



Received: 19-03-2024
Accepted: 29-04-2024

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Green Transportation in Haiphong: Current Status and Recommendations

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Abstract

Economic development around the world is moving towards the goal of sustainable growth, and transportation activities are an important factor in that process. Taking advantage of its advantages, in recent years, Hai Phong City has focused on investing in and upgrading seaport infrastructure in a synchronous and modern direction, to regional and international shipping development trends; the traffic connection system is improved and more synchronized. Transport businesses aim to focus on investing in technology to create a common platform connecting

maritime service businesses and improve competitiveness in providing chain services, opening up new types of business in the world. Digital platform. Hai Phong City is in the phase of implementing green transportation to contribute to the sustainable growth of the whole country. To effectively deploy green transportation, it is necessary to have the cooperation of state management agencies, service providers, and customers using green transportation services in Hai Phong City.

Keywords: Green Transportation, Sustainable Development, Hai Phong Transport

1. Ask a problem

Transportation is an important economic and social activity responsible for delivering goods and services to consumers. Accompanying economic and social development, the transportation system brings a series of arising problems including global warming, environmental degradation, decline in human health, and increased greenhouse gas emissions. According to statistics, the transportation sector accounts for 23% of global greenhouse gas emissions due to the use of fossil fuels, of which road transport accounts for about 75%. This trend is expected to continue to increase in the future if there are no practical actions to reduce greenhouse gas emissions as well as reduce the need for fossil fuels.

Currently, many countries have issued strict and updated regulations on the concentration of each specific type of exhaust gas in the air. Pioneered by the European region, since the early 1990s, new car models have had to meet emission pollution limits according to Euro standards before being sold on the market. Up to now, vehicles circulating in the European region must meet Euro V emission standards. Neighboring country China, although slower in promulgating standards, has now also applied emission standards. Euro V emissions throughout the entire territory.

Green transportation theory is given as follows: "Green transportation is a transportation system designed to minimize negative impacts on the environment and optimize resource use. Green transportation vehicles often use renewable energy such as electricity, hydrogen, biology, and energy-saving technologies."

In Vietnam, economic development and environmental protection issues are also being paid attention to. Management agencies have introduced and gradually improved standards on environmental emissions. To achieve this, there is a need for public awareness and participation, management of vehicles innovation of vehicles, and production of vehicles using renewable energy sources such as wind, solar, biofuels, and hydroelectricity. Especially in transportation activities, ensuring harmony of interests between parties in a sustainable way requires specific plans and implementation steps to ensure useful investment resources.

Hai Phong is an important traffic hub of the Northern region in particular and Vietnam in general. With the concentration of many important traffic hubs of many modes of transport, the development of green transport is extremely necessary to ensure efficiency and benefits for the entire society towards sustainable development.

However, "green transportation" is still a fairly new field to Vietnam and Hai Phong, so it is necessary to learn about development models and clearly identify the contents that need to be implemented to ensure development. Green transportation

is efficient and saves resources. In this study, we will present a number of cases that have implemented green transportation and draw lessons and recommendations for implementing green transportation in Hai Phong.

2. Overview of green transportation

2.1 Green transportation concept

Green transportation is a form of converting traditional transportation activities into more sustainable and environmentally friendly methods. This includes a combination of factors, from the use of clean fuels to infrastructure improvements and changes in consumer behavior. The ultimate goal of Green Transportation is to minimize negative impacts on the environment and promote more sustainable use of resources.

Green transportation often uses renewable energy such as electricity, hydrogen, biology, and energy-saving technologies. Green means of transport can include: All-electric vehicles using one or more electric motors, hybrid vehicles combining an electric motor with a traditional combustion engine, Ebike "electric bicycle" combined with a bicycle. Traditionally there are electric motors, large vehicles, and public transport.

2.2 Benefits of green transportation

Green transportation brings many benefits not only environmentally and socially but also economically. Here are some key benefits that green transportation brings:

Minimize environmental pollution: Current means of transportation mostly use energy from fossil fuels, creating a large amount of greenhouse gas emissions into the environment. Replacing traditional means of transport with vehicles using green energy will contribute to reducing greenhouse gas emissions and limiting harm to the environment.

Save costs: Switching to green means of transport such as bicycles, electric vehicles, large vehicles, and public transport helps minimize costs related to buying fuel.

Contribute to building a sustainable economic development: Converting to green means of transport along with improving existing transport systems. This indirectly creates new jobs for a more sustainable society, redistributes income, minimizes socio-economic disparities, and builds a sustainable economy. Additionally, green transportation shares the burden and reduces dependence on fossil fuels.

Improved health: Energy sources from fossil fuels during use will create toxic gases that negatively affect human health. These toxic gases are part of the cause of cancer, respiratory diseases, and other cardiovascular diseases. Emissions from green transportation have little or no harm to human health, therefore, green transportation will improve human health and improve the quality of life of society.

2.3 Experience in implementing green transportation

2.3.1 The case of Unilever Company

With 2.5 billion customers using products every day around the world, shipping goods to consumers is a task that needs to be solved optimally. Every year, Unilever transports over 1.5 billion kilometers of finished goods. With a large volume of goods transportation, it is necessary to build a green supply chain in general and green transportation in particular.

First is the strategy of finding factories and distribution

centers to minimize the distance the product needs to be transported. In addition, with a large volume of transported goods, standardizing pallet heights ensures optimal transport vehicle space. Using green transportation not only helps make the transportation process more efficient, reduces greenhouse gas emissions, but also reduces costs.

Most of Unilever's shipping is still done by road. In recent times, Unilever has gradually shifted the volume of goods transported by road to rail and sea. In addition, Unilever strives to improve fuel efficiency to keep emissions within acceptable limits. Some initiatives applied by Unilever to increase fuel efficiency include double-decker trailers that help double truck capacity an eco-driving training program; and the use of thermal blankets for goods that need to maintain temperature during transportation. In addition, Unilever is switching to alternative raw materials for Diesel, typically using compressed natural gas (CNG) and liquefied natural gas (LNG). LNG produces 11% less carbon dioxide, 95% less particulate matter, and 35% less nitrogen oxides than Diesel. Trucks using LNG also produce 50% less noise pollution. While alternative fuels such as CNG and LNG have advantages over Diesel, they are not long-term sustainable fuel solutions. In the long term, Unilever is moving towards more sustainable sources of raw materials such as Hydrogen and Biogas.

Unilever's pursuit of green transportation has had remarkable results. In the Chinese market, Unilever has launched the Smart Transportation Program, using railways more than roads, and applying new energy vehicles. This reduces CO₂ emissions and costs while ensuring goods are still delivered to consumers.

2.3.2 The case of Saigon Newport Corporation

In the trend of world integration, the maritime industry has been transforming into "green" technology towards a sustainable development model, controlling pollutants, using energy economically and effectively, preventing incidents and environmental risks, limiting emissions of substances that cause the greenhouse effect, and minimize the impact of climate change.

Saigon Newport Corporation is a pioneer enterprise in building "green ports" in the country. In 2018, Tan Cang Cat Lai Port and 2021 Tan Cang-Cai Mep International Port were recognized by APEC as "green ports" thanks to meeting the criteria for commitment to environmental protection and clean energy use. To meet the "green port" criteria, Saigon Newport Corporation had to replace diesel lifting equipment with electric equipment; Strengthen water transport to replace container transport; Apply electronic documents instead of using traditional paper; Deploy solutions to reduce dust in the air; complete the wastewater collection and treatment system; Plant trees along the docks and roads,...

With the investment in "green port", Saigon Newport Corporation initially brought some positive results: Saving port equipment operating costs and stationery costs, and reducing waiting time for customers. Vehicles entering and exiting the port, cutting equipment repair and maintenance costs, and increasing operating productivity by 10-20%. Therefore, greening the port helps improve the competitiveness of the port system of Saigon Newport Corporation by both reducing operating costs and improving operational productivity.

However, converting green equipment for the port system requires large financial resources, which is not easy to implement comprehensively. On the other hand, having signed an international commitment to build a "green port" model, implementation must take place, which also puts great pressure and requires a clear implementation roadmap. Clear from Saigon Newport Corporation.

2.3.3 The case of Hanoi and Ho Chi Minh City

Hanoi and Ho Chi Minh City are implementing a "green" energy conversion program with the goal of reaching 50% of "green" buses by 2030, and 100% by 2035.

Hanoi currently has 277 buses using clean energy to operate, a rate of 13.6% of the total number of buses in circulation. The conversion roadmap is divided into two phases by the Department of Transport: Phase 1 from 2025-2030, with an average conversion rate of 7.73%/year, the average number of converted vehicles reaching 157 vehicles/year. Phase 2 from 2031-2035, with an average conversion rate of 8%/year, the average number of converted vehicles reaches 162 vehicles/year.

Ho Chi Minh City has put into operation 577 buses running on clean energy. The Ho Chi Minh City Development Research Institute has developed a policy for developing electrified and environmentally friendly vehicles, expected to be submitted in early 2024.

In the process of implementing "green" energy conversion for public transport buses, the Hanoi Department of Transport has raised a number of difficulties and challenges such as the cost of investing in electric and energy vehicles. "green" capacity is greater than conventional buses, vehicle investment is 2-4 times higher than diesel buses; The pressure on investment costs for substation infrastructure, power supply systems... for businesses is huge; There is no unit price or norm for vehicles operating on "green" energy. Faced with difficulties in implementation, the Department of Transport of Hanoi and Ho Chi Minh City proposed that there should be mechanisms and policies to support loan interest rates to invest in building public passenger transport infrastructure. adding and procuring buses using "green" energy; Completing the system of norms and unit prices for types of buses using "green" energy to organize bidding and place orders to provide services; planning and upgrading infrastructure, especially power sources, to ensure sufficient electricity supply to serve the system of charging stations.

2.3.4 Lessons learned for Hai Phong transport

From the reality of implementing "green" transportation activities of two companies (one multinational company, one domestic company) and two large cities in Vietnam, we can draw some contents that need to be kept in mind. Note when implementing:

Green transportation brings long-term benefits through the harmonious use of resources in a sustainable manner, helping to save costs during operations, and improving operational efficiency and competitiveness for businesses.

Green transportation requires a large initial investment in support equipment and means of transport and requires continuous improvement during the implementation process. In addition, infrastructure also needs to be innovated to accommodate modern types of green transportation.

- Green transport requires flexible coordination between modes of transport, especially large-volume transport modes and public transport.

- To effectively deploy "greening" transportation, it is necessary to prepare large financial resources from businesses and state management agencies, along with mechanisms, policies and management regulations. Promulgated to ensure consistency when deployed.

3. Current status of transportation in Hai Phong

3.1 Types of traffic in Hai Phong

Hai Phong is the only locality in the Northern region with all 5 types of transportation: Road, railway, inland waterway, sea and air. With that condition, Hai Phong becomes an important traffic hub, a goods connection point with neighboring areas and the world.

The road traffic system includes 03 expressways; 05 national highways; 03 belt routes; 12 provincial roads; 600 urban traffic routes; and 81 bridges across the river.

The railway transport system includes: 01 route Hanoi - Hai Phong.

Inland waterway transportation system: 04 passenger wharves; 62 cargo terminals planned in 07 main clusters.

Sea transport system: 11 main ports.

Air transport system: 01 international airport.

3.2 Transportation activities in Hai Phong

Hai Phong is an important traffic hub in the Northern region, so the volume of goods circulating is quite large. Although it contains all 5 types of traffic, there is unevenness in undertaking transportation tasks. With the presence of a large seaport in the region, in the recent period, maritime transport has accounted for nearly 70% of the volume of goods circulating through Hai Phong. The remaining volume of goods is handled by road more than 25%, inland waterway less than 5%, railway and air transport are insignificant.

Regarding passenger transport in Hai Phong, it mainly serves domestic tourism needs. The main mode of transport used is road transport, a small part of passengers use air transport, the number of passengers using rail and inland waterway transport is insignificant.

Hai Phong's sea transport vehicles are mainly of small and medium tonnage, only handling medium-distance international transport routes. Inland waterway transport vehicles have not received investment attention for many years, so they are mainly small, old vehicles. Railway transport still uses small gauge rails built in the early 20th century, so transport capacity is limited. Road transport receives a lot of investment from organizations and individuals, however, in recent years the number of new vehicles purchased has decreased and the vehicle's tonnage has tended to decrease. For passenger transport on fixed routes, the number of newly invested vehicles is very low, and passenger transport vehicles also tend to reduce the number of seats to comply with urban travel regulations.

Transport activities in Hai Phong still lack a connection between different modes of transport, which has reduced operational efficiency. Transport in Hai Phong still depends heavily on road transport, so costs are high, profits are low, and not environmentally friendly. The trend of reducing the load of transport vehicles is also going against the green trend of utilizing the transport capacity of large vehicles.

3.3 Green transportation activities in Hai Phong

Transport activities in Hai Phong still use the main method of road transport, this method is not really environmentally

friendly and does not ensure the elements of "green transport". However, in recent times in Hai Phong, there have also been some bright spots in "greening" transportation activities. These include:

Urban public transport by bus: 12 routes restored, 04 routes lengthened, 06 new routes opened. However, in this field of activity, there are only two operating enterprises: Hai Phong Road Joint Stock Company and Thinh Hung Transport Company Limited with 70 vehicles. The number of vehicles and businesses operating them is not commensurate with the potential mobility needs of people in the city as well as tourists, but due to difficulties in mobilizing resources to invest in new vehicles, this leads to Customers rarely choose services, making businesses stuck in a vicious cycle.

Renovate passenger train cabins and offer preferential policies on train tickets during travel to attract tourists to choose rail transport to travel to Hai Phong, sharing the pressure on road transport. During peak times.

Deploying electric car services to serve sightseeing on fixed routes around the city or on-demand services provided by EG Information Technology, Electronics and Telecommunications Joint Stock Company. After many years of implementing the service, however, expanding the model has encountered many difficulties, the company's main operating market is still fixed routes in the city center or tourist destinations such as Do Son and Cat Ba.

Deploying public bicycle services in areas in the city center provided by Tri Nam Group. The appearance of public bicycles helps residents and tourists have more options for visiting places in the city. After a year of implementation, the model is difficult to replicate due to limitations in telecommunications infrastructure in suburban areas.

Deploying electric taxi service provided by En Vang International Joint Stock Company. The introduction of cars powered by electric motors into taxi service has been responded to by city residents. However, as the number of vehicles increases, the limitation of the number of charging stations is also an inadequacy that limits the scope of operations. Of these means.

Promote the exploitation of inland waterways Hai Phong - Bac Ninh. The trend of containerization in transport and the exploitation of goods on the inland waterway route Hai Phong - Bac Ninh is showing many advantages, thereby reducing the burden on road transport on the same route, and contributing to reducing traffic congestion. Road traffic congestion. Inland waterway transport has advantages over road transport in the following characteristics: Cheaper costs over average distances or more, higher safety coefficient, and more environmental friendliness. Although it has great development potential, this mode of transport is facing many bottlenecks such as the inland waterway port system in neighboring localities that is not yet developed, and the bridge system has enough clearance and channel depth. The safe movement of inland waterway vehicles is not guaranteed.

Hai Phong has made positive moves in developing green transportation. However, during the implementation process, there are still many obstacles that need to be resolved so that "greening" activities can take place more effectively.

3.4 Evaluation of green transportation activities in Hai Phong

3.4.1 Success

Hai Phong is a locality with strengths in transportation

development. In recent years, Hai Phong has always been the economic development engine of the Northern region, and the volume of goods circulating through the region has always been among the top in the region and the country. Besides, green transportation activities also achieved some successes as follows:

Hai Phong has implemented activities related to green transportation very early, such as deploying an electric vehicle system on tourist attractions and maintaining public transportation activities on many bus routes in the city.

Encourage private businesses to deploy environmentally friendly means of transport to form green consumption habits in the community such as public bicycles, electric taxis, and buses.

Gradually shifting to environmentally friendly modes of transport: Shifting passenger transport from road to rail; transfer passengers from gasoline vehicles to electric vehicles and bicycles; transfer passengers from private vehicles to public transport; Transfer goods transported from road to inland waterway.

Achieving the above successes requires the support of State management agencies and great efforts from supplier businesses. However, the achieved results still account for a small proportion of the total scale of transport activities being carried out.

3.4.2 Limit

In the process of implementing green transportation in Hai Phong, besides the achieved results, there are still some limitations that need to be resolved. Limitations include:

The scale of green transport deployment is still small compared to transport needs in Hai Phong: The number of passengers using rail transport as a mode of transportation is small, the number of buses operating is small, and there is only one transport route. Inland waterways are exploited effectively.

The growth potential of green transport models is still slow, and the number of services provided is limited: The number of community bicycles and electric cars has not increased in recent times, but the number of electric taxis put into operation has increased. It is slow and cannot extend the inland waterway transport route, which still stops at the Hai Phong port area and Que Vo Bac Ninh ICD.

Resources mobilized to invest in green transport development are still limited, making it difficult to attract social actors to participate in new investments.

The above existence stems from the following main causes:

The cause comes from macro management including the inadequacy in investment in inland waterway port infrastructure between localities, the bridge system and river channels not meeting standards for waterway transport vehicles to move, lack of resources to develop the railway transport system, and lack of policies to support businesses providing public services.

The reason comes from businesses having limited resources, especially financial resources. Support equipment and means of transportation following green trends often require a larger investment than traditional products, while the profit margin from providing public services is low, making it difficult for businesses to find resources. Additional financial resources to invest in new purchases. Providing green transportation services is often not effective in the short term, so it is difficult to attract new businesses to enter the industry.

Society's consumption habits when choosing road transport due to flexibility in origin and destination. In addition, the difference in green transportation services compared to traditional transportation is not much, so customers tend to choose familiar options for consumption.

3.5 Recommendations for green transportation development in Hai Phong

To deploy green transport development in Hai Phong, there needs to be cooperation between State management agencies, transport service providers and customers using transport services. In particular, the State management agency plays a supporting role and guides development, businesses take advantage of all deployment resources, and customers need to change their consumption habits. Within the limits of the study, the following recommendations are proposed:

Regarding policy mechanisms: It is necessary to issue regulations to encourage the use of environmentally friendly means of transport to create motivation for businesses to deploy investment plans towards green transport, the goal By 2050, net emissions will be "zero"; Develop standard unit prices for vehicle types and capital support levels for investment cases in public transport vehicles using clean energy; Prioritize land funds with convenient traffic locations to build parking lots and charging stations to exclusively serve clean energy vehicles; Regulations on priority areas for vehicles using clean energy.

Regarding the development of more environmentally friendly transportation methods: Coordinate with localities sharing the same inland waterway to develop planning to ensure the wharf system, riverbed depth, and quiet space. Of the bridge is suitable for the vehicle's load.

As for transportation service providers, they need to proactively grasp policy mechanisms to promptly deploy them, ensuring they make good use of support from the State. Proactively share difficulties and obstacles in the process of implementing green transportation on forums or with State management agencies to ensure feedback from both sides. Continuously learn about green solutions to have a suitable plan for your business's resources.

Regarding social awareness, customers using transportation services: State management agencies and businesses providing transportation services regularly communicate about the advantages of choosing green transportation to gradually build good habits. New consumption habits for customers.

4. Conclusion and recommendations

According to the development trend and commitment of Vietnam when participating in world economic integration, greening economic sectors in general and green transportation in particular are inevitable. Hai Phong is one of the economic growth engines, a transportation center of the country that is implementing the initial steps of a green transportation development plan. During the implementation process, there are still many limitations; successful and effective implementation requires solutions. Implementing this requires the pioneering of State management agencies, the efforts of businesses in the industry, and the approval of customers. This study raises several issues and hopes to contribute to the effective implementation of green transportation in Hai Phong.

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