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Marine Economic Development: A Case Study of Hai Phong, Vietnam

Thach Dang Nguyen
VNU University of Economics and Business, Vietnam

Abstract

Vietnam is a coastal country with many potentials and advantages to develop marine economic sectors with a coastline of over 3,260 km. Marine economic activities are an important economic asset for Vietnam, and more information about marine economic activities is needed for marine policy and management purposes. In which, Hai Phong is not only an important node, a leading province in developing the marine economy, but also plays a role in economic linkage with the political capital Hanoi, Vietnam. In the 2016-2021 period, Hai Phong's coastal economy has always maintained a high level, contributing about 30% to the country's coastal GDP. However, besides the positive contributions of the marine economy to the investment and development of Hai Phong marine economic zone, in recent years, the development of the marine economy is facing many challenges. difficulties and challenges, the efficiency achieved is not high compared to the potential and available advantages of the sea. This article focuses on analyzing and assessing the current state of sea economic development in the period 2016-2021 of Hai Phong, thereby proposing some solutions to develop the marine economy for sustainable development by 2030.

Keywords: Development; marine economy; Hai Phong; Vietnam

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Introduction

Marine economy generally includes production activities for the development of marine resources and marine space, as well as related industrial activities for the direct or indirect development of marine resources and space, mainly including marine fisheries, shipping industry, sea salt industry, marine oil and gas industry, etc. Development in the marine economy means that the relevant industries engaged in marine production activities are constantly developing according to the characteristics of low energy consumption, low emissions and high efficiency, of great significance for promoting sustainable development of the marine economy (Sarker et al., 2018; Guo et al., 2022).

Vietnam is located in Southeast Asia, covers an area of 331,236 square kilometers. According to the 2019 census, Vietnam has 96.2 million people, of which 34.36% of the population is urban. The territory of Vietnam is divided into 63 administrative units including provinces and centrally run cities. Administratively, 28 provinces and centrally run cities are localities bordering the sea. The coastline is 3,260 km long excluding islands, in which, Hai Phong coast is over 125 km long, is one of the leading coastal cities in the development of marine economy in Vietnam. Hai Phong is a coastal city, in the Red River Delta and the Northern Key Economic Region, 102 km from the capital Hanoi. The main territory of Hai Phong is located in the geographical coordinates from 20030'39" to 21 0 01'15" North latitude and from 106 0 23'39" to 107^{0}08'39" East longitude. HaiPhong is located on many important national and international road, rail and sea transport routes, has seaports, airports, and a fairly synchronous transport network. National highways 5, 10, railways,

and sea routes are the main arteries linking Hai Phong's comprehensive relations with other provinces throughout the country and internationally.

Development of the marine economy in a socialist-oriented market economy contributes to the effective use of natural resources and preferential advantages; mobilize the synergy of diverse actors such as the State, businesses, scientists, people of port cities in the development of seaports, shipping, tourism, fishing and seafood processing... For Hai Phong city, the marine economy plays a particularly important role. Hai Phong is known as the industrial center, the largest seaport in the North of Vietnam and one of the leading localities in the field of logistics nationwide. Recognizing this, the city government has been proactive and active in developing the marine economy in order to develop the economy of the city in particular and the economy of the country in general.

Therefore, this analysis evaluates the process of industrialization of Hai Phong's marine economy quantitatively to reflect the process of marine economic development, thereby making practical proposals for the sustainable operation of the marine economy. On the one hand, the study can assess the main factors affecting the development of variable economy in Hai Phong. On the other hand, the study also provides references for making policies on the marine economy in the future in a scientific and effective way to promote the sustainable and quality development of the marine economic area in Hai Phong in particular and the marine economy of Vietnam in general.

Literature Review

Marine economic development is closely related to the sustainable development of related industries engaged in marine production activities, with characteristics of low energy consumption, low emissions and high efficiency. The assessment of the possibility of marine economic development can fully reflect the sustainable development of the maritime industry, such as industrial transport capacity, rationalization of industrial structure and production efficiency. Many studies have evaluated the process of marine economic development. For example, research by Jiang et al. (2014) and Liu et al. (2017) analyzed the development and characteristics of marine economic development policies in coastal regions. Wang and Wang (2019) estimated the contribution of the maritime sector using an input-output analysis methodology. With the development of the marine economy, assessing the sustainability of the marine economy has become another important focus. Ren et al. (2018a) used the Malmquist-Luenberger Index Model (ML) and assessed the green effect of the marine economy in China. Guo et al. (2022) measured marine economic efficiency based on an Epsilon-based measurement (EBM) model in Data Envelope Analysis (DEA) and explored its temporal and spatial evolutionary trends. Chen et al. (2017) built a measurement model based on economic theory, including stages of development, competitiveness, industrial efficiency, and sustainable systems for measuring industrialization. Many perspectives for measuring industrialization are beneficial to comprehensively reflect the development of industrialization.

In Vietnam, there have been many studies on this topic and all studies on marine economy have emphasized the importance of the marine economy for the growth and development of coastal localities in particular and the national economy in general. Typically, Le Cao Doan (1999) has deeply studied the advantages of coastal localities, analyzed the limitations and weaknesses in exploiting advantages from the sea, thereby proposing some solutions around the problem of how to change the method of exploiting marine resources for marine localities, in order to improve the efficiency of exploitation, conservation and preservation of marine resources. Pham Xuan Hau (2011) codified development theory, especially sustainable development of marine tourism. Synthesize and draw experiences in sustainable development of marine tourism in the world and apply them in the northern provinces of Vietnam from the perspective of sustainable development. Nguyen Ba Ninh (2012) codified the theoretical and practical basis of the marine economy in Vietnam's international economic integration. Analyzing and assessing the current situation of marine economic development in the South-Central provinces of Vietnam in international integration from 2000 to the present. Proposing directions and solutions to promote marine economic development in the South-Central provinces in the context of Vietnam's accession to the World Trade Organization. Tran Anh Tuan (2014) analyzed and evaluated factors affecting the economic

restructuring of the Northern coastal region of Vietnam, calculating and analyzing indicators for assessing economic restructuring of the Northern coastal region towards industrialization and modernization.

In summary, the above studies analyzed the assessment of marine economy or the process of industrialization. However, most of them focus only on the single aspect to evaluate the marine economy, such as marine economic growth, or marine economic efficiency, etc., and also cannot combine marine economy and industrialization. The industrialization of the marine economy can reflect the sustainable development of related companies engaged in marine production activities. It is necessary to evaluate the process of comprehensive development of the marine economy. In view of this, this analysis expands the scope of research of existing literature for a systematic and comprehensive analysis of the development process, trends and characteristics of the process of industrialization of the marine economy.

Research Methodology

To ensure the authenticity of quantitative research on the development of the marine economy, it is necessary to combine all aspects of the industrialization of the marine economy and calculate their assessed value. The specific calculation steps are as follows: Relevant data of the cost zones from 2016 to 2021 were collected, including marine economic level, marine industry structure, maritime production structure, marine spatial structure and maritime employment structure, then standardized based on method deviation standardization. The normalization process can effectively ensure that the dimensions and changing trends of metrics are consistent.

Data sources include documents, data and information available through magazines, books, newspapers; scientific research results, statistical reports, summary reports on marine economic development of coastal provinces and cities; reports on evaluation of implementation of schemes, programs and projects related to marine economic development. After collecting, secondary data is sorted and classified according to time, according to specific content related to the contents of the research to facilitate the use of these data in analysis and evaluation. Furthermore, the study will also maintain all ethical considerations to ensure that everyone involved in this study is not harmed.

Results and Analysis

Use And Mobilization Of Resources For Marine Economic Development

The amount of investment capital for the city's transportation and warehousing industry ranges from about 13% to 16% in the period from 2016 to 2020. In 2020, the amount of investment capital increased to 17.9% compared to 2019. The proportion of investment capital for the industry does not fluctuate much, the lowest in 2017 - 2019. That is because in the period of 2015 - 2017, overcoming the economic crisis, the city focused a lot on investing in the development of transport and warehousing systems, keeping stable in the following years.

Table 1: Investment capital for the city's transportation and warehousing industry in the period of 2016 – 2021

Unit: Billion VND

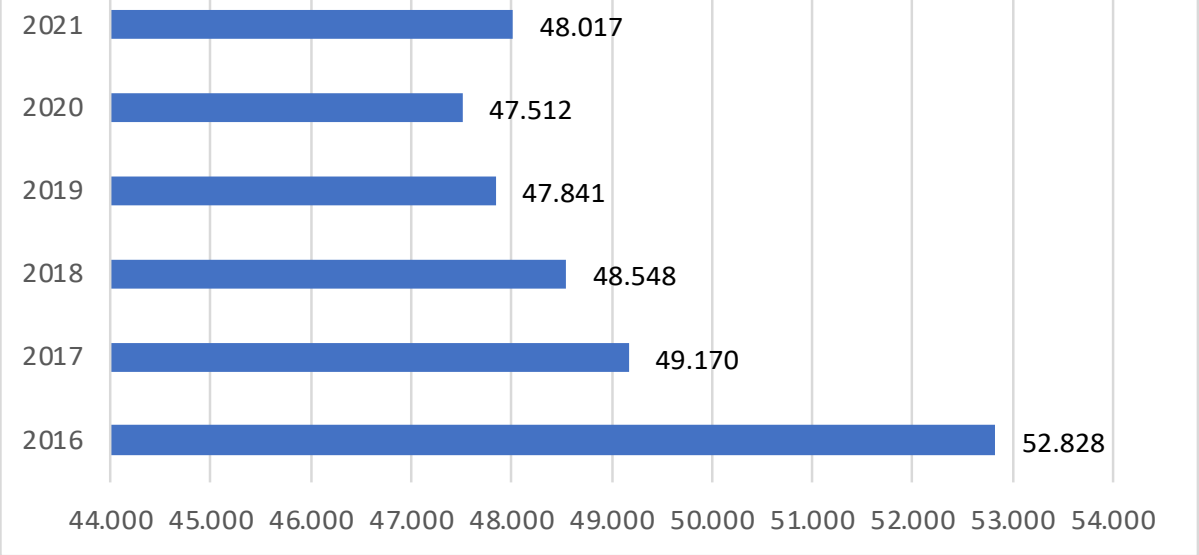
Year	Total investment	Investment capital for transportation and warehousing	Rate (%)	Investment capital development index for transport and warehousing
2016	31.653.631	4.927.489	15,57	85,5
2017	35.500.977	5.861.783	16,51	118,9
2018	37.931.152	4.966.890	13,09	84,8
2019	40.854.754	5.508.939	13,48	110,9
2020	45.171.413	6.341.006	14,04	115,1
2021	47.920.469	8.577.764	17,9	127,5

Source: Hai Phong Statistical Yearbook, 2021, 2022

Logistics infrastructure investment resources are interested by Hai Phong with the total investment capital implemented in the area in the period of 2016-2020 reaching VND 562,309 billion, nearly 3 times higher than the period 2011-2015 (VND 188,356 billion); in which, the investment capital of the transport and warehousing industry reached VND 133,550 billion, accounting for 23.75% of the total investment capital implemented in the whole city, the average growth rate was 20.03% / year.

By the end of 2021, the city has 28 foreign direct investment (FDI) projects in the field of transportation services, warehousing, logictics with a total registered capital of 116.1 million USD; in which, there are some outstanding large projects: C.Steinweg Hai Phong Limited Liability Company (40 million USD), Sembcorp Hai Phong Infrastructure Services Limited Liability Company (20.7 million USD), SITC Dinh Vu Logistics Company Limited (20 million USD), SLP Park Hai Phong 2 Project (17.26 million USD)...

Human resources in the field of transportation and warehousing are one of the important resources for marine economic development. The number of workers in the transportation and warehousing industry decreased in the period of 20165 – 2020. In 2016, the number of employees working in the field of transportation and warehousing was 52,828 people, but by 2020 only 47,512 people. In 2021, the number of employees in this industry increased to 48,017 people. The reason for this trend is because the transportation and warehousing industry has recently had a big change in technology. The digitization process reduces the number of workers but increases the quality of services provided. The share of workers in the transportation and warehousing industry consistently accounts for between 11% and 12% of the city's total workforce. It can be said that this industry has contributed significantly to the socio-economic stability of the city in particular and the country in general.



Source: General Statistics Office (2019, 2020, 2022)

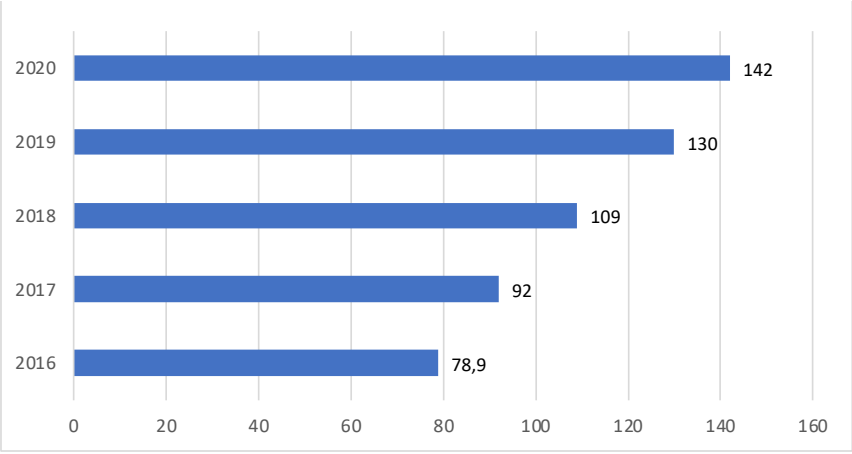
Figure 1: Number of employees operating in the field of transportation and warehousing in the period 2016 – 2021

Factors Affecting Development Marine Economics

Seaports

Hai Phong focuses on exploiting the available advantages of a city that meets 5 types of transportation to soon become a major maritime and shipping service center of the country. Currently, the city's seaport system consists of 5 berths with 98 berths of all kinds and 8 basic main maritime channels to meet the reception of large ships in and out of cargo. The total area of warehouses and yards reaches more than 700ha with more than 60 main warehouses including warehousing systems at seaports; bonded warehouses; warehousing systems at retail collection points, centralized inspection sites and other conventional and cold storage systems.

Unit: Million tons



Source: The author summarized through the report of Hai Phong City People's Committee

Figure 2: Volume of goods through Hai Phong port in the period of 2016-2020

Seaport industries have contributed positively to the economic development of the city. From 2016 to 2020, the volume of goods through Hai Phong seaport increased over the years, the following

year was higher than the previous year. Specifically, in 2016, the volume of goods through Hai Phong seaports reached 78.9 million tons, in 2017 reached 92 million tons, in 2018 reached 109 million tons, in 2019 reached 130 million tons. In 2020, although the whole country faced difficulties caused by the Covid-19 pandemic, the volume of goods in Hai Phong port still reached more than 142 million tons. The average growth in the period 2016 - 2020 is 17.55% / year. This shows the strong growth of cargo volume through seaports in Hai Phong in the context of deeper and deeper international integration today.

Shipping

Shipping units have focused on investing in fleet development in the direction of rejuvenation and specialization, in accordance with the requirements of the regional and international shipping market. In 2019, Hai Phong area has about 600 registered ships, accounting for 35.5% of the total number of registered ships nationwide, with a total tonnage of 2,763 thousand DWT, accounting for 37% of the total tonnage of the national fleet. The number of ships registered for operation and the number of tonnes of ship tonnage increased both in size (an increase of 260 ships compared to 2008) and the quality of transport, many ships with a tonnage of over 53,000DWT were put into operation. The private marine fleet is growing rapidly. Many transport routes to European countries, America, Africa, Australia ... has been opened, especially container transport routes, dry cargo transport has contributed to bringing Vietnamese goods to export directly to countries such as the US, Europe, Africa, Australia ... Hai Phong's fleet in 2021 has 265 ships, accounting for 14.8% of the total number of registered ships nationwide with a total tonnage of nearly 1.7 million DWT (accounting for 24.6% of the total tonnage of Vietnam's fleet). Among more than 90 ship owners operating in Hai Phong, 22 ship owners have a fleet of more than 10,000 DWT. These 22 ship owners own 138 transport ships with a total tonnage of more than 1.4 million DWT, accounting for 84.4% of the total tonnage of the fleet. In which, there are 5 ship owners owning a fleet of more than 5000 DWT. Led by Vietnam Shipping Joint Stock Company (VOSCO) with 23 ships with a total tonnage of 553,506 DWT; Vinaship shipping joint stock company has 13 ships; Tan Binh Company Limited (Tan Binh shipping) has 12 ships; VIPCO petroleum transport company has 4 ships. Hai Phong Transport Trading Company Limited (Hai Phong TRACO) has 9 ships.

Logistics services in Hai Phong grew by an average of 23% per year, making an important contribution to the production and business activities, import and export of the city and the whole country. However, the results of logistics activities have not fully exploited the potential advantages of the city. Hai Phong currently has about 300 enterprises operating in the field of logistics, most of them are small and medium enterprises, the competitiveness is still weak. Currently, Hai Phong has about 20 logistics centers, but most of them are small, serving only one or a few businesses; only participated in a few activities in the logistics chain. The city also does not have a logistics center, a large center for receiving and distributing goods, high service costs, service quality and professionalism are not synchronous.

Hai Phong transformed the type of self-sufficient and self-sufficient logistics service (1PL) to focus on perfecting the type of 2PL service (providing services to 2nd parties) and prioritized the development of 3PL services (providing services to 3rd parties or under contract) by 2020. But more advanced types of services such as 4PL (mainstream logitics provider) and 5PL (providing services to 5th parties) ... have yet to be implemented.

In addition to the development in breadth, the maritime and shipping industry also has an in-depth development in the period of 2016 – 2021. Businesses actively participate in digital transformation. Some port operators also put into use the specialized software system TOS (Terminal Operating System) to replace the MIS mining management system to promote the role of production organization and administration, improve productivity, competitiveness and management efficiency. TOS software is supported by Differential Global Positioning System (DGPS) with features of bridge planning, ship loading/unloading plans, lifting/lowering plans, container movement at yards, container location management, port gate operation control, freight calculation, exchange data with customers through EDI (Electronic Data Interchange) connection.

Fisheries

In the period of 2015 - 2020, the total number of city ships decreased in number from 3,512 ships in 2015 to 3,365 ships in 2020, the average rate decreased by 0.47%/year; but the total capacity increased from 93,275 CV to 122,768 CV, the average growth rate reached 3.09% / year. The number of ships with large capacity only reaches 745 ships with a capacity of 90CV or more. The structure of ships by capacity group has changed, the group of ships <90 CV decreased by 1.65%/year; the group of ships with a capacity of >90 CV decreased by 1.84% / year, but the group of ships with a capacity of >250CV tended to increase. This shows the trend of developing the mining sector in the direction of promoting offshore exploitation of the city, in line with the central policy of mining development. High-capacity fishing vessels are more efficient in offshore exploitation as well as asserting the country's maritime and island sovereignty in their stretches.

Table 2: Fishing and aquaculture output in the period of 2016 – 2020

Unit: Thousand tons

Year	Total output	Harness	Farming	Shrimp	Fish	Other fisheries
2016	93,4	46,3	47,1	6,6	63,3	24,4
2017	97,7	47,9	49,7	6,9	67,1	23,7
2018	100,5	49,9	50,6	7,7	65,4	27,4
2019	106,9	55,2	51,7	8,4	70,5	28,0
2020	180,32	68,8	47,0	10,1	73,3	32,4

Source: Hai Phong Statistics Office (2020 – 2021)

In 2021, although the market and prices have many fluctuations due to the COVID-19 epidemic, the fishing and aquaculture output of Hai Phong city continues to maintain and grow slightly. Accordingly, seafood production for the whole year reached more than 184 million tons, up 2.01% compared to 2020; in which, farming output reached 72,800 tons, up 1.52% compared to 2020, exploitation output reached more than 111,000 tons, up 2.33% compared to 2020. The value of seafood production reached over VND 5.62 billion, up 3.08% compared to 2020.

Fisheries logistics services have thrived in the period 2015 – 2020. Logistics enterprises have basically met the needs of gasoline, oil, ice, fishing gear, marine information equipment, water machine parts, ship repair, mooring yards ... for about 12,000 trains per year.

Aquaculture

In the period of 2016 - 2020, aquaculture in Hai Phong city has had a significant development; gradually becoming a profession of large-scale production of goods, contributing to economic transformation in agriculture. In particular, Hai Phong has become the cradle of vocational training and scientific research in the field of fisheries. Many training and research institutions have met the local needs of aquaculture varieties. As a result, Hai Phong became the first locality in the North to produce many high-value saltwater and brackish water aquatic varieties such as spring fish, song fish, American snapper, monks, oysters... Each year, the city supplies nearly 1 billion varieties of shrimp and fish of all kinds to the northern provinces.

Hai Phong continues to show its role as a center for fisheries development, the catch is ranked 2nd, the aquaculture output ranks 3rd of the Northern coastal region, As the locality with the largest seafood processing capacity in the North, the number of seafood production and processing facilities accounts for the highest proportion in the region. As the leading locality of the North producing saltwater and brackish water aquatic varieties, annually supply about 50% of the demand for varieties to neighboring provinces.

The total aquaculture area of Hai Phong city in 2015 was 13,486, in 2018 it was 13,934, by 2020 it decreased to 12,046 hectares. Aquaculture output in the period of 2016 - 2020 is constantly increasing, in 2016 the total output is 39.9 thousand tons, by 2019, the total output will reach 51.7 thousand tons but in 2020 it will decrease to 47.0 thousand tons. This is explained by the natural conditions for aquaculture in 2020 with many fluctuations, harsh, negatively affecting production along with the impact of the Covid-19 epidemic. The value of aquaculture output in 2016 was VND 725.8 billion by 2020, increasing to VND 3,657 billion, an increase of more than 5 times.

Seafood Processing

The output of processed seafood exported including official and sub-quota exports of the city since 2015 has increased insignificantly. The capacity utilization rate of seafood processing facilities in 2015 was 39.16% and in 2020 it was 29.76%. The output of processed seafood of most types of products decreased, the average growth in the period of 2016-2020 decreased by 2.06% / year, because enterprises did not have enough raw materials to produce. Duy has a fish sauce product line of some units: Cat Hai Seafood Processing Joint Stock Company, Quang Hai Co., Ltd., Nguyen Hoang Co., Ltd. There is growth due to the abundant supply of raw materials and there is a consumption market.

In 2019, frozen fish exported 3230 tons, accounting for 59.11% of total frozen products, frozen shrimp 22.17% reached 620 tons. These are the city's two main frozen exports. For dry products, dried fish accounts for a large proportion (90%) in the structure of export products with an output of 1164 tons, dried squid accounts for 10% with an output of 86 tons. In 2020, seafood exports will decrease sharply, especially frozen products will only reach 30.9% of 2030 tons compared to 2019. The export value of processed seafood of Hai Phong city in 2020 reached 45.99 million USD, an increase of nearly 10 million USD compared to 2015 (36 million USD), an average growth of 2.76% / year (period 2016 - 2020). This shows that Hai Phong seafood processing enterprises are facing many difficulties in terms of consumption markets as well as raw materials for production.

Table 3: Structure of seafood products processed in Hai Phong city in 2019-2020

Items	**Wildlife**	**2019**	**2020**	**Rate (%)**
Frozen products	**Ton**	**6.574**	**2.030**	**100**
Frozen fish	Ton	3.230	1.200	59,11
Frozen shrimp	Ton	620	450	22,17
Lahnj	Ton	246	120	5,91
Other fisheries	Ton	2.460	260	12,81
Dry products	**Ton**	**1.250**	**1.100**	**100**
Dry squid	Ton	86	110	10
Dried fish	Ton	1.164	990	90
Canned food	**Ton**	**1.050**	**60**	
CBXK value	**Million USD**	**36,5**	**45,99**	

Source: Hai Phong Department of Fisheries Resources Exploitation and Protection

Development Of The Marine Tourism Industry

Hai Phong is a city with great tourism potential, but in recent years, exploiting its strengths to develop tourism is still quite weak. However, the marine tourism industry has gradually become a key economic sector in Hai Phong city.

In the period of 2016-2020, tourists to Hai Phong have a fairly fast and continuous growth rate over the years, the average growth rate is over 9%/year. Notably, in 2018, the city welcomed 7.8 million visitors, fulfilling the goal set by the Resolution of the XV Party Congress of the city 2 years in advance. In 2019, Hai Phong tourism industry attracted 9.08 million visitors. In 2020, due to the impact of the Covid-19 pandemic, the city is estimated to welcome and serve nearly 9 million tourists. International visitors to Haiphong are mainly Chinese visitors traveling by road, the UK, France, Germany, USA, Japan, Korea, Taiwan, travel by air and sea.

By 2021, the city has attracted 56 domestic investment projects with a capital of nearly VND 67,800 billion and 14 foreign-invested projects with a capital of USD 931 million invested in the tourism industry. The share of tourism value added in the added value of the service industry increased from 4.9% in 2005 to 5.28% in 2017. The share of tourism value added in the city's overall GRDP also increased from 2.48% to 2.78%, respectively.

Conclusions and Policy Recommendations

The situation shows that the marine economic area of Hai Phong city in the period of 2016-2020 has experienced growth in all aspects, but the growth rate is not commensurate with the potential. Although the contribution of the marine economic sector to the GRDP of the big city, it has only focused on a few key industries such as seaport logistics, industries such as tourism, fishing and aquaculture have not yet fully exploited their advantages. Coastal industries such as shipbuilding are quite small. Limitations of marine economic development in Hai Phong city come from both planning and planning for the development of marine economic areas, building infrastructure, promoting resources to inspect and supervise marine economic development. These restrictions are not only unique to Haiphong city, but they point to the limitations of local authorities in developing the marine economic area. This is the basis for managers to consider and identify effective solutions to be able to more effectively develop the marine economic sector in the new period, overcome limitations, and enhance the role of the State.

In order to make Vietnam a strong maritime country in general and Hai Phong City in particular, the Government's Resolution No. 26/NQ-CP, dated March 05, 2020, defines a plan to 2025 to develop the marine and coastal economy focusing on the following areas:

For tourism and marine services: continue to well implement Resolution No. 103/NQ-CP, dated October 6, 2017 on the Government's Action Program to implement Resolution No. 08-NQ/TW, dated January 16, 2017 of the Politburo (session XII) on tourism development to become a key economic sector, in particular, focusing on the development of tourism and marine services according to the objectives and requirements of the Strategy for sustainable development of Vietnam's marine economy to 2030, with a vision to 2045; review, develop and promulgate preferential policies to create breakthrough development for tourism and marine services, etc.

With maritime economy: focus on building and improving the efficiency of management and exploitation of ports: international gateways, specialized large-scale. Renovate and upgrade existing ports; build a number of local ports according to their functions and scales in accordance with socio-economic development requirements; invest in upgrading and dredging and maintaining maritime routes; continue to develop Vietnam's fleet in a modern and effective way; synchronous development of sea transport support services, multimodal transport, especially improving the quality of logistics services; improve the market share of import and export transportation, etc.

Regarding the exploitation of oil and gas and marine resources and minerals: research, search, exploration and exploration of oil and gas of potential sedimentary basins being exploited; promote the search and exploration of deep and offshore water tanks; research and exploration of non-traditional forms of hydrocarbons; linking the search and exploration of oil and gas with the investigation, survey and assessment of the potential of resources and minerals of the seabed, especially those of high value, strategic significance, etc.

The field of aquaculture, cultivation and exploitation of seafood: conversion from small-scale aquaculture and aquaculture models, outdated technology to industrial farming, large-scale with modern technology; shifting fishing grounds from coastal waters to open and offshore areas; building

and operating artificial habitat models for marine species, high-tech membrane house models. Applying high technology and energy saving for fishing to improve production efficiency associated with marine environmental protection, etc.

Regarding coastal industry: promote investment attraction and development of high-tech and environmentally friendly industries, projects using source technology in coastal economic and industrial zones; prioritize the development of deep processing industries, high-tech applications to add value, etc.

For the development of renewable energy and new marine economic sectors: prioritize investment in renewable energy development on the islands for production, daily life, national defense and security. Promote investment in construction and exploitation of wind power, solar power and some other forms of renewable energy. Interested in developing a number of economic sectors based on the exploitation of marine biodiversity resources, such as mangroves, marine medicinal herbs, farming, growing and processing algae, algae, etc.

Along with that, the plan identifies: development of sea areas for tourism and marine services in areas with potentials and advantages; At the same time, promote investment in renovating and upgrading a number of important maritime routes and flows, renovating and upgrading infrastructure systems, such as breakwaters, moorings, wharves, in a synchronous, modern and sustainable direction.

In summary, research assessing the impact of economic activities in marine areas can improve the volume of evidence used for marine policy and management. Despite some limitations, this estimate can help policymakers and planners better understand the economic impact of activities in the marine environment. Meanwhile, continued adoption of this approach can be useful for measuring the impact of structural change in the marine economy and understanding its impact on employment. Future work may refine or update this estimate, apply it at the regional level, or incorporate the results into a natural capital model so that it can investigate the trade-offs between economic output and natural capital production.

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