

Current Status of Exploitation, Use and Management of Coastal Resources in Coastal Zone of Thai Binh Province

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Abstract: Thai Binh is one of the 28 provinces bordering the sea. It is defined as a province with quite rich coastal resources thanks to more than 50 kilometres of coastline connecting with nearby provinces in the northern coastal region. The socio-economic development of the coastal districts plays a role in promoting the socio-economy of the whole province in general. At present, however, some types of coastal resources of the region are to the point of exhaustion due to irrational exploitation, bad management and lack of planning, which has led to many consequences including the pollution of the coastal and estuarine environment and the imbalance of the ecosystem. In the article on “Current state of the exploitation, use and management of coastal resources in the coastal zone of Thai Binh province, the author has not only highlighted the general picture of the present state of exploitation and the shortcomings in coastal resource management but also proposed some solutions to improve the efficiency of the exploitation, utilization and the entire management as well in order to protect the coastal resources of Thai Binh province, in order for them to contribute to the sustainable socio-economic development of the province.

Key words: coastal zone, coastal resources, integrated management, sustainable development, Thai Binh Province

1. Introduction

To be a new concept that has been interested in recent years in Vietnam, the coastal zone is known as the topographic area in which feverish exploitation and use of natural resources and environment take place. Integrated coastal zone management can stimulate the development of coastal economy and resources, and limit the degradation of natural systems in general. However, up to now, in Vietnam, the major limitations in the management of natural resources and environment in the coastal zone are the limited perception and knowledge of the coastal zone and management mechanisms of managers at the various levels, sectors and local levels still lack practical relevance. Decisions are made without fully understanding the nature of the dynamics and values of the coastal zone. This not only leads to limitations in

benefiting from the use of the value of the coastal zone, but also loses its inherent value and sometimes has a negative impact on policies and reasonable laws related to integrated coastal zone management.

The coastal zone of Thai Binh province is considered as a rug woven by diverse ecosystems and resources; place where provides living space for species, including humans. However, the coastal zone of Thai Binh province is also recognized as a place where diverse conflicts in the conflicts of interests between the use of coastal resources for socio-economic development and environmental protection take place. The conflicts of interest at the highest level from that can be mentioned as: the conflict between aquaculture activities and agriculture — forestry and tourism; between fishing and conservation and tourism; between mineral exploitation and tourism development, conservation, etc. These conflicts have made Thai Binh coastal zone have many issues on environment; inefficiency of socio-economic development;

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Therefore, the study: “*Current status of exploitation, use and management of coastal resources in coastal zone of Thai Binh province*” is very necessary for coastal area in Thai Binh province for the time being as well as in the socio-economic development strategy for the coming years.

2. Data and Research Methods

2.1 Database

The data on natural resources in coastal area of Thai Binh province is taken from data in scientific reports, meaningful project topics of organizations in region, nation and international such as the National Committee, The Vietnam Man and Biosphere Program (MAB Vietnam), etc. or directly from thematic reports, projects and plans of the People’s Committees of the province, sectors and Departments in the local such as Department of Natural Resources and Environment, Department of Agriculture and Rural Development, Branch of Statistics, Reports collected directly from the results of field surveys conducted by the authors in the coastal zone of Thai Binh province in the period from 2016 to 2019.

2.2. Research Methods

In the process of finalizing the paper, the authors use in combination with many research methods: Methods of collecting, processing documents, synthesizing analysis; Inheritance method; Methods of field investigation and survey; Professional method; Evaluation methods.

3. Results of Research and Discussion

3.1 Current Status of Exploitation and Use of Coastal Resources in Thai Binh Province

3.1.1 Exploitation and Use of Land, Sandbanks and Dunes in Coastal Zone

Due to the influence of topography, river and sea system, there are many different soil groups in coastal

zone of Thai Binh province such as: saline soil, coastal sandy soil, acid sulphate soil, infertile soil, eroded soil.

A saline soil occupies a large area and is widely distributed in the coastal zone and depressions inside and outside the dyke. Every year, coastal locality must invest in improving hundreds of hectares of saline soil, along with building and renovating infrastructure systems, dykes, embankments, irrigation, irrigation ditches and disaster prevention; searching and developing agricultural eco-systems with a system of salt-loving plants; afforesting; Even for communes with saline soils where are difficult to renovate or have inefficiency planting, managers here are developing and implementing Projects on land accumulation and conversion of land use purposes to improve land use efficiency and create higher economic value in the future.

Coastal sandy soils are distributed on coastal sandbanks and dunes on the Eastern, Southeast and Northeast edges. In the coastal zone of Thai Binh province, communes with sandy area are coastal and estuarine communes such as Thuy Tan, Thuy Truong, Thuy Xuan, Hong Quynh, Thuy Ha, Thai Do, etc. (Thai Thuy district) or Van Truong, Dong Xuyen, Nam Hai, Nam Hong, Nam Trung ... (Tien Hai district); The sand dunes including Con Den, Con Vanh and Con Thu, are porous, airy and easy to cultivate, suitable for variety of crops, especially in crops with high economic efficiency such as potatoes, carrots, watermelons, cabbage, pumpkin, beets, tomatoes, onion, garlic ... and other vegetables.

Acid sulfate soil is mainly distributed in Thai Thuy (Thuy Thanh, Thuy Binh, Thuy Ninh, Thuy Son, Thai Giang, Thai Nguyen etc.), and in some communes in Tien Hai district (Nam Ha, Nam Chinh, Nam Thang, Nam Hong, Nam Hai, etc.). The soil is relatively fertile. To utilize the land fund, the coastal communes of the two districts of Tien Hai have conducted two main rice crops, namely spring and crop. Area and productivity of rice, and seed structure in the two districts are different in the year. Infertile soil and eroded soil are scattered in

districts and towns, these soils are not suitable for growing rice but they can be used to grow some kinds of crops, shallow crops such as potatoes, peas, and tubers, beetroot, peanuts, sesame, chili, pumpkin, courgette ...

In order to improve the production value on arable land and increase per capita income for farmers, the local authorities of the communes are currently implementing projects to restructure the agricultural sector such as large-scale land accumulation; conducting intensive crop in large sample fields towards multi-cropping to promote the development of commodity agricultural production; intensifying to change farmers' thinking about production scale from small-scale production of several fields to production on area of several hectares; applying mechanization and cultivation techniques, learning, researching and supplying suitable major plant seed; encouraging the use of bio-plant protection drugs in the field in accordance with the farming process to ensure organic farming; Linking with businesses to consume products for farmers has brought more effective for the crop industry in coastal communes.

3.1.2 Exploitation and Use of Water Resources

Located in the downstream area of the Red River — Thai Binh River, the coastal zone of Thai Binh province has a fairly dense river system with a large content of alluvium. Water in the field ponds, lagoons and rivers combined with rainwater are the main sources of fresh water for daily needs, irrigation and

other productive activities of the people (animal husbandry, freshwater aquaculture, industry, tourism,...). Currently, together with the constant efforts of leaders and authorities of the coastal districts, in the whole coastal area of Thai Binh province, 100% of communes have invested in clean water works and by the end of 2019, the percentage of people in the whole area using clean water reached over 90%. However, in recent decades, it has been shown that: under the erratic changes of the weather and climate factors; the current status of exploitation, use and management of local water resources is not really effective; Irrigation systems have not kept up with the needs of socio-economic development, etc., causing water source to be salted, surface water polluted and saline, thereby causing difficulties for most coastal communes in the process of water treatment, affecting the ability to supply fresh water to meet the needs of life and production of the people here.

Located at the intersection of river and sea, the salty and brackish water source and typical nutrients have been exploited and used mainly by the local authorities for aquaculture; one part for making salt; developing fauna and flora population (Afforestation; raising poultry, especially duck...). According to statistics, currently in the study area, 3.629 hectares have been exploited for aquaculture: Clam, Shrimp, Crab, Cockle, Mussel, growing gracilaria...

Table 1 Area and output for clam farming in the period 2010-2020 [2, 9].

Category	2010	2015	According to planning 2020	Average growth 2015-2020 (%/năm)
- Area (ha):	1.089	2.920	4.100	7.0
<i>Thai Thuy</i>	169	1.087	2.312	16.0
<i>Tien Hai</i>	920	1.833	1.788	0.0
- Yield (ton):	30.130	72.500	123.000	11.0
<i>Thai Thuy</i>	5.630	19.563	69.000	29.0
<i>Tien Hai</i>	24.500	52.937	54.000	0.0

Taking advantage of coastal salt water source, for many years, people in coastal communes of Thai Binh province such as Thuy Xuan, Thuy Hai and Thuy Truong (Thai Thuy); Dong Minh commune (Tien Hai)

took advantage of coastal sea water source to make salt. However, due to the low salinity of the coastal zone of Thai Binh province, combined with manual production, the resulting product is not as clean as imported salt,

consumption is difficult. In recent years, the area of edible salt production in the coastal zone of Thai Binh province has been narrowing. In fact, only Tam Dong village in Thuy Hai commune, Thai Thuy district continues to maintain salt making.

In addition to the values brought, the salty and the brackish water resource in the coastal zone of Thai Binh province are facing the risk of environmental pollution due to waste discharged from the continent. This matter becomes more serious when development activities of people such as aquaculture, production of agriculture, industry, services, tourism... in coastal area are more and more increasing. According to the analysis results of the Center for Natural Resources and Environment Monitoring (Department of Natural Resources and Environment of Thai Binh province) shows that: in recent years in the rainy season (June) and dry season (November) shows that the saline and brackish water resources in estuarine areas in the study area are all polluted with Fe, Mn,... Fe content in 5 estuaries exceeding the permissible standards. Mn content at Ba Lat estuary and Con Vanh beach area was slightly polluted. Therefore, in order to effectively exploit not only freshwater resources but also saltwater and brackish water resources in coastal area of Thai Binh province in general, leaders, management levels and Thai Binh people needs to make specific planning

and management policies, adapting to each group of water resources, thereby protecting and developing sustainable water resources in all aspects of the strategy of economic-social promotion and development.

3.1.3 Exploitation and Use of Coastal Wetlands and Mangrove Forests

Playing a very important role in protecting the environment of the coastal zone, the mangrove forest system located in the coastal zone of Thai Binh Province is a unique ecosystem with tropical plants and shrubs with roots from saltwater sediments in coastal area such as bruguiera, kandelia candel, sonneratia, avicennia, mangrove etc. It provides fuel, medicine, food for coastal communities, and it is also a solid green wall against wind and storm, waves, landslides, cleaning coastal environment, limiting salt water intrusion, protecting groundwater, accumulating carbon, reducing CO₂, maintaining biodiversity ... However, due to the specific topography of the plain province, forestry activities of Thai Binh Province are not much, and due to the main component to be a mixture of forest products from protection forests, most of the plant species in the mangrove forest in the coastal zone of Thai Binh Province are less used and exploited (currently there is no concentrated activities of exploitation and processing of forest products in coastal districts).

Table 2 Area of forest and forestry land in coastal zone of Thai Binh province in 2019.

District	Natural Area (ha)	Total Forest Area (ha)	Natural Forest (ha)	Planted Forest (ha)	Coverage (%)
<i>Thai Thuy</i>	25.683,0	2.514,5	-	2.514,5	9.8
<i>Tien Hai</i>	22.600,0	3.768,0	-	3.763,8	16.7
Total:	48.283,0	6.282,5	-	6.278,3	13.0

In recent years, results of forestry production activities in coastal area of Thai Binh province have also been recorded as unstable development and towards decreasing. In recent years, the forestry sector in the coastal area of Thai Binh province has faced many difficulties: the area of mangrove forest is sharply declining due to invasive impacts from human activities (the spontaneous increase in aquaculture activities of people) as well as the negative impacts of

climate change and sea level rise scenarios. Besides, the condition of grazing buffaloes and cows; massive exploitation of coastal protection forests for firewood; fishing along the coastal area are also factors causing the risk of biodiversity loss, disruption of ecological balance and greatly hindering the natural regeneration process of the mangrove forest system in the coastal zone of Thai province.

3.1.4 Catching and Exploiting Marine Resources

The marine potential and resources of offshore and near-shore are one of the strengths of the coastal zone in Thai Binh province; however, the lack of strict management in fishing and exploitation is one of the reasons for the rapid decline of marine resources in coastal area of Thai Binh Province in recent decades. The main exploited species are herring, bombay duck,

mullet, and bass ...; shrimp species: Yellow shrimp, Jinga shrimp, Prawn ... Currently, only small fishing activities and natural exploitation are maintained. These activities mostly provide raw materials for processing traditional commodities such as fish sauce, shrimp sauce and aquatic food processing.

Table 3 Output of marine exploitation by locality for the period 2010-2030 [2, 9]

(Unit: ton)

Local	2010	2015	According to planning			Average growth (%/năm)		
			2020	2025	2030	2016-2020	2021-2055	2026-2030
- Thai Thuy	29.749	39.344	43.000	46.600	46.700	1,8	1.6	0,0
- Tien Hai	11.081	21.158	23.000	24.000	24.000	1.7	0,9	0,0
- Kien Xuong	1.385	1.163	1.500	2.000	2.000	5,2	5,9	0,0
-Other Locality	2.583	2.815	2.500	2.400	2.300	-2,3	-0,8	-0,8
Total:	44.798	64.480	70.000	75.000	75.000	1,7	1,4	0,0

Currently, fishing activities are mainly concentrated in two districts of Thai Thuy (about 65%) and Tien Hai (about 25%) over the years. Marine exploitation accounts for nearly 90% of production, domestic exploitation accounts for more than 10%. The marine fishing has gradually been mechanized to create conditions for boats to expand their operation scope, go fishing long distances.

For saltwater aquatic exploitation in Thai Binh, there are many professions, depending on each object of exploitation to have different technical means. Saltwater fishing is conducted by people living in the coastal areas of Thai Thuy and Tien Hai, where coastal communes with senior experience in seafaring concentrated. In general, the number of fishing boats in Thai Binh province has increased rapidly, especially boats without engine.

Freshwater aquatic exploitation: There are many types of freshwater aquatic products with many different ways of exploitation. On large rivers, rowing boats by hand is used to pull the dredging nets. In small rivers and canals, small raft and canals by hand are usually used.

In recent years, coastal fishermen in coastal area of Thai Binh province have boldly borrowed and

continuously invested in upgrading high-capacity boats to develop offshore exploitation activities (mainly offshore fishing in the seas of Hai Phong, Nam Dinh, Thanh Hoa): In the period from 2016 to 2019, Thai Thuy has the largest number of fishing means in the province with a total of 540 means, a total capacity of 77,823 CV with 1.699 employees. In which, there are 309 ships with a capacity of less than 40 CV, 48 ships with a capacity of 40-90 CV, 176 ships with a capacity of greater than 90 CV for offshore fishing. In 2019, the output of fishing of the district is estimated at 42,783 tons, the value is estimated at 560,9 billion dong. In 2020, the district strives to achieve the output of fishing of 43,000 tons, increasing by 17% compared to 2018. Besides the number of fishing exploitation means increased rapidly, nowadays, the fishery logistics service facility in the district also has the development step. Fishing ports, fishing wharves and anchor area for avoiding storm are invested in upgrading, expanding and creating favorable conditions for fishing activities of fishermen.

3.1.5 Exploitation and Use of Solid Mineral Resources, Placer and Hot Mineral Water

It has been determined that there are some solid minerals (Inmenzite, Manhetite, Ziacon, Monazite,

titanium), benefiting from placer of sand, black clay, brown coal; however, basically these minerals are scattered and in the process of the exploration, at the same time, due to the technical conditions not yet allowed to exploit, many kinds of mineral resources in the coastal zone of Thai Binh province have not been taken advantage to serve the development of the industry system in the region: At present, localities in these communes take advantage of the benefits from sand and black clay as raw materials for industries producing ceramic tiles, porcelain, crystal glass, medical glass. ... and recently Vietnam National Coal and Mineral Industries Group is conducting a trial drilling to find sources of coal gasification and Indochina Group has proposed to Tien Hai district to invest about USD 6 million to explore and exploit for a pilot coal gas and brown coal resources in Tien Hai. It is expected that from 2010-2015, 24 holes will be drilled and investing in some new coal mining technologies will be conducted. In the coming period, when the projects come into operation, it will create abundant fuel sources to continue providing factories in the industrial zones, at the same time, Tien Hai also has many opportunities to strongly develop power generation plants.

Another special type of mineral resource located in the coastal zone of Thai Binh province is the hot mineral resource. This type of resource was discovered at the depth of 450 m with static reserves of about 12 million m³ in the territory of Tien Hai district, which was explored and exploited by Vietnam Oil and Gas Corporation (now Vietnam Oil and Gas Group) from 1992, with an average production of 9.5 million liters/year, it was not only consumed in the domestic market but also exported ... Up to now, the domestic and foreign markets have known the brand of Tien Hai mineral water with 4 product lines formed (the most famous brands are Vital mineral water, Tien Hai mineral water).

3.1.6 Exploitation and Use of Gas

The source of gas here is mainly concentrated in the coastal area of Tien Hai district and has been exploited

since 1986 to present with an average annual exploitation output of about 25 million m³ of gas for the development of industries. However, due to the strong development of industries in the district and the need to exploit to meet the market demand, gas reserves near the shore have nearly exhausted, so in recent years, Tien Hai district, Thai Binh province has been cooperating with Vietnam Oil and Gas Group to find gas resources from the East Sea to put into operation in the coming years. Gas pools of Thai Binh province are exploited to serve some industries such as porcelain, glass, tiles, white cement ...

3.1.7 Exploitation and Use of Tourism Resources

(a) Natural Tourism Resources

The combination of exploitation and use of landscapes of unique and typical ecosystems in the mangrove forest in coastal districts of Thai Binh province for tourism development is being interested in planning by all levels of government, especially when mangrove forest system in the coastal zone of Thai Binh province belongs to the World Biosphere Reserve — inter-provincial coastal wetlands of Red River delta (where includes the rich biodiversity values with valuable and rare species of international importance confirmed. The mangrove forest areas under coastal mangrove soil conservation areas are very suitable to develop tourism types such as: Ecotourism with activities to visit, research, explore, experience and relax, environmentally friendly, combining with discovering local cuisine ... In the coastal zone of Thai Binh province, wetlands and mangrove soil are initially being planned for tourism development including Thai Thuy Wetland Nature Reserve and Tien Hai Wetland Nature Reserve.

Besides wetlands, coastal sandbanks and dunes also play an important role in economic development, especially in tourism development. On the coastal zone of Thai Binh province, sandbanks and dunes have tourism value including: Con Thu, Con Den, Con Vanh. In which Con Thu and Con Den with planned area of 1,150 hectares (Thai Thuy district) are potential areas to

be exploited and used for socio-economic development. Now, the types of tourism exploited in Con Den and Con Thu tourist areas include: eco-tourism, resort tourism, sightseeing and marine research.

Dong Chau beach and Con Vanh (Tien Hai district), with planned area for tourism development, respectively 105 hectares and 1,618 hectares, are also areas with full potential and advantages for exploitation and use for tourism development with transport infrastructure linking many resorts, beaches, swimming pools, golf sports areas, in combination with Tien Hai wetland nature reserve... these have given a great ability to attract tourists to Con Vanh. Types of unique tourism and services are being exploited such as: Accommodation tourism services, convalescence tourism, health care, cuisine, culture — art, sports, sightseeing, marine ecosystems research, and recreational activities (such as picnics, relaxation, fishing, windsurfing, beach volleyball). These types have been developing. Dong Chau beach under Dong Minh commune, Tien Hai district, can be exploited to develop tourism activities such as: vacation, relaxation, cuisine, outlook at the end of the day and weekend. Although there are no specific statistics on the overall tourism development situation for the whole coastal zone of Thai Binh province, initially, there have been positive figures in the number of tourists and annual tourism revenue in major tourist areas of Thai Thuy district and Tien Hai district. A worrying thing is that the exploitation and use of sandbank and dunes in coastal area for tourism development have also caused the risk of environmental pollution and loss of beauty: In recent years, the number of tourists coming to the coastal tourist areas of Thai Binh province has tended to increase while the infrastructure system has not met the requirements, along with the weak and ineffective management mechanism of tourist resorts leading to the overload in the process of tourism development (the situation of waste being flooded from the tourist areas of Con Thu, Con Vanh in the peak tourist months ...). In the future, to develop the tourism industry to match

its potential is still a question that needs answers from the leaders, departments and local people in coastal area in particular and Thai Binh province in general.

(b) Exploitation and use of humanistic tourism resources

Besides landscapes and natural tourism resources, the coastal tourism industry of Thai Binh province also relies on humanistic tourism resources. The combination of eco-tourism routes with visits to cultural and historical relics and trade villages formed initially attracted tourists in and out of the province such as: *Dinh An Co Village Festival* (Thuy An commune, Thai Thuy district); *Quang Lang Village Festival and the dance of Mr. Dung - Mrs. Da* (Thuy Hai commune, Thai Thuy district); *Hat Knitting Traditional handicraft villages* (Tay An, Tien Hai district), etc. Currently, the People's Committee of the Province has approved to invest in renovating and upgrading the cultural and historical relics area such as Uncle Ho Temple (Nam Cuong commune), Nguyen Cong Tru souvenir area and Cua Lan temple (Tien Hai district); The tomb are of Nguyen Duc Canh leaders (Diem Dien town), Tam Toa temple, Dinh An Co, Ba Chua Muoi Temple (Thai Thuy district); to establish a Tourism Promotion Center (under the Department of Culture, Sports and Tourism), a Management Board of Monuments to enhance the management and promote activities of tourism promotion in Thai Binh; at the same time, the committee also encourage and create conditions for all economic sectors to invest in building accommodation service establishments for tourists. In the future, the tourism development in coastal area will surely contribute to the prosperity of the economy in coastal districts of Thai Binh in general.

3.2 Current Status of Management, Exploitation and Use of Natural Resources in Coastal Zone of Thai Binh Province

3.2.1 Management in the Exploitation and Use of Biological Resources

(a) Management in exploitation of wetlands and mangrove ecosystems

In recent years, the biological resources of Thai Binh province in general and the coastal zone in particular are showing many signs of biodiversity decline due to many different reasons, including reasons caused by inadequacies on the organization and management of local biological resources.

With an increasingly important role, since 2010, the Department of Natural Resources and Environment has cooperated with the People's Committee of Thai Binh province to make "*Thai Binh province Biodiversity Action Plan to 2020*". Accordingly, by 2020, Thai Binh province needs to carry out tasks related to biological resources in coastal zone, including: Prioritizing the conservation and development of biodiversity in coastal wetlands; Conservation and development of agricultural biodiversity; Sustainable use of biological resources; Strict management and control of invasive alien species; Management in the exploitation and use of aquatic resources. From the beginning of 2015 to present, after receiving the decision to use non-refundable aid funded by the Korean Government through the ASEAN-Korea Forestry Cooperation Agreement, the leader of the People's Committee of Thai Binh Province directed relevant Departments in the province and communes in the project area to implement the Project "*Recovery and Sustainable Development of Mangrove Ecosystems in Thai Binh Province*". This is a very good opportunity for Thai Binh province to have valuable resources to recover and develop the coastal forest system, creating an environment for ecosystems, contributing to keeping land, preventing waves and being a steady step to keep natural beauty for the natural landscape of coastal tourism and increasing adaptability to climate change and sea level rise scenarios for the coastal zone of Thai Binh province in the near future.

(b) Management in the exploitation and use of aquatic resources

Development of aquaculture is the right direction of districts in the coastal zone of Thai Binh province. In addition to the aquaculture process that has been controlled on imported and exported varieties by local authorities (especially variety sources of exotic origin); paying attention to and guiding new farming techniques to people; planning to develop land fund for aquaculture, seeking and expanding consumption markets ... in order to regenerate resources, the management of fishing activities are also being paid more and more attention such as conducting management of the activities of ships and boats, including Granting registration certificates of fishing vessels, granting fishing ship crew book; granting and extending mining licenses; promoting activities, upgrading fishing ports, fishing wharves, building and repairing large-capacity boats, etc. However, the management of aquatic resources of Thai Binh province in general and the coastal zone of Thai Binh province in particular, still lack legal documents, and inspection and control measures are not really effective. The inspection and control of fishing activities are very complicated due to the need to coordinate with many forces, the lack of human resources and means for the inspection and control ... Regulations on list of aquatic species banned from exploitation; types and minimum sizes of aquatic species permitted to be exploited; fishing tools prohibited or restricted from use; occupations and fishing grounds for boats; Areas prohibited or restricted from exploitation; have not yet been regulated in details by the People's Committee of Thai Binh Province; these regulations are also a significant obstacle and cause troubles for the management of fishing activities.

3.2.2 Management in Exploitation and Use of Abiotic Resources

(a) Management in exploitation and use of land resources

The management, exploitation and use of land resources in coastal zone of Thai Binh province is basically mainly associated with land use plans of

coastal districts. The process of land use is based on the views of fully utilizing the land fund, ensuring reasonable and efficient use, meeting the requirements of socio-economic development, urban development, and in line with the general development views of districts and provinces. In recent years, the implementation of land use plans of districts in the coastal zone has achieved certain results: Good service to the development requirements of sectors and fields of land use in the locality, contributing to promote the manufacturing industry; The non-agricultural land use planning targets have contributed to the implementation of economic restructuring objectives towards industrialization and modernization, ensuring the uniformity in the State management on land from the district and commune levels, ensuring economical, rational and effective land use associated with ecological environment protection.

However, besides the achieved results, there are still some limitations in the process of implementing the management and use of land resources in coastal zone as follows: Due to the time when the province stops the procedures related to land, some constructions have not completed land procedures; Most sectors are still confused in linking land use planning with branch development planning, urban construction and rural residential area planning; Investment resources are limited, investment projects are slowly implemented due to lack of capital; Mechanisms and policies of investment incentives for development of commercial infrastructure in Thai Binh province have been issued but they have not really attracted investors. Some project owners have registered their land use demands with subjectivity and they have not yet fully able to measure difficulties in investment preparation, capital source and approval of detailed planning, so they are not eligible for land allocation, and strict procedures for investment in basic construction make many investors fail to implement development projects as planned; The compensation, site clearance and resettlement arrangement still face many difficulties

that have affected the progress of projects; The implementation of land laws in some places is still not serious, leading to cases of violations such as encroachment of land, improper land use, wasteful land use, and violation of planning.

(b) Management in exploitation and use of water resources

The management of water resources is stipulated in the *Law on Water Resources* No. 08/1998/QH10 and its by-laws. For Thai Binh province, in order to well carry out the planning and management of water resources in the area in general and in coastal area in particular, the Peoples Committee of the province soon organized the apparatus from provincial to district levels and gave key state management responsibilities to the Department of Natural Resources and Environment of the province. However, it is a fact that up to now, the specialized staffs from the Department to the localities have not really been consolidated, the qualifications have not met and been commensurate with the assigned tasks. Besides, the organization of water resources management at all levels has not had a smooth, regular and close coordination in the management of water resources and environmental protection in the province; the promulgation of legislative documents for water resources management is still slow (currently only some issued documents are directly related to water resources management and environmental protection such as water resource protection planning... but it stopped at the report, has not applied effectively in the new period); The investment and encouragement of projects and works related to water resources research are still limited, so the number of projects and research works on water resources in coastal area of Thai Binh is not much or inefficient ... These are the reasons that the organization of management and protection of water resources in the research area still faces many difficulties.

(c) Management in exploitation and use of mineral resources

Mineral exploitation in the coastal area of Thai Binh province mainly involves oil, gas and sand exploitation

in estuary areas of the Red River, Tra Ly River and Hoa River for construction and sand exploitation for the leveling ... The management of mineral resources in Thai Binh province has been implemented relatively synchronously and comprehensively in accordance with the provisions of the *Mineral Law* No. 60/2010/QH12. The People's Committee of the province issues specific documents to facilitate management operation and assign responsibility to the Department of Natural Resources and Environment for management and basic investigation of exploring, exploiting, trading and transporting minerals in the whole province in general and in coastal area in particular. Up to now, the unified database information system on mineral geology ... is being strengthened.

4. Conclusion

It can be said that the coastal zone of Thai Binh province is a place with diverse, abundant coastal natural resources with a wide range of exploitation. However, as a coastal area, every year the coastal zone of Thai Binh province is affected by many natural disasters (storms, floods, tides, ...), dense population with high rate of resource exploitation, impact of human is profound and powerful; Sequel of the lack of proper attention to the integrated coastal area management together with the unilateral benefits has caused the coastal zone of Thai Binh province to arise some issues such as the decline of natural resources and environmental pollution of coastal zone. Therefore, how to make good use of the marine economic potentials, towards sustainable development (developing on the basis of exploiting and using various types of natural resources but still having to protect them and minimizing impacts on the environment and maintenance of resources for future generations), Thai Binh as well as other coastal areas need to have a sense of proportion and see the long-term socio-economic benefits of the integrated coastal zone management process, thereby building an

effective integrated coastal zone management strategy. However, integrated management of natural resources and environmental protection in coastal areas is a significant challenge for the leaders here because the localities still lack planning and management tools and human resources.

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