

Land Transformation in the Agricultural Development of An Giang Province (2010 – 2020)¹

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ABSTRACT

An Giang is a province in the Mekong Delta region, with fertile land due to annual alluvial deposits, suitable for agricultural development. Agriculture is one of the province's key economic sectors, contributing to ensuring national food security. To achieve this, An Giang focuses on developing responsible agriculture in the direction of green economy, circular economy, and high-tech agriculture. At the same time, linking production, processing, and consumption along the value chain and agriculture; Gradually transition from agricultural production to agricultural economy to create breakthrough development. Agricultural restructuring has been promoted, gradually reducing the rice growing area and increasing the proportion of dominant industries. Creating a change in the province's agricultural land structure, initially bringing positive results, the value of agricultural production is constantly increasing. The transformation of agricultural land in An Giang province (2011 – 2020) is the focus of the study, aiming to understand the achieved results and existing challenges of land transformation in the province's agricultural development. This study seeks to provide recommendations for the further advancement of the agricultural sector in An Giang province.

Keywords: agricultural land, agriculture, development, transformation

1. Introduction

An Giang province is one of the leading provinces in terms of rice production nationwide, with its agricultural economy witnessing a continuous annual growth rate. It takes the lead in developing and constructing new models for positive transformations in agricultural economic

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growth. An Giang aspires to become the agricultural hub of the Mekong Delta provinces. To achieve significant achievements in agriculture, the province has adopted strategies for agricultural development, affirming its role as a foundation for driving economic development. The agricultural development action program and the Agricultural Restructuring Project have been extensively implemented, with a focus on market-driven production aimed at enhancing the quality, value, and competitiveness of agricultural and aquatic products. Agriculture is being developed in a modern, sustainable direction, with rational growth and the production of large commodities based on sectoral restructuring. Products are associated with innovative growth model innovations, enhancing the competitiveness of agricultural products while also increasing the value of farming and farmers' incomes. With the agricultural development directions in recent years (2011 – 2020) of the province, there has been a transformation in the province's agricultural land area, with a decreasing trend in the following year compared to the previous one. However, the province still ensures that annual profits and economic productivity in agriculture are guaranteed.

2. Method

A number of research methods were applied in this study to clarify the issues of land regime change in An Giang province during the process of agricultural economic development (2010 - 2020).

Firstly, the methods of analysis and synthesis are used to examine documents related to research issues. This involves thoroughly examining various documents and theories by breaking down each component to deeply engage with the subject matter. Synthesis, on the other hand, involves integrating each aspect and piece of information that has been thoroughly analyzed about the subject.

Secondly, the historical method is employed to describe the research problem according to the process over the years, in order to understand the agricultural economic development of An Giang province. This aims to accurately recreate the past picture of the subject and phenomena in the correct chronological and spatial order as they occurred.

Lastly, the article uses the logical method to identify appropriate research issues, generalize events and phenomena, and eliminate random factors that are not essential to illuminate the essence, necessity, and objective laws of the events and phenomena.

3. Results

3.1. Theoretical basis

Agriculture

Agriculture encompasses the production of crops and livestock, aquaculture, and forestry for both food and non-food products (Food and Agriculture Organization of the United Nations, 2021).

Agriculture is the primary material production sector of society, providing agricultural and livestock products (Language Institute, 2006, p. 740). It is a sector with unique characteristics, closely tied to crops and livestock, governed by biological laws, external conditions (land, weather, and climate), and is essential for producing goods necessary for society's existence and development.

Agriculture broadly includes forestry and fisheries. In a narrow sense, agriculture is the production of material goods where humans rely on the growth laws of crops and livestock to produce products such as grains and food to satisfy their needs.

Transformation

Transformation is the change to a different state from before, often in a positive direction, creating transformative steps in agriculture. It involves profound changes in thought and perception (Language Institute, 2006, p. 188). Land use dynamics refer to the process of changes in land area over time, aiming to identify the laws and causes of these changes to utilize this resource properly (Nguyen Thanh Loi, 2008).

Arable Land

Arable land refers to land suitable for cultivation, primarily for production purposes (in a general sense). The issue of arable land involves land reform (Language Institute, 2006, p. 838). Thus, the transformation of arable land is the process of changing how land is used, managed, and cared for, particularly regarding cultivation and agricultural production. These transformations may include changes in land use purpose: the conversion process from agricultural land to urban, industrial, or residential areas, or conversely, from residential or industrial areas to agricultural land.

3.2. Current status of agricultural economy in An Giang province

During the period from 2011 to 2020, An Giang province focused on exploiting its potential and natural advantages to develop agriculture, consolidating its position as one of the key agricultural provinces in the Mekong Delta region and the country as a whole. The agricultural sector of the province underwent positive transformations through the implementation of agricultural restructuring projects. The agricultural production structure gradually shifted towards

centralized, high-quality commodity production, enhancing value-added and sustainable development, progressively meeting the requirements and suiting the actual production conditions of the province. The average annual growth rate of agricultural, forestry, and aquatic product output reached 2.4%. The agricultural sector of the province increased in scale, productivity, and quality of agricultural, forestry, and aquatic products, from 36.548 trillion VND in 2010 to 39.841 trillion VND in 2015, and reaching 46.303 trillion VND in 2020. The annual growth rates fluctuated, with a growth rate of 5.3% in 2011, -0.6% in 2013, 5.4% in 2019, and 1.7% in 2020 [People's Committee, 2023, p. 94].

The agricultural sector of the province is demonstrated through the increase in production scale, productivity, and quality of agricultural, forestry, and aquatic products. From 2010 to 2020, the total value of production in this sector has increased from 36.548 trillion VND to 46.303 trillion VND. This indicates a positive growth trend in the agricultural sector of the province. However, the annual growth rate of this sector is not stable, fluctuating from year to year. For example, in 2011 and 2019, there were high growth rates of 5.3% and 5.4% respectively, while in 2013, there was a negative growth rate of -0.6%. In 2020, the growth rate reached only 1.7%, indicating a slight decrease compared to previous years. Overall, the positive growth of the agricultural sector in the province is still maintained and continues to contribute to the economic development of An Giang province.

During the period 2010 - 2020, the processing industry achieved a growth rate of 16.5%; agriculture accounted for 14.4%; commerce, 10.0%; aquaculture - accommodation and food services followed in their contribution to the scale of GRDP of the economy as: agriculture (30%); commerce (10%) - processing industry (8.5%) - aquaculture - accommodation and food services [People's Committee, 2016].

The contribution of various industries to the Gross Regional Domestic Product (GRDP) of An Giang province's economy during the period from 2010 to 2020 is notable. Among them, the processing industry achieved the highest contribution rate, accounting for 16.5% of the GRDP scale. This highlights the significance of processing raw materials and products to generate added value in the region's economy.

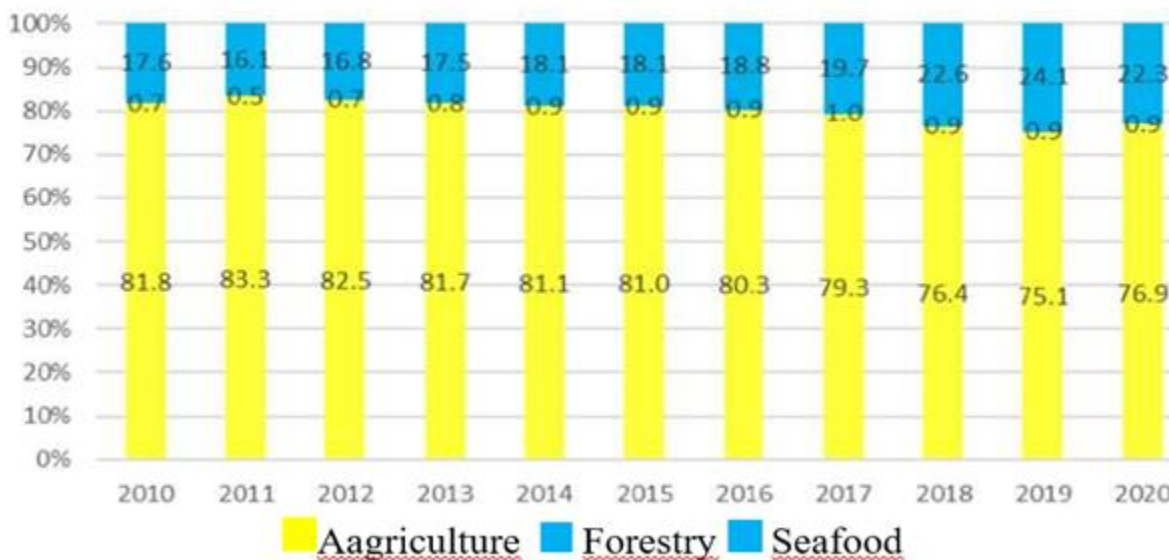
The agriculture sector follows next, accounting for 14.4% of the GRDP, making significant contributions to agricultural production and rural development. Commerce is another influential sector, comprising 10.0% of the GRDP scale. This reflects the crucial role of markets and trading activities in creating value within the economy. The aquaculture and accommodation, food services sectors also contribute significantly to the GRDP, although not as much as the industrial and agricultural sectors.

The order of contribution of these sectors to the GRDP scale is: agriculture (30%); commerce (10%); processing industry (8.5%); aquaculture - accommodation, and food services. Overall, the diversity of industries and services has created a rich and sustainable economic system for An Giang province during this period.

Compared to before, the agricultural sector has experienced a decline but still remains the dominant economic sector, occupying a significant proportion. In 2020, agriculture accounted for 30% of the GRDP, followed by commerce at 10%, the processing industry at 8.5%, and the fourth and fifth being the aquaculture and tourism sectors, accounting for approximately 6% in the province's economy. In terms of internal structural transformation, the proportion of agriculture has shown a decreasing trend, from 81.8% in 2010 to 81.0% in 2015, and further down to 76.9% in 2020, while the proportion of aquaculture has been increasing, from 17.6% in 2010 to 18.1% in 2015, and 22.3% in 2020 [People's Committee, 2023, p. 94].

Restructuring the production value of the industry

Agriculture - Forestry - Fisheries An Giang province (2011-2020)



Source: An Giang Statistical Office

The achievements mentioned above have been made possible because the province has leveraged its potential and natural advantages (terrain, soil fertility, freshwater sources, biodiversity, etc.) to develop a robust agricultural sector with key products. Agriculture has now affirmed itself as the foundation for economic growth and development, serving as the leading economic sector contributing to the stability and socio-economic development of the province.

To deepen sustainable development with quality, the province has strategically planned specialized areas for vegetable and fruit cultivation, focusing on models of integrated production and consumption and high-tech production. Simultaneously, it reinforces and enhances the roles of cooperative groups and cooperatives, developing cooperative economic models for each region focused on raw material production for vegetable cultivation. In 2017, An Giang province had 45 businesses signing production chain linkage agreements, distributing products with farmers through 19 cooperative groups, 32 cooperatives, accumulating nearly 20,600 hectares of land for large-scale farming; constructing 24 efficient production models such as shrimp farming on rice fields in Thoai Son, generating profits of 100 million VND per hectare, five times higher than rice cultivation; VietGAP vegetable cultivation models, organic vegetable cultivation covering nearly 20 hectares in Long Xuyen city; straw mushroom cultivation; and commercial catfish farming on 336 hectares.

Continuing the restructuring of crops, shifting towards planting flowers and fruit trees to increase income per unit area. Localities have proactively converted inefficient rice-growing areas into areas for flower cultivation, fruit trees, and economically valuable livestock farming. The area for planting certain crops such as sweet potatoes, cassava, lotus, soybeans, vegetables, corn, chili, leafy greens, etc., has increased from 2,000 to 3,000 hectares (Report 69/BC-SNN&PTNT, 2018). This led to a total cultivated area of 634,254 hectares (a decrease of 7,000 hectares compared to the same period), with an average annual yield of 6.24 tons per hectare (+0.17 tons per hectare compared to the same period), totaling 3.957 million tons (an increase of 66 thousand tons compared to the same period). Flower cultivation: the total cultivated area is 60.2 thousand hectares (an increase of 2-3 thousand hectares compared to the same period), with an equivalent average annual yield compared to the same period.

3.3. Land transformation in the agricultural development process of An Giang province

3.3.1. Changes in agricultural land use

The total natural area of An Giang province in 2020 was 353,683 hectares, an increase of 15 hectares compared to the area in 2015 and 2010. This increase is attributed to the 2019 inventory, which was conducted based on the boundaries outlined in Decision No. 513/QD-TTg dated May 2, 2012, issued by the Government. According to this decision, there was a reduction of 12 hectares in the natural area within the boundaries shared with Kien Giang province, and an increase of 27 hectares within the boundaries shared with Dong Thap province.

In 2020, the agricultural land area of the entire An Giang province was 296,625 hectares, a decrease of 1,891 hectares compared to 2015 and a decrease of 4,381 hectares compared to 2010. The reduction in area primarily occurred in rice cultivation land and forestry land.

The specific changes in agricultural land types are as follows:

- Rice cultivation land: In 2020, the area was 242,228 hectares, a decrease of 12,204 hectares compared to 2015 and a decrease of 15,510 hectares compared to 2010. Among them, the area specifically designated for rice cultivation under water in 2020 was 237,921 hectares, a decrease of 10,564 hectares compared to 2015 and a decrease of 10,960 hectares compared to 2010.

- Annual crop cultivation land: In 2020, the area was 11,628 hectares, a decrease of 63 hectares compared to 2015 and an increase of 2,167 hectares compared to 2010.

- Perennial crop cultivation land: In 2020, the area was 25,322 hectares, an increase of 8,732 hectares compared to 2015 and an increase of 9,660 hectares compared to 2010.

- Aquaculture land: The area of aquaculture land in the province currently occupies a relatively modest proportion compared to its potential, approximately 1.8% of agricultural land. However, through analysis spanning the period from 2011 to 2020, it has increased by an additional 1,483 hectares, from 4,048 hectares to 5,531 hectares, surpassing the approved planning by approximately 614 hectares. This indicates that the aquaculture sector is experiencing development.

- Protective forest land: In 2020, the area was 8,012 hectares, a decrease of 738 hectares compared to 2015 and a decrease of 713 hectares compared to 2010. Special-use forest land: In 2020, the area was 1,286 hectares, an increase of 402 hectares compared to 2015 and an increase of 211 hectares compared to 2010.

- Production forest land: In 2020, the area was 2,298 hectares, an increase of 296 hectares compared to 2015 and a decrease of 1,814 hectares compared to 2010. The main reason for the decrease in area is that people perceive greater economic efficiency from large-scale rice cultivation than from forest cultivation. As a result, forest production land has been converted to rice cultivation land and other types of annual crop cultivation land.

- Non-agricultural land group: In 2020, the area of non-agricultural land reached 55,934 hectares, an increase of 1,928 hectares compared to 2015.

Unused land group: According to the approved target until 2020, 205 hectares were planned for utilization, leaving 941 hectares unused. Currently, an additional 22 hectares of land have been exploited, leaving 1,124 hectares of unused land, predominantly hill and mountainous terrain devoid of forest cover, located mainly in Tinh Bien and Tri Ton districts. These are types of land with limited potential for agricultural cultivation or lacking vegetative cover, making them unsuitable for use. Additionally, in border buffer zones as per agreements between the two

countries, the land cannot be used for other purposes. The fluctuation in the area of unused land is as follows:

In 2020, the unused flat land decreased by 151 hectares compared to 2010. During this period, the increase in area occurred due to the border buffer zone in Chau Doc city, reclaimed land in Long Xuyen city, and the remaining portion in Phu Tan, Cho Moi, and Chau Phu districts.

In 2020, the unused hilly and mountainous land decreased by 186 hectares compared to 2010. The reduction in area was due to conversion to rice cultivation land, protective forest land, and rocky mountains without forest cover. Additionally, in 2020, rocky mountains without forest cover decreased by 303 hectares compared to 2010. This reduction in area was attributed to conversion to protective forest land, unused hilly and mountainous land, with significant decreases observed in Tinh Bien district [An Giang Provincial People's Committee, 2016, p.175].

Table 1. Land use changes in the period 2010 - 2020

No.	LAND TYPE	Area(ha)			Variation (ha)		
		Year 2010	Year 2015	Year 2020	2010 - 2015	2015 - 2020	2010 - 2020
	NATURAL AREA	353.668	353.668	353.683	0	15	15
1	Agricultural land	301.006	298.516	296.625	-2.490	-1.891	-4.381
	In there:						
1.1	Rice growing land	257.739	254.432	242.228	-3.307	-12.204	-15.510
	Land specialized in wet rice cultivation	248.881	248.485	237.921	-396	-10.564	-10.960
1.2	Land for growing other annual crops	9.462	11.691	11.628	2.229	-63	2.167
1.3	Land for growing perennial crops	15.661	16.590	25.322	929	8.732	9.660
1.4	Protective forest land	8.725	8.750	8.012	25	-738	-713
1.5	Special-use forest land	1.075	884	1.286	-191	402	211
1.6	Production forest land	4.112	2.002	2.298	-2.110	296	-1.814
1.7	Aquaculture land	4.019	4.005	5.531	-14	1.526	1.512
2	Non-agricultural land	50.898	54.006	55.934	3.108	1.928	5.036
3	Unused land	1.764	1.146	1.124	-618	-22	-640

Source: Department of Natural Resources and Environment of An Giang province

3.3.2. Causes of agricultural land changes in An Giang province 2010 - 2020

Currently, agriculture production in Vietnam in general and in An Giang province in particular still heavily relies on natural conditions, climate, and weather. Increasing temperatures due to weather and climate changes greatly affect agricultural production, especially crop cultivation. Extreme climate events such as droughts, increasingly complex storms, flooding during the rainy season, water shortages for production and daily activities during the dry season, saline intrusion into inland areas, forest fires... have become more frequent in recent years, impacting the quality of agricultural production. These events affect plant growth, crop yields, planting seasons, increase the risk of spreading crop pests and diseases, and affect the reproduction, growth, productivity, quality, and products of livestock and poultry. They also increase the risk of disease transmission among livestock and poultry, leading to the potential shrinkage of agricultural land area. This is one of the main reasons for the current changes in the purpose of agricultural land use in An Giang province.

From 2010 to 2020, the area of rice cultivation land decreased due to the restructuring of crops within the agricultural land group according to the province's policy on crop structure conversion (shifting to other annual crop land, perennial crop land, etc.). This conversion is in line with the local crop structure conversion plan and still ensures the conditions for rice cultivation as regulated; the converted rice cultivation land was repurposed as non-agricultural land. The area of other annual crop land increased significantly in districts such as Tri Ton, Tinh Bien, An Phu, and Cho Moi. The increase in the area of other annual crop land during this period is due to the conversion from rice cultivation land to other annual crop cultivation.

- While the area of rice cultivation decreased, the area of perennial crop cultivation increased due to the conversion of crop structure from rice and annual crop land to perennial crops. This shift occurred because in recent years, rice farming has been affected by climate change and low rice prices, prompting farmers to switch to planting perennial crops such as coconut, mango, etc., in accordance with the province's crop conversion policy and plan.

The area of forest land in the province increased by 183 hectares. This is attributed to the effective management, protection, and utilization of all special-use and protective forests within the province. The protective forests in An Giang province serve as the headwaters, playing a crucial role in water source protection, water regulation, flood and drought mitigation, and disaster reduction, such as storms, floods, and droughts. The production forests are being actively transitioned, continuing afforestation efforts, and applying advanced techniques to increase the productivity of planted forests, selecting advanced, high-yielding and efficient tree varieties.

4. Discussion and conclusion

An Giang province has made continuous efforts to achieve the goals set forth in agricultural economic development. These efforts have brought about improvements in productivity, quality, efficiency, and competitiveness, shifting from a mindset focused solely on area and output to one emphasizing economic value and efficiency achieved per unit of land area. The province has been a leader in the conversion of crops and livestock, as well as in the research of rice varieties adaptable to salinity- and alkalinity-affected fields, with successful trials underway and awaiting approval for scaling up rice cultivation areas adapted to climate change. This has had an impact on the transformation of the agricultural land structure, with the area of rice cultivation land decreasing steadily since 2010.

The transformation of agricultural land area has brought encouraging results.

- *Firstly*, the transformation of agricultural land into other types of land still ensures an adequate land reserve for socio-economic development, security, and national defense. It contributes positively to the rational and effective exploitation of land resources.

- *Secondly*, it creates a land fund for auctioning and allocating land to organizations and individuals to implement business projects, significantly contributing to economic growth and generating revenue from land.

- *Thirdly*, converting low-productivity rice cultivation land into other crops that offer higher yields and economic profits. Currently, the rice cultivation area is consistently protected according to the targets set by the government, ensuring that the province continues to contribute one-tenth of the national food output.

- *Fourthly*, the land use structure has been adjusted in accordance with the process of economic restructuring and transformation of labor from agriculture to industry and services (compared to 2010, the economic structure of the agricultural-forestry-fishery sector decreased from 35.53% to 27.11%; the industrial-construction sector increased from 11.12% to 12.61%; and the service sector increased from 53.35% to 60.28% in 2015). Particularly, conditions have been created to accelerate the process of restructuring land use in agriculture and rural areas to align with the market-oriented economy.

The transformation of agricultural land in An Giang province from 2010 to 2020 raises several important issues that need attention:

- The transformation of agricultural land will impact the social and economic livelihoods of the population. If not coordinated properly, it may lead to a situation where farmers lack or have

insufficient land for cultivation. Land scarcity, poverty, and unemployment could become causes of social disasters.

The transformation of agricultural land in the agricultural economic development of An Giang province is an essential requirement for economic growth. However, considerations need to be made regarding the economic, social, and environmental effectiveness to ensure sustainable development in land use and to maximize the land's potential. Close coordination between sectors and districts is necessary to review and determine conversion targets and land use to meet the needs of industries and localities while aligning with the actual implementation of the localities.

Implementing land use planning and plans has created land reserves for various sectors and development areas, achieving the objectives and tasks in the province's socio-economic development strategy. Proactive efforts are needed to create land reserves and develop non-agricultural production, commercial, and service facilities, land reserves for infrastructure construction, urban and rural development, etc.

Land use conversion needs to be planned and approved by competent state agencies. Local authorities should enhance supervision and inspection of the formulation, appraisal, approval, announcement, and implementation of land use planning and plans. Close monitoring is required for the conversion of high-yield rice land and forest land to non-agricultural production bases.

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