, human resources and material facilities for environmental management of agriculture, especially for inspection and supervision, are still lacking, not often updated. Bracelets. The application of new greenhouse gas emissions-friendly and environmentally-friendly technologies in transport requires a great amount of investment, while policy mechanisms to encourage research and application are not clear. The involvement of

Almost all facilities operating in the field of inland waterways do not invest in technology and environmental monitoring techniques. The construction and formation of a separate environmental monitoring process for inland water ports is essential for environmental protection in the era of development integration that the inland waterway sector is fully exploited. The process of environmental monitoring of inland waterway ports is formulated: clearly defining the responsibilities of the subjects related to the operation of inland waterway ports, such as: Managers, owners of inland waterway ports and wharves and other subjects participating in activities at inland ports and wharves; provide specific instructions and guidelines for waste management, pollution monitoring and environmental risk incident monitoring. In addition to investing in technology and technical equipment, it is necessary to issue a Handbook to guide the process of monitoring new environmental pollution to prevent and reduce environmental pollution of rivers, repel the risk of pollution.

organizations and individuals is not encouraged. Hence, controlling and limiting the growth rate of greenhouse gas emissions requires industry to innovate and adopt low-waste technologies and clean technologies. Waterway transportation is more efficient and environmentally friendly than other modes of transport. Alongside these advantages, the waterway rotation still has a major impact on the quality of the water environment. For inland shipping industry in our country, there are still certain limitations that need to be clarified so that there can be appropriate solutions to maintain the development and create a sustainable development foundation. For the shipping industry in general and the international economic development in particular.

+ Ship quality is low: The use of old, substandard or "out of date" ships carrying goods affecting shipping capacity, the ship's tonnage capacity has declined significantly and is more dangerous than leading to accidents. Previously, the same volume of goods only needed to be transported once but now it takes at least 2 to 3 times of transport, time and cost. In addition, low quality ships also have many risks

leading to accidents during transportation.

+ Lack of human resources: Human resources are in shortage or in-depth training experience. With a convenient geographical location, bordering on the sea (3260km long coastline) helps to develop maritime transport, but not many people attend this industry, not to mention some when the university turned to another industry.

+ Environmental pollution at seaports: The demand for transporting many goods and ships appears more and more crowded. In order to have a place to anchor, the state built many seaports to serve the growing shipping industry. However, environmental pollution at seaports is at an alarming level. Consequences leading to the above phenomenon is due to the problem of goods, the stage of waste management is not strict and valid, making the seaport become an agent of environmental damage.

Solutions for reduction of environmental pollution

General assessment from the study of the Vietnam Inland Waterway Bureau said that the air in port areas has a high concentration of dust, especially when loading and unloading goods and having cars operating on the wharf. Dust and dust contain some toxic chemicals when wind is picked up, dispersed into the air, polluting the port and surrounding areas, depositing on vegetation, accumulating for a long time. rain water falls, causing significant impacts on workers' health and residents in the area. For the water source in the port area, almost 100% of the means of direct discharge of daily-life water and ship-cleaning water will be the most common pollution caused by organic substances. At the same time, it is necessary to mention a large amount of waste water contaminated with grease and oil, forming a water-soluble film or water containing high levels of zinc, copper and manganese ... Currently, the function The amount of hazardous substances such as cyanide, phenol, grease, bacteria ... at some major ports

exceeds the permitted standards. Along with the above two forms, waste is causing serious local pollution in the port area. This is the most conspicuous type of pollution: from leftovers, food containers (plastic, bottles, glass jars, paperboard), industrial waste ... The cause of this situation, partly because of this is the "focal point" to consume waste of employees, passengers on board, factories, warehouses, and waste during loading and unloading. In order to alleviate the vulnerability of climate change, the sector needs to make adjustments in the development of energy and transport development plans, taking into account the elements of Climate Change. Upgrading and rehabilitation of transport facilities in areas often threatened by floods and sea level rise, ensuring the management of energy demand on the basis of high energy efficiency, Energy management; Developing a response strategy and adapting to abnormal weather conditions ... To build a complete system of sea dykes, when the whole country has 2,800 km of sea dykes in provinces and cities. The complete construction of the sea dike system in Vietnam not only protects the security of the country, but also protects the transport infrastructure in order to reduce the impacts of climate change, reduce storms, floods and water. The sea devastates the coastal provinces and cities and transport works. On the other hand, complete construction of sea dykes that prevent saltwater from entering the mainland, destroying transportation works. The transport sector should plan and redesign the transport infrastructure system on land, sea and coastal areas, ports, warehouses, canals, inland waterways, especially in Coastal and mountainous plains; Develop technical standards and norms appropriate to climate change. In the planning or construction of roads, especially rural transport, attention should be paid to the impacts of climate change, with emphasis on measures to strengthen sea dykes and drainage when flooding, especially in stormy season.



Fig 2: Strongly developed coastal transportation will contribute to reducing the road load

(<http://hanoimoi.com.vn/Tin-tuc/Kinh-te/869763/phantrien-van-tai-duong-thuy-noi-dia-can-ro-bai-toan-loi-ich>)
Implement the integration and protection of environmental resources in strategies, planning, plans and projects for

development of transport; To concretize the implementation of the policy on solutions to cope with climate change and the protection of natural resources and environment; To popularize and thoroughly grasp the

Party's and State's undertakings and policies on response to climate change and the protection of natural resources and the environment. The industry should focus on strengthening human resources, facilities and techniques for the state management, training, research on Flood and Storm Prevention and Fighting. To review, supplement and amend the land law system along the direction of prioritizing the use of land for development of transport infrastructure; To step by step develop transport towards less greenhouse gas emission, focusing on developing mass transit in Hanoi and Ho Chi Minh City. Ho Chi Minh (urban railway, fast bus) and increase the proportion of freight by rail, inland waterway and coastal. In addition, the transportation sector has also focused on developing and implementing incentive and incentive policies to motivate organizations and individuals to use vehicles that are less likely to emit greenhouse gases. Good environment; Use alternative fuels, renewable fuels. The sector has asked the agencies and units to coordinate with the concerned agencies to step up the inspection, propagation, dissemination and education to raise the awareness of environmental protection, the use of energy saving and Effectively, responding to climate change for cadres, civil servants, employees and laborers. Building and implementing plans, using energy economically and effectively, actively responding to climate change; Develop and implement a scientific plan to promote the research, development and application of climate change adaptation technologies. While road, air, and maritime transport modes are under pressure, inland water transport is being left open. In fact, the Vietnam waterway system is undertaking 30% of the total domestic traffic volume in the country, the average growth rate of inland water transport is from 8% -12% / year but the initial capital is Private waterways are only "dripping". So how to 2020, the road will only take 54.4% market share, railway 4.3%, inland waterway will increase to 32.4% as the project of phase transport restructuring The 2016-2020 period and the orientation towards 2025 have been set? Newspaper of People's Deputies wishes through the Seminar on "Removing points of congestion - offshore inland waterway", the QNA, experts, scientists, managers, enterprises sharing ideas, evaluating opportunities and challenges in the field of inland water transport markets. Thereby, proposing solutions to bring inland waterway transportation to be commensurate with the potential and great role in socio-economic development of the locality and the country. Vietnam is one of the very favorable countries for natural conditions, geographical position in the development of transport in general and inland waterway traffic development in particular. There are many countries in the world with no sea or unfavorable terrain conditions, but Vietnam is located in the center of Southeast Asia as well as Asia, in a very vibrant regional economy. It can be said that Vietnam has all five types of transport: waterway, maritime, aviation, railway and road. Born in Ho Chi Minh president, for traffic like blood vessels, good traffic, everything is easy, bad traffic is stagnant. All types of transport must have a harmonious cohesion to support each other, whichever is strong, promote to a certain extent, and to reduce it. In fact, our river network is very convenient, the whole country has 3,500 rivers and canals, of which more than 3,000 rivers, internal canals and more than 400 rivers and inter-

provincial canals. Most of the rivers flow into the sea, through 124 river mouths with a total length of 80,500 km, with 42,000 km of estuaries capable of developing water transport. Besides, there are 272 inland waterway ports, there are 8730 seaport wharves. At present, inland waterway transport has low investment cost but brings great economic benefits. In the period 2011 - 2015, the proportion of investment in inland waterways of our country accounted for only 2.2% of the total investment, but inland waterway transport accounted for a large proportion of transport. Inland waterway transport is very suitable for transporting large volumes of goods, super-sized, super-weight and low-cost transportation. For example, from July 2014 to October 2017, after 3 years of operation, the river and sea transport route achieved 47 million tons of goods. Transportation time of this road is 1.5 - 3 times longer than that of road but the cost is only half - 1/3 compared to the road. Therefore, it brings economic efficiency and contributes to reducing the load for the road, well implementing the strategy of service development, creating a link between the maritime and rail roads with other fields. Along with the economic development of our country in recent years, as well as the period after Doi Moi, the demand for industrial production and the general volume of goods of the country has increased rapidly, over 10% per year, as well as This demand also shows that it is necessary to have suitable transport methods for transportation. According to the World Bank, the value of logistics of our country accounts for over 20% of GDP. This in some advanced and developed countries is only 8-12%. Some of our neighbors are around 14-15%. Therefore, the need to develop low-cost transport types.

Firstly, waterway transport has the advantage of being able to transport in very large quantities. 1 small barge can also be transported by 25 trucks, 1 barge can carry 30 containers.

Secondly, the average shipping price is only 1/2 - 1/3 of the price of road transport. This helps us reduce transportation costs.

Thirdly, in order to develop the economy sustainably, the issue of environmental protection, traffic safety issues are placed on top. Inland water transport is very low in CO2 waste, the percentage of people killed and injured per ton of transport goods is also very low.

With conditions like Vietnam today, road traffic is congested, some goods are not rotated on time as expected, such as agricultural and aquatic products, seafood between the Southwest regions to Ho Chi Minh City. In this case, it is clear that the waterway traffic has a much better feature. Water transport sector has been more concerned by the Government and society. If we pay attention, the current construction works of construction materials such as iron, steel, sand, stone, gravel ... are transported by inland waterways. This is a great opportunity to develop, although compared to air transport, road is a mode of transport that has existed for a long time, this method has not been able to develop its potential appropriately. The promotion of inland waterway transport development will contribute to ensuring traffic order and safety, reducing transportation costs, improving the efficiency of the economy, promoting local advantages and creating a transport market. New, reasonable and competitive rates. In order for inland waterway transport to develop in accordance with the

potential, creating a breakthrough in economic development, it is necessary to have appropriate investment policies as well as the coordination and interest of the branches, levels and the drastic innovation of Waterway itself. At the same time, it is necessary to mobilize to the utmost all social resources to develop inland waterway transport in synchronous connection with other modes of transport; effectively exploit infrastructure with new investment in the construction of synchronous infrastructure system, focusing on improving and upgrading inland waterways.

Conclusions

As a country with dense rivers and canals, forming a convenient waterway network, connecting localities and regions throughout the country, water transport in Vietnam has many advantages. Such as low cost, less environmental pollution, transporting many super-sized and super-weight goods, low initial investment costs. It can be said that the waterway transport infrastructure plays a key role to promote the development of waterway transport, but there has been no investment attention. There are some routes, although the source of container and goods is more and more stable, but still have to use small barges to exploit. The reason is that some channels are limited to static, mudflats, channels are narrow and even dried up, being encroached by civil works. Therefore, investing in upgrading waterway transport works and increasing the capacity of navigation channels is an urgent need now.

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