

Geography

Learning and Teaching Resources on Guangdong-Hong Kong-Macao Greater Bay Area (Greater Bay Area)



The new development trends in agriculture in the Greater Bay Area: Agro-tourism

Edited by The Education University of Hong Kong

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1 Introduction

The Guangdong-Hong Kong-Macao Greater Bay Area (Greater Bay Area) belongs to subtropical monsoon climate that results in superior conditions for agricultural production. It has a long history of agricultural development and a well-developed agricultural economy. This area has been an important production and commodity bases for food, sugar cane, silk, pond fish and fruit in our country since ancient times. The nine Greater Bay Area cities (GBA cities) are closely connected with Hong Kong and Macao in geographical location. The pond fish, vegetables, lychees, flowers, rice and poultry products cannot only satisfy the needs of the Mainland residents, but are also exported to Hong Kong and Macao. In 1978, China carried out land reform. As the window to the world, the Greater Bay Area began to develop an export-oriented economy. Even though the area for agriculture greatly reduced due to rapid industrialisation and urbanisation, the development of agricultural technology has prompted agricultural development towards commercialisation and specialisation. In recent years, with the gradual economic development in the Greater Bay Area, the importance of agriculture has declined rapidly. However, driven by the government, the agriculture in the Greater Bay Area has begun to move towards agro-tourism.

2 Favourable physical factors for agricultural development

Agriculture, which belongs to primary production, is one of the most important economic activities for human beings to sustain their lives. The history of agriculture can be traced back to thousands of years ago when humans used their wisdom to change the physical environment and obtained products through the growth of plants and reproduction of animals. Agriculture today refers to the production which makes use of land, sunlight, water, air and minerals to cultivate animals, plants or microorganisms in order to obtain materials for living. Agriculture in the narrow sense refers to the cultivation of agronomic and horticultural crops; in the broader sense includes productions such as agriculture, forestry, fisheries and livestock rearing.

The Zhujiang Delta region¹ is located in the central part of the coastal Guangdong Province, and situated at 22°-23.5°N and 112°-115°E. The region has a subtropical monsoon climate with moderate temperature, abundant rainfall and long sunlight duration. The frost-free period is approximately 350 days, which allows crops to be harvested three times a year and eight times per year for silkworm rearing. Its superior geographical location and climatic conditions play a vital role in the agricultural development of the Zhujiang Delta region.

The agricultural development in different regions varies with climate, culture and technology. In terms of climate, land and water, the Zhujiang Delta region is suitable for agricultural development (this chapter mainly introduces the agricultural activities in the nine GBA cities). First, in terms of sunlight, the Zhujiang Delta region is located in the tropics that the annual mean sunlight duration reaches 1,757.3 hours, in accordance with the statistics of the Guangdong Meteorological Yearbook. The growth of crops is inseparable from sunlight as it provides light and heat to plants, and produce the nutrients plants need during photosynthesis. The Zhujiang Delta region has sufficient sunlight which speeds up the growth of crops. Furthermore, in terms of temperature, the subtropical monsoon climate in the Zhujiang Delta region results in hot summer, cool winter and long frost-free period. Therefore, the crops in the Zhujiang Delta region are able to grow almost all seasons throughout the year. The rice cultivation can have at least two harvests² per year. Finally, in terms of precipitation, the Zhujiang Delta region has abundant rainfall, with an annual mean rainfall of over 2,000 mm. This makes the Zhujiang Delta region favourable for the growth of water-demanding crops,

¹ Zhujiang is the largest river in South China. It consists of three main tributaries and other tributaries of the Xijiang, Beijiang, and Dongjiang. The transport materials of these tributaries are carried by the river water to the estuary (Zhujiang Estuary) and deposited at the estuary to form a fertile delta called the “Zhujiang Delta”. After the reform and opening up, the Guangdong Provincial Government designated Guangzhou, Shenzhen, Dongguan, Foshan, Jiangmen, Zhongshan, Zhuhai, and the urban areas of Huizhou and Zhaoqing in the Zhujiang Delta as the Zhujiang Delta Economic Zone, which became the prior regions of the country’s reform and opening up. On this basis, Hong Kong and Macau Special Administrative Regions were added to extend the concept of the “Greater Zhujiang Delta Region”. In 2017, the state proposed to deepen the cooperation between Guangdong, Hong Kong and Macao and promote the construction of the "Guangdong-Hong Kong-Macao Greater Bay Area (GBA)". At present, the GBA includes the nine cities of Guangzhou, Shenzhen, Zhuhai, Foshan, Huizhou, Dongguan, Zhongshan, Jiangmen and Zhaoqing, and two special administrative regions of Hong Kong and Macao.

² The paddy rice cultivation in the Zhujiang Delta has two harvests each year. The first harvest is usually sown in March and harvested in July while the second one is usually sown in July and harvested in November.

such as rice.

In terms of topography, the Zhujiang Delta region is situated on the fertile alluvial deposits in Zhujiang Estuary. There are a number of distributaries which forms an ideal site for agricultural development. Rivers provide sufficient irrigation water for agricultural activities, and farmers can also use the low-lying areas along the river to dig fish ponds for aquaculture. In terms of soil, as the Zhujiang Delta region is located in the estuary where Xijiang, Beijiang and Dongjiang meet, the river discharge is large. The soil has low salt content as the time for soil formation is short. The fine clayey soil has a good water-holding capacity which is very suitable for rice cultivation and agricultural development.

3 History of agricultural development

Guangdong Province is very suitable for agricultural development due to its climate, land and water while the Zhujiang Delta region has been a famous cultivation area of food and cash crops in South China.

During the Song and Yuan Dynasties, the population of South China increased significantly, rising demand of people for food. The water projects largely increased the arable land for rice cultivation in Guangdong. The Zhujiang Delta region then began its agricultural development. In the meantime, there were new types of crops grown in the Zhujiang Delta region. In the Song Dynasty, the people moved south brought advanced sericultural technology to South China and promoted the development of silk industry in the region. In the southern Guangdong where settlements were densely clustered, mulberry cultivation began to appear at that time. The cultivation of mulberry trees in the Zhujiang Delta region reached its peak in the Yuan Dynasty that hundreds of thousands of mulberry trees were planted in today's cities and counties such as Dongguan and Panyu. With the development of economic activities and agricultural technology, local people began to increase the cultivation of fruit trees. The fruit cultivation at that time was most famous for lychee, longan, banana, plantain and citrus. Among them, lychee was the most widely planted. Watermelon began to be introduced into southern Guangdong in the early years of the Yuan Dynasty. The southern Guangdong is also the earliest documented cultivation area of balsam pears in our country.

In the Ming and Qing Dynasties, the traditional agriculture in Guangdong entered a period of comprehensive development. Due to the frequent floods in the southern Guangdong, the lives and agricultural activities of the local people were seriously threatened. Therefore, water projects became very urgent. The construction of the dykes not only protected the villages and farmland from flood disasters, but also had a major impact on the crop planting system and the expansion of ponds. On the one hand, the construction of dykes could turn the tide-prone areas into fields that could effectively control the inflow and outflow of tidal water, making the cultivation of double-cropping rice more common in the Zhujiang Delta region. This also formed the “rice-rice-wheat” cropping system, by rotation with other agricultural crops. On the other hand, the extensive construction of dykes also favoured the development of pond agriculture in the region. After the mid-Ming Dynasty, due to the frequent floods in Guangdong, local people began to construct a number of fish ponds by digging on the low-lying areas and reared freshwater fish. The pond base of the fish ponds were used to plant different crops, forming different types of dyke-ponds (jitang), such as mulberry fish pond, fruit-based fish ponds, rice-based fish ponds and sugarcane-based fish ponds.

In the late Ming Dynasty, under the influence of the commodity economy, the cultivation of cash crops in Guangdong developed rapidly, forming various specialised cultivation areas. For example, Dongguan was a famous area for banana planting while the suburbs in western Guangzhou was well-known for flower and vegetable cultivation. The Zhujiang Estuary was the largest area for shellfish aquaculture in China at that time. The specialisation of agricultural production made crop, livestock and poultry resources increasingly rich, and created various technology and methods for arable farming and livestock rearing. These technologies were not only rich in local characteristics of South China, but also in leading position in some aspects. The development of commercial farming made Guangdong a densely populated region, and the market had prospered unprecedentedly, forming a distribution centre for various agricultural by-products. With the rapid development of handicraft industry for agricultural by-products, agricultural capitalism began to appear in the early Qing Dynasty.

4 Changes in agricultural development since reform and opening up

The Zhujiang Delta region has always been an important agricultural region in our country. Before the 1980s, agriculture played a leading role in the production structure of the region. However, the reform and opening up of China brought about significant changes in agricultural activities in the Zhujiang Delta region.

4.1 Changes in agricultural policies by the government and high degree of commercialisation of agriculture

Before 1978, China implemented planned economy and the agricultural development was strictly controlled and planned by the government. Since the reform and opening up in 1978, the Chinese government has begun to implement a socialist market economy, and relaxed control of and intervention in agriculture. Even though the land resources were owned by the country, farmland was not directly distributed by the government, but farmers might rent from the government. In order to ensure national food security, farmers only needed to pay part of the harvest to the government after harvest. The rest could be transported to the market for sale. In addition, farmers could decide the types of crops to be grown as well as the growing methods on the allocated land. As a result, driven by profits, some farmers with higher productivity were active and sensitive to the market. They rented more land and used these land resources effectively, which greatly increased the agricultural outputs of the Zhujiang Delta region. Therefore, the agricultural activities in the Zhujiang Delta region have gradually shifted from subsistence farming to commercial farming. However, even in this case, the Central Government would still introduce relevant policies to encourage farmers to cultivate major food crops (e.g. rice) so as to ensure the sufficiency of domestic food supply. This policy also explains why rice is still the major crop in the Zhujiang Delta region.

With the rise and development of commercial farming, subsistence farming began to decline. In the mid- and late 1980s, with the gradual development of the rural share cooperation system³

³ Rural share cooperation system: It was the agricultural policy implemented by the Chinese Government in the mid- and late 1980s, and was similar to the fund raising of the private enterprises. This policy encouraged the farmers to actively engage in agricultural production and increase the productivity of the cultivated land.

in the Zhujiang Delta region, the Central Government began to guide the development of agriculture from a macro level. For example, transportation networks were constructed to provide support for rapid transport of special agricultural products (e.g. perishable agricultural products such as dairy products). The government also increased investment in agricultural research, and encourage colleges and universities to set up agricultural research institutes and laboratories so as to increase the yield of crops per unit area in a scientific way. The government also act as a middleman between farmers and buyers by establishing the agricultural e-commerce platform, and promoted the information flow of agricultural market. Driven by these government policies, the development of commercial farming in the Zhujiang Delta region has largely been accelerated. In 1987, only 45% of the agricultural products in the region transported to market for sale, and the remaining 55% were consumed by farmers. However, after 2000, the proportion of commercial agricultural products in the region rose to 85%, and even higher in Shunde, Zhongshan and Dongguan.

4.2 Reduction of farmland area and decreasing importance of agriculture

In 1978, the Central Government introduced open market economic policies such as the rural share cooperation system and the household responsibility system⁴, and therefore farmers gained the right to freely trade the farmland. With the economic development after the reform and opening up, the land prices in the Zhujiang Delta region rose sharply. Some farmers abandoned farming and chose to sell their farmland to developers at a high price for better profits, and this caused the farmland to become abandoned land. Apart from this, coupled with the reform and opening up in 1978, the Zhujiang Delta region experienced rapid industrialisation and urbanisation, and thousands of factories were built one after another. The government also encouraged the development of the secondary and tertiary industries. The

⁴ Household responsibility system: Household responsibility system is an important reform and opening up system implemented in the rural areas of the Mainland in the early 1980s. In this system, farmers are regarded as relatively independent individual in the agricultural production. They are able to contract and manage the collected land (the land ownership in the Mainland belongs to the country, but farmers are allowed to buy, sell or use them), and carry out production and operation independently in accordance with the contract. Farmers have to pay a small portion of income to the commune and the taxes to the country in accordance with the contract, however, the rest of the profits belongs to farmers.

government began to sell the farmland and large pieces of farmland was converted to urban areas for industrial, transportation, commercial and residential uses.

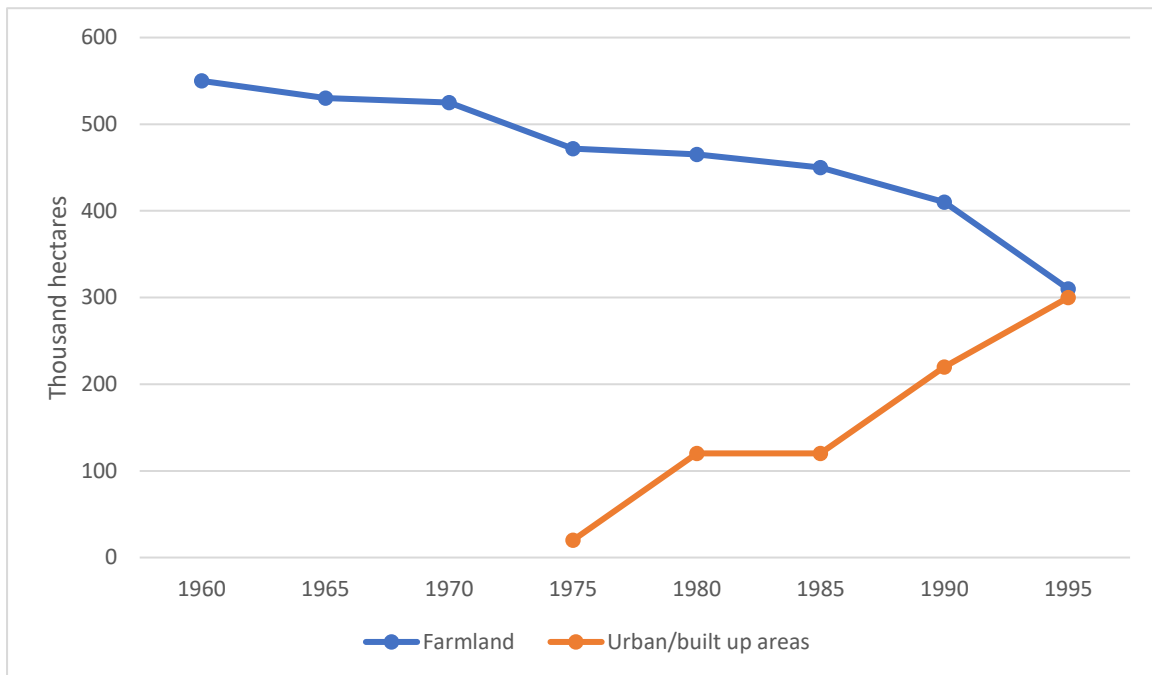
The relative importance of agriculture in the Zhujiang Delta region has declined and is closely related to the reducing agricultural land in the region. It can be seen from Table 1 that in 1973, the cultivated land in the Zhujiang Delta region accounted for 33.1% of the total land area, and it fell to 31.6% in 1982. Agriculture was still the dominant industry in the region at that time. However, in the next 13 years, the proportion of the cultivated land in the region fell sharply. In 1995, the agricultural land in the region only accounted for 17.6% of the total land area. On the other hand, the urban / built-up areas increased rapidly from 2.4% in 1973 to 15.7% in 1995. From 1950 to 1995, the cultivated land in the Zhujiang Delta region was reduced from 550,000 hectares to 310,000 hectares, while the urban / built-up areas rapidly increased from 20,000 hectares to approximately 300,000 hectares (Figure 1). Since most of the farmland and cities in the Zhujiang Delta region are located in the plains of the region, it is not difficult to see that most of the urban expansion is at the expense of farmland.

Table 1: Percentage of different types of land uses in the Zhujiang Delta region from 1973 to 1995

Land use	1973	1982	1995
Farmland	33.1%	31.6%	17.6%
Gardening	4.9%	3.0%	16.1%
Woodland	29.6%	32.3%	37.0%
Grassland	12.3%	3.03%	0.2%
Urban / built-up area	2.4%	7.5%	15.7%
Water	12.6%	16.8%	12.8%
Unused land	5.0%	5.80%	0.7%

Source: Zhao, et al. (2007)

Figure 1: Area of agricultural and urban / built-up land uses in the Zhujiang Delta from 1960 to 1995



Source: Zhao, et al. (2007)

4.3 Specialisation of agriculture and reduction of rural population

With the industrial development and urbanisation in the Zhujiang Delta region, the circulation scale of cultivated land has been increasing while new business entities such as agricultural enterprises have flourished. Therefore, the agricultural production in the Zhujiang Delta region becomes larger and more specialised. The development of agricultural specialisation has enabled farmers to put advanced agricultural technology into agricultural production. For example, machines are used for sowing, cultivation and harvesting while sprinkler irrigation, drip irrigation and sub-irrigation systems are adopted for agricultural irrigation. Computer monitoring systems are also used to control pests and diseases. In the past ten years, the Central Government has also implemented a number of supporting policies for agricultural specialisation, such as agricultural machinery purchase subsidies, in order to support the specialisation, mechanisation and large-scale development of agriculture. The application of agricultural machinery and technology not only improves the agricultural productivity, but also reduces the input of human resources in agricultural production, and this causes the mode of

agriculture to shift to the factory-like assembly line operation. However, this large-scale and specialised farming method has also led farmers to cultivate high-yield varieties for better profits, reducing the types of crops.

The development of modern agriculture in the Zhujiang Delta region has reduced the human resources required for agricultural production, resulting in a large amount of surplus labour in the rural areas. In addition, with the rapid industrialisation and urbanisation in the Zhujiang Delta region after the reform and opening up, the wages and the standard of living in the urban areas gradually improve. This has caused thousands of farmers to move to cities to work, and they are commonly known as “migrant workers”. In accordance with the relevant statistics, the actual labour force engaged in agriculture in the Zhujiang Delta region reduced by 217,500 in 6 years from 3.098 million in 1978 to 2.881 million in 1984. In accordance with the statistics of 6 counties and cities of Foshan, the total rural labour force totaled 1.05 million in 1984, of which 38.57% were actually engaged in non-agricultural activities, including industry, construction and tertiary industry. In Dongguan, even though the total rural labour force⁵ increased from 467,300 in 1978 to 512,400 in 1983, the proportion of labour force in agriculture to the total rural labour force sharply reduced from 80.26% to 47.54%, but the proportion of non-agricultural labourers quickly rose from 19.75% to 52.47%. The transformation of this regional production structure has also brought about new problems: when some farmers abandon agricultural production and work for secondary or tertiary industries, they are transformed from agricultural population to non-agricultural population. However, people who can switch from agriculture to manufacturing or services are mainly young people who are 20-40 years old in rural areas, while women and the elderly with lower productivity are left in the rural areas. When women and the elderly with lower education level account for 70% or 80% of the rural labour force, it will not only lead to a sharp decline in rural labour force, but also lower the agricultural productivity due to slower control or resistance to learning new agricultural technologies.

⁵ Labour force: It refers to the population of working age in society. Internationally, 15 to 64 years of age are generally regarded as population of working age. In our country, the 16 to 60-year old men and 16 to 55-year-old women are classified as population of working age.

5 Rise and development of agro-tourism

The concept of agro-tourism was first proposed by some American economists in the 1950s. It refers to the use of local agricultural resources in the rural areas next to the cities: while providing good agricultural products for citizens, it aims at establishing places that provide people with leisure, experiential and educational activities through reasonable planning, design and construction.

The rise of agro-tourism is an inevitable result of the rapid industrialisation and urbanisation. Looking back on history, villages and agriculture promoted urban development, but afterwards urban development began to be separated from villages and agriculture. In recent years, the deteriorating ecological environment has been an important factor for the rise of agro-tourism. Cities have high population density and small living space. In particular, the pollutants generated from industrialisation and urbanisation further deteriorate the urban environment. The desire for beautiful environment has prompted the citizens to turn their attention to the rural areas and farmland, forming a demand for agro-tourism.

With urban development in the Zhujiang Delta region, the proportion of agriculture in the production structure has been declining. The rural population continuously decreases while the importance of agriculture gradually reduces. However, agriculture is a basic industry. In order to revitalise agriculture, the Guangdong Government has implemented a series of policies in recent years to encourage traditional agriculture to increase its recreational function and extend its industrial chains, as well as support the establishment of AAA-rated tourist attractions and parks in the existing farms. In 2018, the Guangdong Government formulated guidelines and standards for the creation of tourism towns, encouraging and guiding the establishment of tourism towns in different areas. It is clearly stated that the farm parks are encouraged to explore and display farming culture and traditional craftsmanship skills, as well as protect and revitalise the rural intangible cultural heritage. It also encourages the planning and innovation to carry out agricultural festivals and folk experiential activities, and promote the experiential activities of farming and establishment of guest rooms in the farm parks.

Agro-tourism is a brand new type of industry combining agriculture and tourism. The

development of agro-tourism has largely changed the function of traditional agriculture by adding new ecological, living and educational purposes to agriculture. As a green plant industry, agriculture is an integral part of urban ecosystem. The rice fields, orchards and ponds in the farm parks are also vital for conservation of natural ecology and water sources as well as regulation of microclimates, and improving the living environment of the people. In terms of living and educational purposes, agriculture is an integral part of urban culture and social life. The display and experiential activities of farming culture in the farm parks provides social exchanges between urban citizens and farmers, strengthening their spiritual and cultural life. It also provides a platform for citizens to understand agricultural knowledge.

From economic perspective, as agro-tourism further extends the industrial chain of the traditional agriculture by including processing and sales of agricultural products as well as recreational activities in addition to agricultural production. When agriculture and tourism are organically integrated, it is no longer a primary industry only, but an organic combination of the primary, secondary and tertiary productions, which can effectively help optimise and adjust the production structure of the region. The development of agro-tourism can provide a wide range of job opportunities to the surplus rural labour, making full use of the rural labour resources. Agro-tourism is a comprehensive service industry and a labour-intensive industry. To a large extent, the products and services are provided by the labourers. In order to achieve the diversified functions of agro-tourism and satisfy the various needs of the consumers, it needs to provide “one-stop” service, which can effectively solve the problem of rural surplus labour.

6 Conclusion

The Greater Bay Area is located on the largest plain in Guangdong. It possesses sufficient water resources and sunlight. The land is suitable for farming with comprehensive infrastructures and water facilities. With the reform of the land policy by the Chinese Government after the reform and opening up, as well as the rising demand for agricultural products, the agricultural market has become larger, prompting commercialisation, specialisation and enterprisation of agriculture in the region. Due to the rapid socio-economic development, especially the

development of township and village enterprises and manufacturing industries as well as the acceleration of urbanisation, the agriculture in the Zhujiang Delta has faced the problems of reducing cultivated land, shrinking agricultural base, rural labour transfer and decreasing agricultural productivity in recent years. However, agriculture development should not be ignored as food is a necessity for people's lives. In order to promote the sustainable development of modern agriculture in the Zhujiang Delta region, the government has introduced relevant policies to promote the development of agro-tourism and encourage the establishment of farm parks and leisure farms with distinct characteristics. In the meantime, the government has also implemented relevant measures to support the agro-tourism for the purposes of improving rural infrastructure and reducing rural surplus labour. These can ensure that the rural areas and farmers are the beneficiaries of the agro-tourism. Currently, the Guangdong Government is actively exploring the operation and management modes of agro-tourism in the region. In the future, with the gradual development of agro-tourism, the agro-tourism in the Greater Bay Area can continue to promote the sustainable development and enhance the competitiveness of the rural areas in the region.

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