

Aquaculture and Forestry Activities in Binh Dai district, Ben Tre Province, VIETNAM

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MONOGRAPH on
Aquaculture and Forestry Activities
in Binh Dai district, Ben Tre Province,
Vietnam

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1. Ben Tre province

1.1. Introduction

Ben Tre province is located in the south-eastern region of the Mekong Delta. The total surface area of the province is approximately 2,360 km², with a population of over 1,262,000 people. Therefore, the population density is close to 535 person/km². Ben Tre city has the highest density - 1,690 person/km² - while the second lowest is in Binh Dai district, with roughly 312 person/km².

Ben Tre province has nine districts: Ben Tre city, Chau Thanh, Cho Lach, Mo Cay Nam, Mo Cay Bac, Giong Trom, Binh Dai, Ba Tri and Thanh Phu (Figure 1). The last three are the coastal districts.

As of 2012, the monthly average income in the province was 1,600,000 VND/person. In urban areas, this amount is considerably higher than in rural areas, with urban areas having an average income of 2,200,000 VND/person compared to 1,500,000 VND/person in rural areas. Since 2005, the poverty rate of Ben Tre province has dropped considerably; starting at just over 20% it has improved to 8.6% in 2013 (Figure 2).

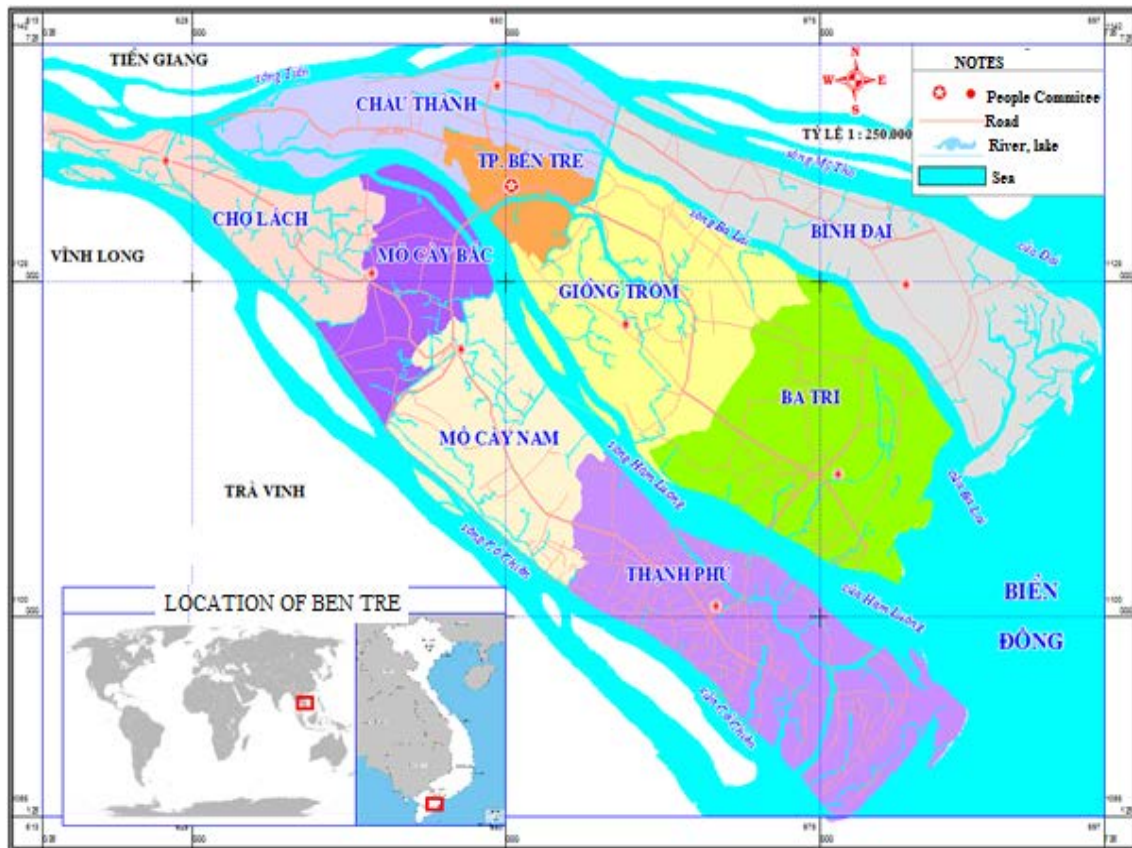


Figure 1: Administrative Map of Ben Tre province

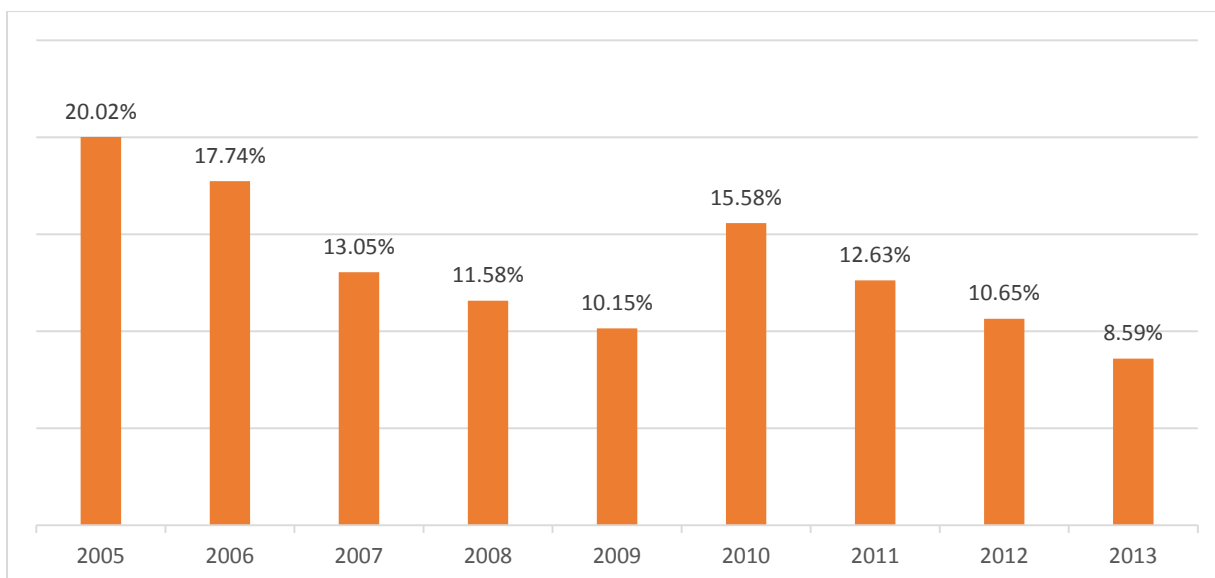


Figure 2: Poverty rate in Ben Tre province from 2005 to 2013

Source: Statistical yearbook of Ben Tre, 2013.

1.2. Land use and Aquaculture

1.2.1. Land use

Over three-quarters of the land in Ben Tre province is used for food production¹ (Figure 3). Approximately 11.3% is surface water and 3% is forest. Roughly 61% of the land is used for farming, including aquaculture. Small areas of land are also used for salt production or other agricultural purposes and unused land accounts for 0.9%. Other agricultural purposes relate mainly to buildings used for livestock housing. Almost 24% of the land in Ben Tre is used for non-agricultural activities.

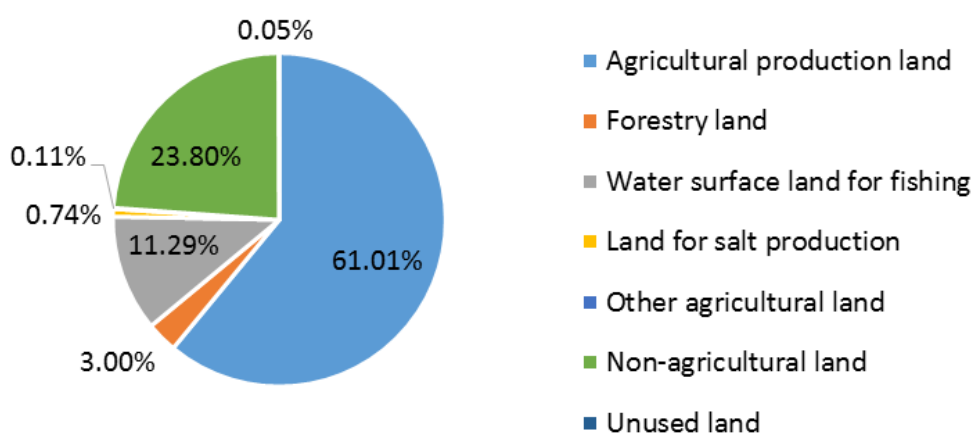


Figure 3: The distribution of land-use in Ben Tre province

¹ Or **Agriculture production land** referring to the land used for agriculture, including aquaculture.

1.2.1. Aquaculture

Since 2005, the area used for shrimp farming has remained high in comparison to the area used for fish farming and other aquatic products (Figure 4). The area of shrimp farming accounted for just under 34,000 ha in 2005, then saw a slight drop to approximately 33,000 ha in 2010. This figure then increased to approximately 36,000 ha in 2013, the highest it has been recorded over this period. In 2013, the area used for brackish water shrimp farming reached 31,454 ha in Ben Tre, therefore accounting for 77% of the total area of the provincial aquaculture. Within this sector, the area of tiger shrimp, *P. monodon*, accounted for around 83% (26,053 ha) of this, while the area of white leg shrimp, *L. vannamei*, was just over 17% (5,396 ha) (Figure 4).

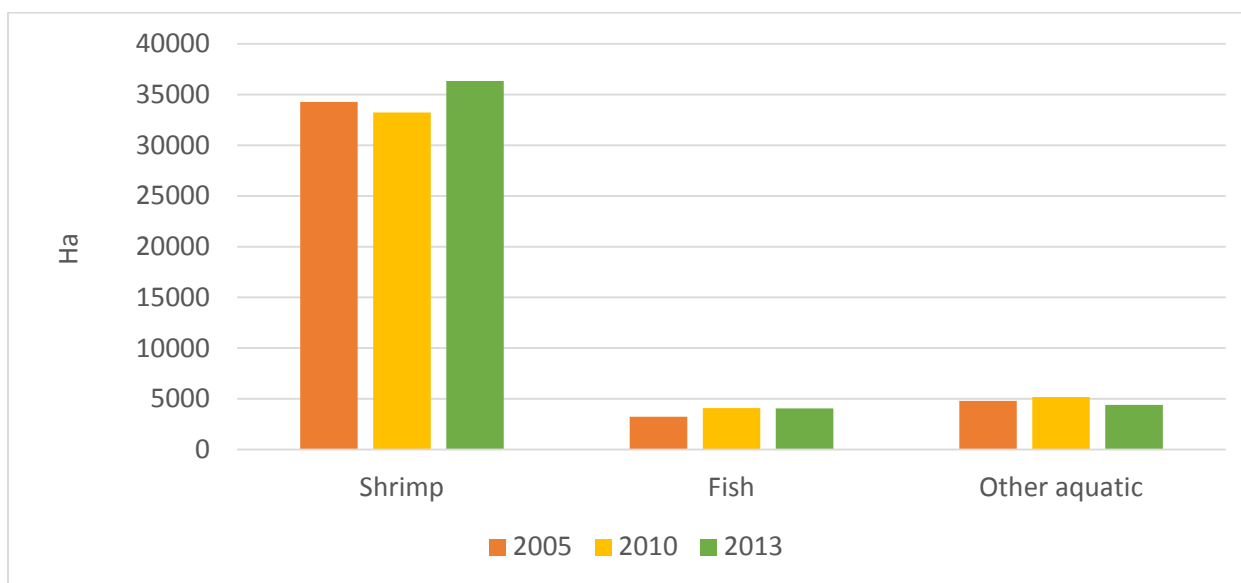


Figure 4: Area of aquaculture in Ben Tre province between 2005 and 2013

Shrimp of Brackish water

From 2008 to 2013, the area used for brackish water shrimp farming in Ben Tre province increased by on 0.6% per year. This increase is due to the introduction of *L. vannamei*, of which the area used to farm this species has increased by over 5,000 ha in five years, at a rate of about 30% increase per year. While the area for *L. vannamei* farming increased at 30% per year, the *P. monodon* farming area dropped at about the same rate (Table 1). The area used for extensive and improved-extensive systems dropped slightly by approximately 0.3% per year (Table 1).

In recent years, the structure of intensive and semi-intensive shrimp systems has shifted from *P. monodon* to *L. vannamei* because of the various advantages of farming *L. vannamei* over *P. monodon*. Firstly, the farming time of *L. vannamei* is shorter (2.5 to 3 months), therefore allowing farmers to harvest and reinvest quickly. Secondly, the production of shrimp is higher with the *L. vannamei* due to the high density of the species. Additionally, *L. vannamei* thrives more than *P. monodon* in water with a low salinity and farmers can culture them more easily in the wet season.

Table 1: Brackish water shrimp area of Ben Tre (ha)

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Total area | 30,577 | 30,641 | 30,811 | 31,660 | 31,242 | 31,454 |
| <i>INT-Semi INT</i> | 5,772 | 5,254 | 5,675 | 6,777 | 5,651 | 7,074 |
| - Monodon | 5,596 | 4,994 | 4,902 | 4,821 | 3,209 | 1,678 |
| - Vannamei | 176 | 260 | 773 | 1,955 | 2,443 | 5,396 |
| <i>Improved Extensive</i> | 24,805 | 25,387 | 25,136 | 24,884 | 25,591 | 24,380 |
| Monodon | 24,805 | 25,387 | 25,136 | 24,884 | 25,586 | 24,375 |
| Other shrimps | 0 | 0 | 0 | 0 | 5 | 5 |

Source: Ben Tre Statistical office, 2013.

1.2.2. Production of shrimp

Overall, the production of brackish water shrimp in Ben Tre province increased gradually between 2005 and 2013 (Figure 5). In 2013, the production nearly reached 60,000 tons of shrimp (Statistical yearbook of Ben Tre, 2013).

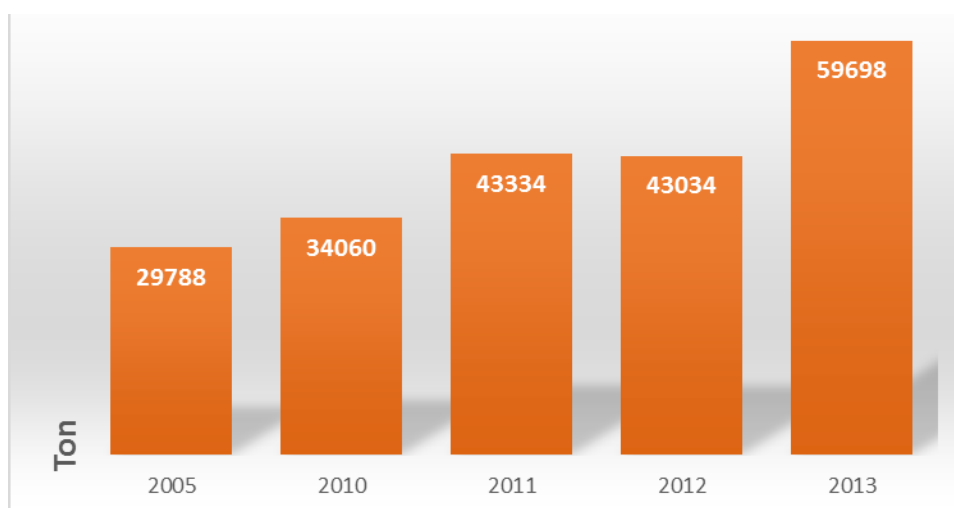


Figure 5: Production of shrimp in Ben Tre province

Source: Statistical yearbook of Ben Tre, 2013.

The share of the *L. vannamei* production has gradually increased since 2008 and by 2013 accounted for over 80% of the total brackish water shrimp production. This is due to the high productivity of the *L. vannamei*, the increase of the *L. vannamei* farming area and the replacement of the *P. monodon* farming areas (usually for further *L. vannamei* farming areas).

1.2.3. The forest

The area of forest in Ben Tre is categorized into two types: natural and planted (Figure 6). Overall, from 2005 to 2013, the area of forest in both categories increased. The area of planted forest was, however, far higher than that of natural forest. While the area of natural forest remained the same at around 1000 ha in 2005 and 2010, it rose to approximately 1,300

ha in 2013. The area of planted forest, on the other hand, rose steadily from 2005 to 2013 starting from around 2,700 ha in 2005 and rising to 3,000 ha in 2013. This rise has been due to the fact that Ben Tre has been developing a program named 611. This project involves the planting of 5 million hectares of forest for reforestation and the care and protection of the current forest. This project was funded by the central government up until 2011. Since 2012, the reforestation, care and protection of mangroves depends on projects led by Ben Tre's local authority.

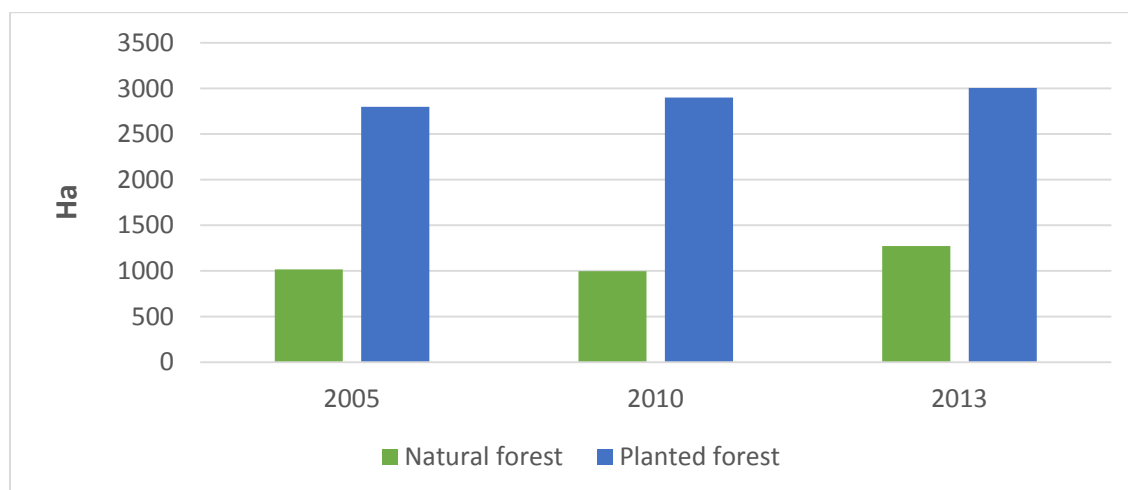


Figure 6: Current area of forest by type of forest

1.2.4. The projects combining aquaculture and forest planting

Since 2011, Ben Tre's Department of Agriculture and Rural Development has collaborated with the World Wild Fund for Nature (WWF) through the project "Adaptation to climate change based on the ecosystem in Ben Tre". The objective of the project is to strengthen the resilience to the impact of climate change of Ben Tre province, through adaptation measures based on natural ecosystems. The specific activities of the project are aimed at (1) the restoration of forest patterns along the coastal areas, which have been degraded and devastated by waves, sedimentation, etc., (2) the introduction of models for sustainable farming, such as multi-purpose reforestation combined with aquaculture (shrimp, brown fish, crabs, oysters ...), and (3) building models of sustainable forest management.

Ben Tre province has three districts adjoining along the east coast: Ba Tri, Thanh Phu and Binh Dai. This research is conducted in Binh Dai, and the following section will make description of the district. There are two main reasons why Binh Dai is selected instead of Thanh Phu and Ba Tri districts. First of all, although the area of aquaculture and forest of Binh Dai district, which occupied at 17,744 ha and 1,387 ha respectively, are much less than that of Thanh Phu district (with 17,978 ha and 2,027 ha respectively), its production of aquaculture shrimp is outstanding higher than Thanh Phu's production. According to Ben Tre Statistical Office (2014), the Binh Dai's production of aquaculture shrimp made up 30,454 ton, whereas the opposite is true of Thanh Phu, constituting 10,406 ton. Leaving Ba Tri district, where the number of all three categories accounted for a tiny minority, at 863 ha of forest area, 5,844 ha

of aquaculture area and 12,022 ton of aquaculture shrimp production. The second reason is that in Binh Dai district, there are more shrimp farming models than other districts in Ben Tre province.

2. Binh Dai district

2.1. Geography location

Binh Dai district, located in the north-east of Ben Tre province, is separated from Long An province by the My Tho river. The total surface area of this district is slightly more than 420 km². The district has one city, Binh Dai town, and nineteen communes: Tam Hiep, Long Dinh, Long Hoa, Phu Thuan, Chau Hung, Vang Quoi Tay, Vang Quoi Dong, Thoi Lai, Phu Vang, Loc Thuan, Dinh Trung, Phu Long, Binh Thoi, Thanh Tri, Binh Thang, Dai Hoa Loc, Thanh Phuoc, Thua Duc, and Thoi Thuan (Figure 9). In this study, we focus somewhat more on the communes of Thanh Phuoc, Thua Duc, and Thoi Thuan, as they are located on the coast.

As a coastal district, Binh Dai protects its agricultural areas with a sea-dike (see Figure 15). This sea-dike also serves as provincial highway 883. This dike, built in 2003, is 47 kilometers in length, 5 metres in width, roughly 3.5m high and has 26 sluice gates. On the ocean side of this provincial highway are the mangroves and aquaculture (Figure 15). Currently, there are no dikes along the coast, however the authorities of Ben Tre province have now proposed the construction of one.

2.2. Demography

In 2013, the Binh Dai district population was more than 131,300 people which was 0.9% lower than that of 2012. The population density is the second lowest in the province, with 321 people/km². The poverty rate in Binh Dai district is 10.3%, which is the lowest of the three coastal districts (Statistical yearbook of Ben Tre, 2013).

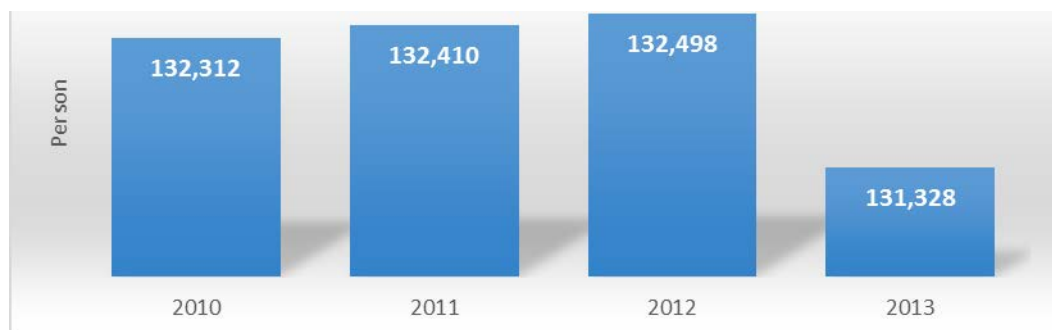


Figure 7: Average population of Binh Dai district from 2010 to 2013

Binh Dai district, Ben Tre Province map

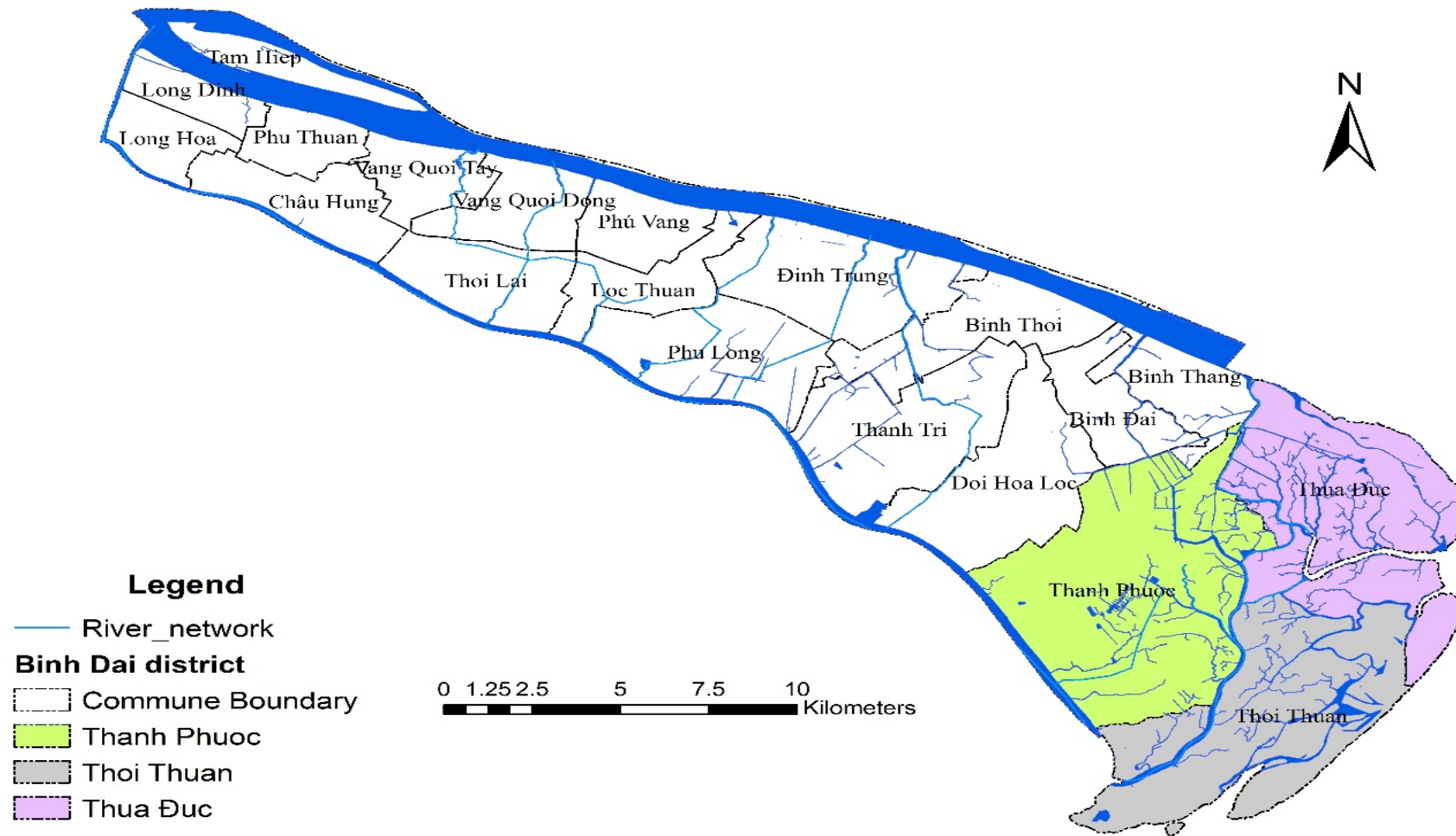


Figure 8: Administrative Map of Binh Dai district, Ben Tre province

2.3. Land use and aquaculture area

The total area of the Binh Dai district is over 42,100 ha (Statistical year book, 2013), which accounts for 18% of Ben Tre province. The proportion of agricultural production land, not including the area of ponds, was 15,308 ha. The land proportions for forestry and special use, such as offices and industry, were around 2,854 ha and 1,936 ha, respectively (Figure 8).

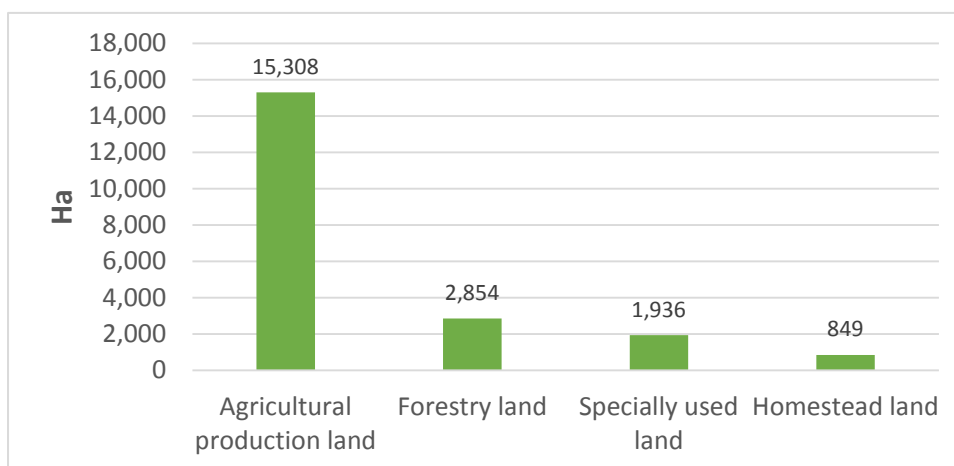


Figure 9: Distribution of non-aquaculture land-use in Binh Dai district in 2013

Aquaculture production land

Overall, the area used for aquaculture in Binh Dai district has increased, starting at 15,980 ha in 2005 to 17,744 ha in 2013. In 2012, however, there was a decline to 16,375 ha; this was due to the outbreak of a particular shrimp disease, causing many farmers to have to leave their ponds for 1 or 2 seasons before farming again (Figure 10).

For the three communes covered by the study, the area of shrimp ponds was more than 9,500 hectares in 2013. The integrated mangrove shrimp area accounts for more than 30% of the total shrimp farming area of the 3 communes (Table 2). Half of the shrimp farming area is intensive and is mostly concentrated in the Thanh Phuoc Commune (Report of aquaculture and inland fishery exploitation of farming in Thua Duc, Thoi Thuan, and Thanh Phuoc communes, 2014).

Table 2: The different shrimp farm areas in 2014 of Thanh Phuoc, Thoi Thuan, and Thua Duc communes of Binh Dai district, Ben Tre province.

| Shrimp species and farming system | Communes | | | Total (ha) |
|------------------------------------|--------------|--------------|--------------|--------------|
| | Thua Duc | Thoi Thuan | Thanh Phuoc | |
| <i>P. monodon</i> | 3,633 | 2,344 | 3,106 | 9,083 |
| - Intensive system | 3,498 | 2,206 | 54 | 5,758 |
| - Alternate seasonal rice - shrimp | 448 | | | 448 |
| - Integrated Mangrove Shrimp | 135 | 138 | 2,658 | 2,931 |
| Vannamei | 129 | 14 | 221 | 364 |
| Area total | 3,762 | 2,358 | 3,381 | 9,501 |

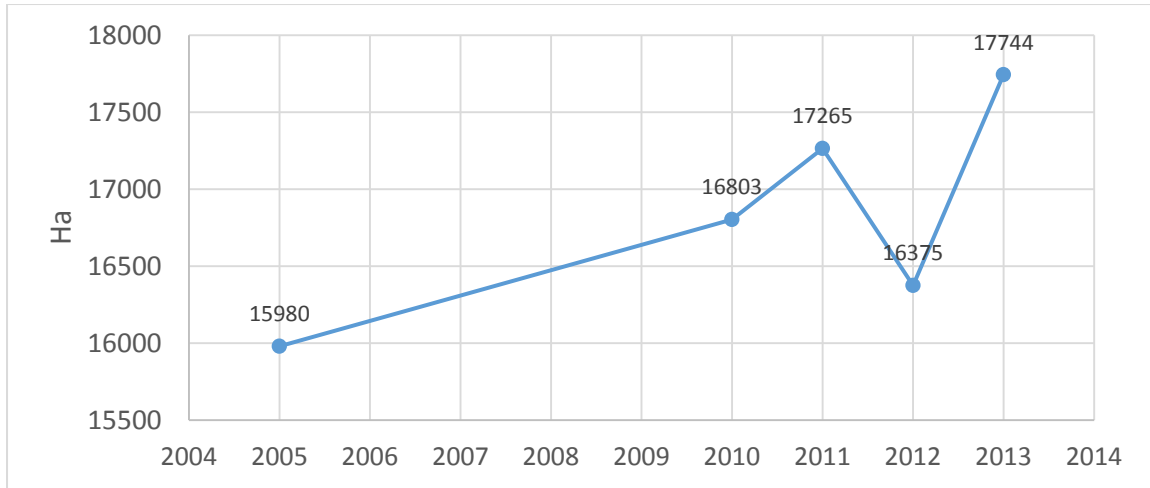


Figure 10: Area of aquaculture in Binh Dai district

The forest

Forestry land² in Binh Dai district is mostly made up of mangrove forests, which have a total area of 3,397 ha. The area of natural forest³ and forest planted for production⁴ were 2,202 and 1,377 ha respectively. The total forest area grew slightly (just over 200 ha) from 2004 to 2014 (Figure 11). According to the planning of forest area, by 2020, in Ben Tre province, Binh Dai is expected to have the largest forest area, with 3,226 ha, higher than Thanh Phu, which will only have 2,780 ha, and Ba Tri, with 1,826 ha (Report of Planning of Forest protection and development in Ben Tre province from 2012 to 2020).

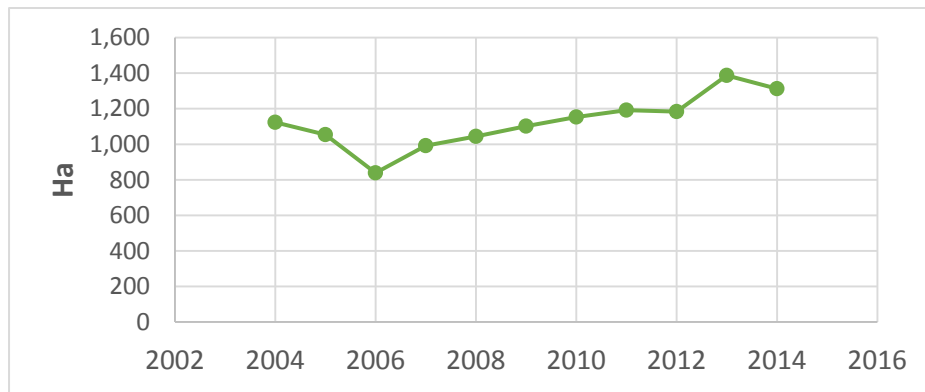


Figure 11: Forest area changes in Binh Dai district in a period of ten years

Source: Report of Planning of Forest protection and development in Ben Tre province from 2012 to 2020.

² **Forestry land** refers to the land used in forestry production or experiment, including: productive forest, protective forest and specially used forest. Total forestry land includes forest land and non-forest land.

³ **Natural forest** is forest not planted by people, including production forest, protective forest and specially utilized forest. It must satisfy at least one of two standards: (1) Forest with at least an average wood reserve of 25m³ per ha (2) Coverage of forest > 0.3 (total area of coverage > 30% of the area of the forest).

⁴ **Area of planted forest** includes areas with previous forest planted by humans and new afforestation.

Forestry land policies in Binh Dai

The Forest Management Board allocates forested land to farmers through temporary contracts which have strict land-use regulations. This may be either productive or protection forests, having been attributed the green book certificate. Both the short-term contract and the green certificate limit the access to credit. All together the restrictions make t the households with a forest land lease uneager to invest in the protection of forests and in the development of aquaculture. This is also a factor affecting the development of integrated mangrove shrimp farming systems in Ben Tre province and, in particular, Binh Dai district.

2.4. Fishery sector production

Aquaculture production

Generally, the total aquaculture production of Binh Dai district increased dramatically from 2005 to 2013. The increase was particularly large between 2010 and 2013, where the shrimp production almost doubled, though there was a slight drop in 2012 due to an outbreak of shrimp diseases.

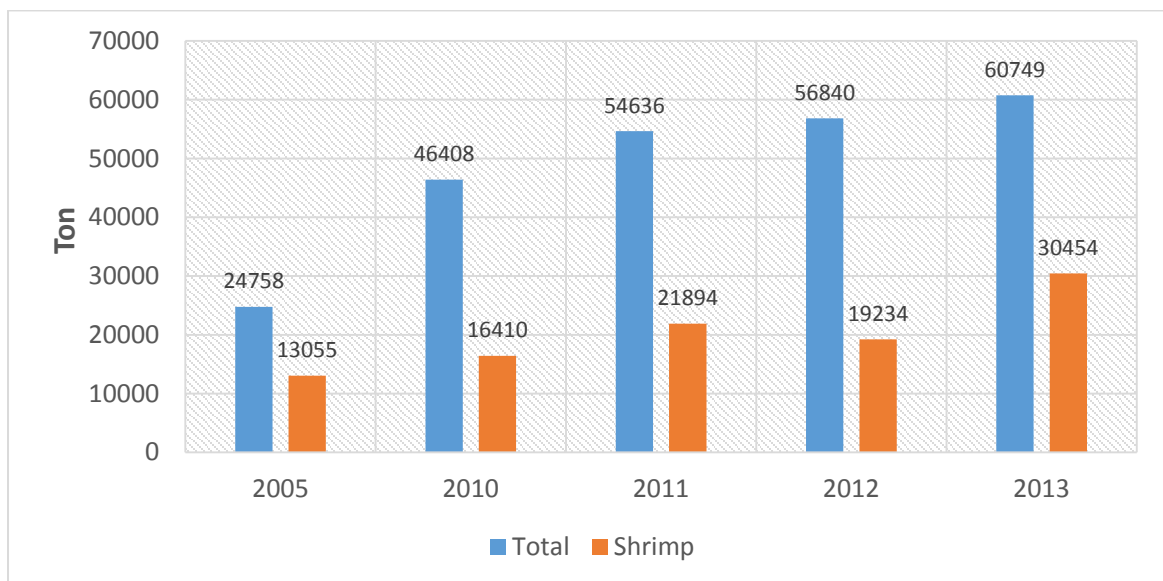


Figure 12: Total aquaculture production and the area for shrimp farming of Binh Dai district

The fishery catches

In 2005, the total fishery production of Binh Dai district was only approximately 33,700 tons. This figure increased hugely by 2010, to a figure of over 54,000 tons, followed by further increases to 60,000 tons and nearly 70,000 tons in 2011 and 2012 respectively. This production then dropped slightly to just over 67,000 tons in 2013.

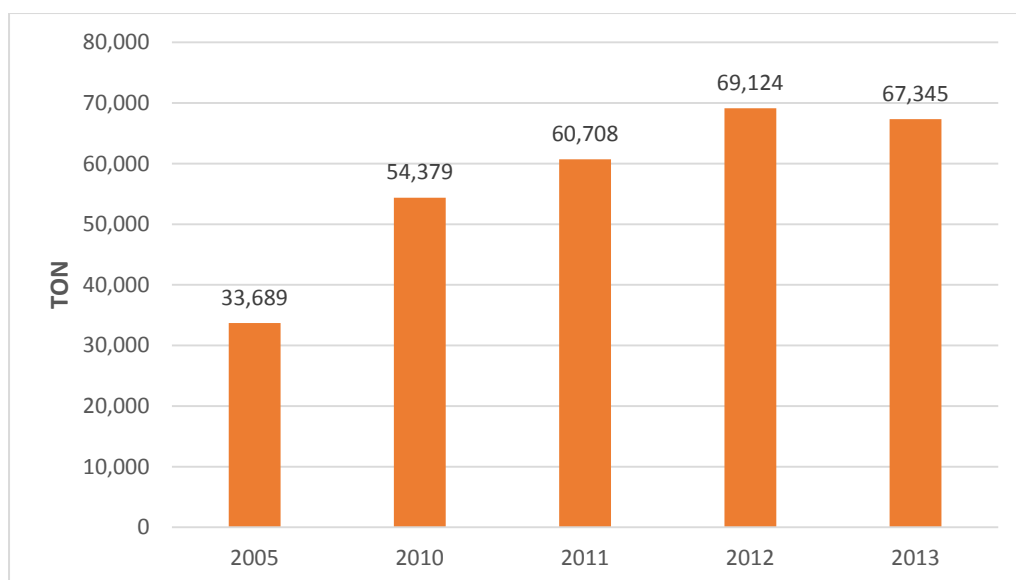


Figure 13: Production of fishery caught in the Binh Dai district

2.5. Shrimp farming in Binh Dai district

2.5.1. Shrimp production systems

Binh Dai has the following shrimp farming systems: intensive, extensive & improved extensive, integrated mangroves shrimp, and shrimp - rice crop rotation. A strong downward trend of the shrimp-rice area is anticipated in the coming years due to salinization.

Aquaculture has a seasonal character related to biological characteristics of farming species, natural conditions, and water levels in the year. The farming periods for intensive and semi-intensive shrimp farming were arranged in accordance to the Directive 12/2008/CT-UBND August 22, 2008 (Table 3). After the shrimp-farming season farmers stock fish such as Tilapia.

Table 3: Seasonal calendar of three intensive aquaculture systems in Ben Tre province

| Culture system | Month | | | | | | | | | | | |
|--------------------------------------|--------------|-----------------------------|---|---|---|---|---|--------------|---|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| <i>P. monodon</i> – INTS & Semi INTS | CT | Stocking <i>P. Monodon</i> | | | | | | Fish farming | | | CT | |
| <i>L. vannamei</i> - INTS | CT | Stocking <i>L. vannamei</i> | | | | | | Fish farming | | | CT | |
| Fish – INTS | Fish farming | | | | | | | | | CT | CT | |

CT: Regenerate the pond; INTS = Intensive

Source: The report of detailed planning of L. vannamei farming in Ben Tre province to 2020, orientation to 2030

Products such as prawns, white fish and black fish are commonly farmed year round as well as the integrated farming of fresh water prawn and fish in ditches. In the shrimp-rice

rotation, rice is farmed during the wet season and shrimp during the dry season. In the integrated mangrove shrimp system, farmers combine the regular (monthly) harvesting of shrimp with the (all year round) collection of crabs.

2.5.2. Electrical power system

The power supply for Binh Dai district currently comes from the 110KV Ben Tre Station and the 110KV Ba Tri Station. The power network reaches all communes and towns within the district; however, the power caters mainly for domestic demands and is largely insufficient for production.

For *L.vannamei* farming, only a small area along the provincial highway 883, belonging to Dai Hoa Loc, Thanh Phuoc, Thoi Thuan communes, had three-phase power for production. However, due to the distance of the farms in Thua Duc to the station, and the small diameter of the remote electricity cables, the technical standards were not ensured. Here, the use of oil generators for shrimp farming involves high cost and has bad effects on the environment.

2.5.3. Irrigation system

Water for shrimp farming is sourced from the Cua Dai and Ba Lai rivers, through channels such as the Dinh Trung slitting, Thua My river, Vung Luong river, Chim canal, May canal, etc.

The irrigation systems serving the intensive shrimp farms are currently shared with irrigation systems for agricultural production. The water channels have not been clearly defined either for water supply or for drainage. Additionally, most of the channels are narrow and often have amounts of sediment, partly because farmers do not meet standards of good farming practices. Moreover, most farms have no system of wastewater treatment and therefore release the sludge directly into the channel, causing serious environmental pollution.

2.5.4. Traffic system

The provincial highway 883 is the main traffic route between the communes and towns in Binh Dai district. This creates favorable conditions for the development and exchange of goods with other districts in the province, as well as attracting investment from outside.

All communes have communal roads for automobiles travelling to offices and for inter-village communication. These roads are mostly built with concrete or paved with stones. However, the nearer to the sea, the lower the density of rural roads. In such areas, there are mostly dirt roads, or narrow paths, primarily serving vehicles such as motorcycles and bicycles; large vehicles are not able or have difficulty passing. The latter affects the product quality of harvested shrimp, increases production costs, and reduces the profits of farmers.

2.5.5. Shrimp disease

Shrimp diseases affect Binh Dai as well as other coastal districts significantly. The most costly year was 2012, when intensive and semi-intensive tiger shrimp farming lost 38%, and *L.vannamei* lost 32% of their stocked area. In Binh Dai district, the farms impacted by disease were concentrated in Dinh Trung, Binh Thoi, Binh Thang, Dai Hoa Loc, Thanh Tri, Binh Dai towns.

The most common diseases are White spot syndrome virus (WSSV), Infectious hypodermal and hematopoietic necrosis virus (IHHNV), and Early Mortality Syndrome (EMS). The causes of the disease relate to bad preparation of ponds, bad treatment of ponds, which had already suffered disease outbreaks, erratic weather with prolonged low temperatures, and a higher quantity of unseasonal rains.

Table 4: The brackish water shrimp areas of Binh Dai ravaged by diseases from 2008 to 2013

| Systems | | Unit | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|------------------------|--------------------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | Ha | 583 | 193 | 488 | 1,240 | 2,013 | 1,625 |
| Affected areas | <i>P. Monodon</i> | Ha | 567 | 129 | 336 | 953 | 1,233 | 319 |
| | <i>L. Vannamei</i> | Ha | 16 | 64 | 152 | 287 | 780 | 1,306 |
| | | Ha | 5,772 | 5,254 | 5,675 | 6,777 | 5,651 | 7,074 |
| Total areas | <i>P. Monodon</i> | Ha | 5,596 | 4,994 | 4,902 | 4,821 | 3,209 | 1,678 |
| | <i>L. Vannamei</i> | Ha | 176 | 260 | 773 | 1,955 | 2,443 | 5,396 |
| Rates of affected area | | % | 10.1 | 3.7 | 8.6 | 18.3 | 35.6 | 23.0 |
| | <i>P. Monodon</i> | % | 10.1 | 2.6 | 6.9 | 19.8 | 38.4 | 19.0 |
| | <i>L. Vannamei</i> | % | 9.3 | 24.6 | 19.7 | 14.7 | 31.9 | 24.2 |

Source: Department of Aquaculture in Ben Tre province.

2.5.6. Planning

Aquaculture

The area used for aquaculture in Binh Dai district is expected to rise to 17,858 ha by 2020 (Table 5). This increase will mainly occur with the brackish water areas, and in particular, with the area's farming *L. vannamei*, which are planned to increase to 800 hectares in 2015 and to stabilize at 1,000 ha in 2020. The river prawn farming areas are also anticipated to increase but will still only represent approximately 3.3%. The locations where the increase will occur neighbor the presently farmed areas (Figure 14).

The aquaculture production in Binh Dai district should reach 62,575 tonnes by 2015 and is expected to reach 67,000 tonnes by 2020. By then the ponds should cover 64% of the total aquaculture area of the province. Construction is also planned of hatcheries for *P. monodon* seed in Thua Duc Commune (10 ha) and a *P. monodon* and *L. vannamei* hatchery in Thoi Thuan commune (20 ha).

Table 5: Planning of the Aquaculture area in Binh Dai district to 2020 (ha)

| Activities | 2010 | 2015 | 2020 |
|----------------------------|---------------|---------------|---------------|
| Brackish water shrimp area | 13,479 | 13,855 | 14,115 |
| <i>P. monodon</i> | 13,179 | 13,055 | 13,115 |
| <i>L. vannamei</i> (INTS) | 300 | 800 | 1,000 |
| INTS – Semi INTS | 3,059 | 3,070 | 3,130 |
| IES | 6,488 | 6,315 | 6,315 |
| 1 shrimp – 1 rice | 1,570 | 1,570 | 1,570 |
| IMS | 2,062 | 2,100 | 2,100 |
| Aquaculture total | 16,767 | 17,428 | 17,858 |

According to the district's planning for shrimp farming, the three communes with the largest shrimp farming areas will research how to develop integrated mangrove shrimp farming (Table 7, see next page). Out of the three communes, Thanh Phuoc has the largest area for integrated mangrove shrimp farming, with 1,796 ha. According to the commune, in 2014 this area had reached 2,658 hectares. Besides, this is also the only commune of the district that develops all four types of shrimp farming because of its geographical location (Figure 14, see next page); this may create favourable conditions to compare different shrimp farming systems in a research project.

Table 6: Planning of aquaculture production in Binh Dai district to 2020 (in Tonnes)

| Type of production | 2010 | 2015 | 2020 |
|----------------------------------|---------------|---------------|---------------|
| Aquaculture production | 46,399 | 62,575 | 66,946 |
| Brackish water shrimp production | 16,378 | 20,779 | 22,707 |
| <i>P. monodon</i> | 13,648 | 13,979 | 14,207 |
| <i>L. vannamei</i> | 2,730 | 6,800 | 8,500 |
| INTS – Semi INTS | 11,624 | 11,666 | 11,894 |
| IES | 1,298 | 1,579 | 1,579 |
| 1 shrimp – 1 rice | 314 | 314 | 314 |
| IMS | 412 | 420 | 420 |

3. CONCLUSION

The farming of shrimp farmers in Ben Tre province, especially of *L. vannamei* farms, got much support from local authorities throughout planning projects. These projects included the building of irrigation canals and electrical power systems.

The reforestation in Ben Tre province was also boosted by the government and the local authorities through the 'Planting 5 million hectares of forest' project, known as project 611, which occurred up until 2011, and the 'Forest restoration and protection' project. However, the policy in place for forest land ownership does not allow farmers to privately own the land, meaning they can only lease this land on a short term contract. This diminishes the motivations of farmers to restore and protect the forest areas.

The cost and availability of land, the accessibility to electricity and disease are the main factors that affect decisions made by the farmers to invest in aquaculture.

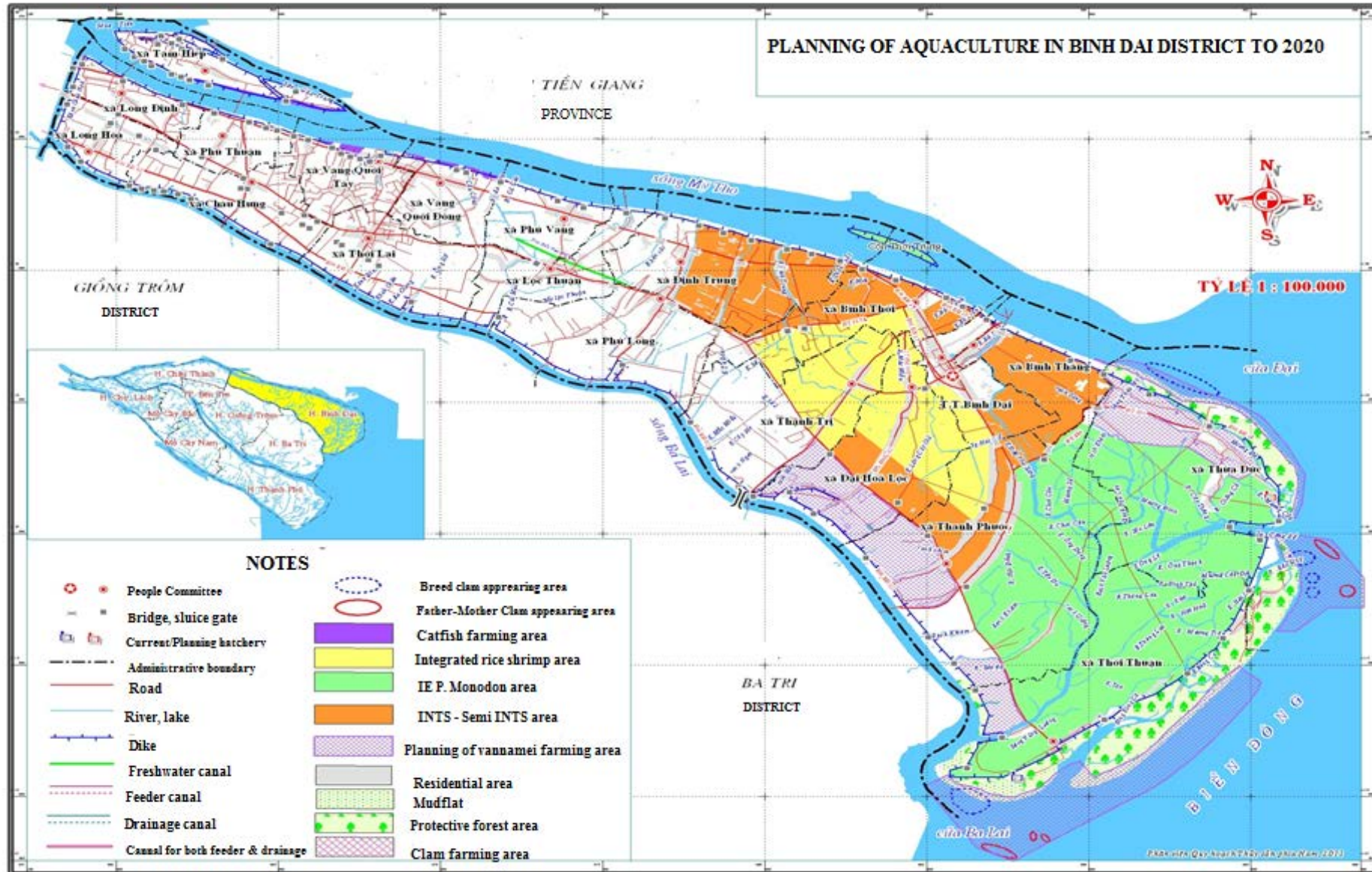
Three coastal communes of Binh Dai district, namely Phuoc Thanh, Thoi Thuan, and Thua Duc, are fitted for the research project. Due to their geographical location, these communes are along the coast and are surrounded by mangroves.

Table 7: Planning of Aquaculture area to 2020 (ha)

| No | Commune | Total Area | Fresh water aquaculture area | | Brackish water aquaculture area | | | | | | | | |
|----|----------------|---------------|------------------------------|-------------------|-----------------------------------|--------------|---------------|--------------|--------------------|-----------|--------------|--------------|------------|
| | | | Fish | Giant river prawn | Tiger shrimp (<i>P.monodon</i>) | | | | <i>L.van-namei</i> | Fish | Clam | Oys- ters | |
| | | | | | INTS, Semi-INTS | IES | shrimp / rice | IMS | | | | | |
| 1 | Tam Hiep | 98 | 98 | | | | | | | | | | |
| 2 | Long Dinh | 5 | 5 | | | | | | | | | | |
| 3 | Long Hoa | 35 | 35 | | | | | | | | | | |
| 4 | Phu Thuan | 10 | 10 | | | | | | | | | | |
| 5 | Chau Hung | 58 | 58 | | | | | | | | | | |
| 6 | Vang Quoi Tay | 84 | 64 | 20 | | | | | | | | | |
| 7 | Vang Quoi Dong | 78 | 43 | 35 | | | | | | | | | |
| 8 | Thoi Lai | 40 | 20 | 20 | | | | | | | | | |
| 9 | Phu Vang | 40 | 25 | 15 | | | | | | | | | |
| 10 | Loc Thuan | 25 | 25 | | | | | | | | | | |
| 11 | Dinh Trung | 925 | 10 | 15 | 800 | 100 | | | | | | | |
| 12 | Phu Long | 90 | 90 | | | | | | | | | | |
| 13 | Binh Thoi | 655 | | | 400 | 50 | 200 | | | 5 | | | |
| 14 | Thanh Tri | 435 | 5 | | | | 350 | | 80 | | | | |
| 15 | Binh Dai town | 210 | | | 100 | | 100 | | | 10 | | | |
| 16 | Binh Thang | 500 | | | 500 | | | | | | | | |
| 17 | Đai Hoa Loc | 1,235 | | | 505 | | 620 | | 100 | 10 | | | |
| 18 | Thanh Phuoc | 3,661 | | | 675 | 250 | 300 | 1,796 | 300 | 30 | | | 310 |
| 19 | Thua Duc | 5,634 | | | 100 | 3,760 | | 154 | 380 | 10 | 900 | | 330 |
| 20 | Thoi Thuan | 4,040 | | | 50 | 2,155 | | 150 | 140 | | 1,350 | | 195 |
| | Total | 17,858 | 488 | 105 | 3,130 | 6,315 | 1,570 | 2,100 | 1,000 | 65 | 2,250 | | 835 |

Source: The report of detailed planning of aquaculture in three districts: Binh Dai, Ba Tri, Thanh Phu to 2020.

Figure 14: Map of planning of aquaculture in Binh Dai district to 2020



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