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**THE MODELS FOR LAND USE DEVELOPMENT WITH THE
ACCELERATION OF URBANIZATION IN URBAN CHINA——A CASE
STUDY OF PEARL RIVER DELTA METROPOLIS**

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ABSTRACT: In recent years there are appearing bran-new models for land use development which are not entirely in accord with state law in China, especially in the rapid urbanization zone. It results from the conflicts between the active dual institution of land use and the rapid development of society and economy in these areas. Although it disobeys the national law of land use in some aspects, this phenomenon reveals the irrationality on the active land institution, which has to be reformed for the urban sustainability. After summarizing and analyzing the typical models of land use development of the rapid urbanization areas in the Pearl River Delta metropolis, the paper gives some conclusions and suggestions for land use institution reform in the future.

KEYWORDS: Urbanization; Models of Land Use Development; Pearl River Delta of China

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1. Introduction

1.1 Background of the Pearl River Delta Metropolis



Figure 1 Map of China
(<http://www.mapofchina.go.nease>)

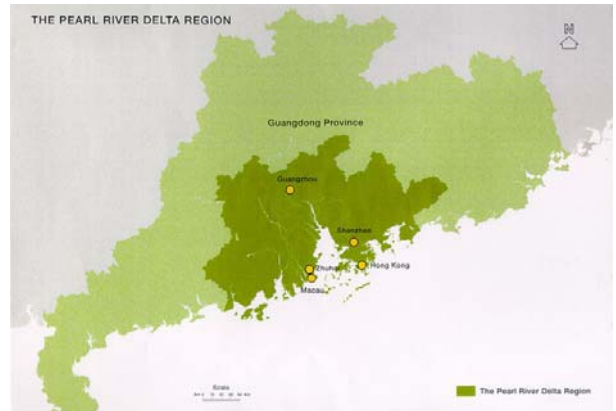


Figure 2 Map of Pearl River Delta Region
(http://www.info.gov.hk/hk2030/hk2030content/con_digest/map_PRD.htm)

The **Pearl River Delta** (PRD), China, occupies the low-lying areas alongside the Pearl River estuary where the river flows into the South China Sea. The PRD is one of mainland China's leading economic regions and a massive manufacturing center.

1.1.1 Location and demographics

The PRD is located in Guangdong Province and includes eight municipalities, namely Guangzhou, Shenzhen, Zhuhai, Dongguan, Zhongshan, Foshan, Huizhou and Jiangmen. All of these can be regarded as one of the metropolis.

The eastern side of the PRD (Shenzhen, Dongguan, Guangzhou) is the most developed economically. The western areas are open for development. New transport links between Hong Kong, Macau and Zhuhai in the PRD are expected to open up new areas for development and facilitate trade within the region. A major transportation development within the region, the Pearl River Bridge Project, is targeted for completion in 2006. The 29-kilometre Y-shaped bridge will be among the longest in the world.

Until around 1985, the PRD had been mainly dominated by farms and small rural villages, but after the economy was reformed and opened, a flood of investment turned it into the mainland's economic powerhouse. The PRD's startling growth was fuelled by foreign investment coming largely from Hong Kong manufacturers that moved their operations into the PRD. In 2003, Hong Kong

companies employ 11 million workers in their PRD operations.

1.1.2 Emergence of the Economic Zone

The Pearl River Delta Economic Zone has been the most economically dynamic region of the Mainland China since the launch of China reform programme in 1979. The region's Gross Domestic Product (GDP) grew from just over US\$8 billion in 1980 to more than US\$89 billion in the year 2000. During that period, the average real rate of GDP growth in the Pearl River Delta Economic Zone exceeded 16 percent, well above the People's Republic of China national figure of under 10 percent. In 1991, almost 50% of foreign investment in China was in Guangdong, and 40% in the PRD. By 2001 its GDP rose to just over US\$100 billion and it was experiencing an annual growth rate more than three percentage points above the national growth rate. The abundance of employment opportunities created a pool of wealthy, middle-income, professional consumers with an annual per capita income that puts them among China's wealthiest. Since the onset of China reform programme, the Pearl River Delta Economic Zone has been the fastest growing portion of the fastest growing province in the fastest growing large economy in the world.

According to the 2000 national Census, the Zone had a population of 40.8 million people. Per capita income has been growing substantially in recent years, as have consumer expenditures.

Although the Pearl River Delta Economic Zone encompasses only 0.4 percent of the land area and only 3.2 percent of the 2000 Census population of the Mainland China, it accounted for 8.7 percent of GDP, 32.8 percent of total trade, and 29.2 percent of utilised foreign capital in the Mainland China in 2001. These figures show the remarkable level of economic development that the Pearl River Delta Economic Zone has achieved and the international orientation of the region economy. This orientation has attracted numerous investors from all over the world who use the Greater Pearl River Delta region as a platform for serving global and Chinese markets.

1.1.3 Significance of Manufacturing

The Pearl River Delta Economic Zone has become the world's workshop and is a major manufacturing base for products such as electronic products (such as watches and clocks), toys, garments and textiles, plastic products, and a range of other goods. Much of this output are invested by foreign entities and is geared for the export market. The Pearl River Delta Economic Zone accounts for approximately one third of the trade of the Mainland China.

Private-owned enterprises have developed quickly in the Pearl River Delta Economic Zone and are playing an ever-growing role in the region economy, particularly after year 2000 when the development environment for private-owned enterprises has been greatly relaxed.

Nearly five percent of the world's goods were produced in the Greater Pearl River Delta in 2001, with a total export value of US\$ 289 billion. Over 50,000 Hong Kong companies have plants there, according to a 2002 survey.

1.1.4 Ties with Hong Kong

The Pearl River Delta Economic Zone has benefitted from proximity to Hong Kong. Hong Kong has been the source of over 70 percent of the cumulative foreign direct investment in the region since 1979, or roughly eight times the investment of North America, Japan, and Europe combined. One reason Hong Kong has played such an important role is because it links the region with the rest of the world, handling 70 to 80 percent of its seaborne exports and an even greater percentage of its airborne exports.

Hong Kong serves a distinct role as a place for firms to access the strength of the Greater Pearl River Delta region. Many western firms also use Hong Kong as a base for their Greater Pearl River Delta region activities, with senior managers often residing in Hong Kong. Hong Kong also serves as a principal location for the buying offices for companies doing business with the Greater Pearl River Delta region. Increasingly, savvy companies are developing Hong Kong/Greater Pearl River Delta strategies with their management, finance, communication, and coordination activities based in Hong Kong and their manufacturing activities in one or more of the jurisdictions of the Pearl River Delta Economic Zone.

While occupying an important position in the nation's economy, the PRD has also been a pioneer in reform and openness. Two of the original four Special Economic Zones (Shenzhen and Zhuhai) are located in the PRD, which allowed it to lead the way from a planned economy to a market economy. Having this "first mover advantage" in developing private enterprise, manufacturing capabilities and foreign trade, the PRD has drawn on its proximity with Hong Kong to become the manufacturing powerhouse of China. While the PRD offers a competitive market for companies to source or manufacture goods, Hong Kong provides logistical, financial, legal, design and marketing services that allow companies to export their products to rest of the world.

1.1.5 The Risk Facing

With the growth of the economy and acceleration of urbanization, the model of the land use development has been a serious problem to the sustainability and coordination amongst the society, economy and environment in the PRD. The Pearl river delta is notoriously polluted, with sewage and industrial waste facilities failing to keep pace with the growth in population and industry in the area. Much of the area is frequently covered with a brown smog.

Pollution is perhaps one of the greatest risks to the Chinese White Dolphins that inhabit the area.

How to make a intensive,reasonable and sustainable land use development is the key to advoid the coming risk in the future. First of all the active models of the land use development have to be made clear for the readjustment and assembly of land.

1.2 Brief of the Active Land Administration Law of China

1.2.1 Ownership of Land

According to the law, land in the urban areas of cities shall be owned by the State. Land in rural and suburban areas shall be owned by peasant collectives, except for those portions which belong to the State as provided for by law; house sites and private plots of cropland and hilly land shall also be owned by peasant collectives. There are two types of ownership of land in China: state-owned land and peasant collective-owned land.

The land owned by peasant collective without a lawful procedure for requisition is forbidden to the development for construction of non-agricultural projects including real estate and industrial buildings.

Only the state-owned land can be used for real estate development or any other profit projects.

The collective-owned land can be requisitioned by the state into the state-owned land via a legal procedure called as requisition land, in which the ownership of land has been converted into the state-owned land. During the conversion, the unit or individual has to pay the peasant collective economic organization the compensation.

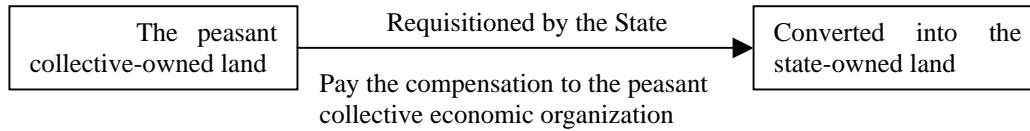


Figure 3 The lawful procedure for land ownership conversion

1.2.2 Right to Use of Land

The right to use of land owned by state can be accessed by state, collective and private in which the user has to pay the land revenue to the government. The accessed time is 70, 50 or 40 years different from the land function of residence, industry and commerce according to the active land administration law of China. The right to use of land only owned by state can be used for conveyance, transaction and real estate development.

All units and individuals that need land for construction purposes shall, in accordance with law, apply for the use of State-owned land, with the exception of the ones that have lawfully obtained approval of using the land owned by peasant collectives of their own collective economic organizations to build township or town enterprises or to build houses for villagers and the ones that have lawfully obtained approval of using the land owned by peasant collectives to build public utilities or public welfare undertakings of a township (town) or village. “The State-owned land” mentioned in the preceding paragraph includes land owned by the State and land originally owned by peasant collectives but requisitioned by the State.

1.2.3 Model for Land Use Development in Accordance with Law

If there is a construction project scheduled to run, the right to use of the land owned by the state should be accessed by the developer firstly. The government monopolizes the first-hand bargain of land-use right, during this bargain the land has been transferred from a raw land into a prepared land that can be auctioned in public. Those who want to develop a real estate project have to buy the prepared land-use right in the public auction.

The land resource company authorized by the government is responsible for the first-hand bargain of land-use right. This company usually requisitions the land from the peasant collective land, the idle land and the replacement land, taking them as the land resource for land-right auction in public. Such a company has been authorized only for the land requisition, but not for the real estate development.

The real estate developers obtain the land-use right in public land auction, then they have the land developed to build house or any other buildings to sell or hire. This process is called as the land use development.

The legal model for land use development in accordance with law is described as following.

Table1 The legal model for land use development in accordance with law

Types of Land	Raw Land	Prepared Land	Land for Development
Main Body of Participation	Owned by State or Owned by the peasant collective economic organization	Conserved by the government or the land agency authorized by the government for the public land auction	Accessed from the public land auction by all of possible developers, such as company, unit and individuals
Lawful Process for Conversion	Requisition for the conversion of land ownership into state-owned	Lease for the right to use of the land accessed in the public land auction	
Financial Flow	Compensate the original land owner for the preparation cost	Pay the land revenue to the government for the land-use right	
Market	First hand land market	Second hand land market	

According to the Article 63 of the Land Administration Law of China, the no right to the use of land owned by peasant collectives may be assigned, transferred or leased for non-agricultural construction, with the exception of enterprises that have lawfully obtained land for construction in conformity with the overall plan for land utilization but have to transfer, according to law, their land-use right because of bankruptcy or merging or for other reasons.

2. Analysis of Land Use Models in Urban China with the Acceleration of Urbanization

As we investigated, there are appearing bran-new models for land use development with different main body, process for conversion of land and financial flow in which it may disobey the active land law and produce the loss of the land revenue. All of these models exist both the active factor for the

economic growth and potential risk of soci-economic development because of an extensive, irrational

Table2 The Comparison amongst the Models for Land Use Development in Rapid Urbanization Area of China

	Items	Model One	Model Two	Model Three	Model Four	Model Five	Legal Model
Land Source from	State-owned land			●		●	★
	The peasant collective-owned land	●	●		●		★
Main Body of land use development	Government or land agency authorized by government			●	●	●	
	The peasant collective economic organization	●	●				
	Enterprise						★
	Land resource company	●		●	●		
	Individuals						★
The Approach to obtain the prepared land	Lease	●	●				
	Requisition						★
	Assembly of state-owned land			●		●	
	Return land from requisition owned by collective economic organization	●			●		
Infrastructure Invested by	Government	●	●	●	●	●	★
	Collective economic organization	●	●				
	Land resource company	●		●	●		
	Individuals	●				●	
The Types of The land use development	Land hiring				●		
	Industrial House hiring		●	●	●		
	Right transfer	●					
	Right lease			●	●	●	★
	Contract			●	●		
Ownership of Land	The State			●		●	★
	The Peasant Collective		●				
	Both the state & collective	●			●		
Compensation	Original owners of Land			●	●	●	★
	Land resource company	●		●		●	
Land revenue	Government	●		●		●	★
	Collective economic organization	●	●	●	●		

and un-sustainable land use. Following table indicates the comparison amongst the models for the land use development, distinguishing their main body of participation, process for conversion of land and financial flow etc.

3. Discussion

The conflict between agricultural demand for land and that of urbanization and industrialization is becoming more and more significant. Excessive cultivation of grasslands, over-grazing, utilization of land by village and township enterprises, soil pollution and erosion and rapid urbanization have caused serious damage to and deterioration of land resources.

As we all know, the per capita usable land resources of China are very low and will continue to decrease in quantity and quality. Due to increasing population, industrialization, and urbanization, the demand for land resources has increased. A shortage in land resources has become a major limitation to the sustainable economic and social development of China. Chinese government has realized that an efficient and powerful management and legal system for land resources is vital and of great importance for not only the present but also the future of China.

3.1 The Reasons for These Model Appearance

With the acceleration of urbanization and growth of industrialization in Pearl River Delta of China, more and more land resources have been transferred into non-agriculture use for more profit via a legal or illegal process. The models for land use development mentioned above should be due to the following reasons.

3.1.1 The Driving Forces of Economic Factor

The direct value of the cultivated land is much lower than the value of the land for real estate development or industrial use. In the marketing economy system, all resources including land would pursue for a higher profit. This is one of the main reasons why more and more land resources have been converted into the construction use extensively and irrationally.

3.1.2 The Rapid Urbanization and Industrialization

With the rapid urbanization and industrialization, the growth of the urban population and increasing investment on industries, land demand has gone up quickly. As the strict land administration law of the state, it gets more and more difficult and needs more and more time to obtain and develop the land through a lawful process. Some approaches have emerged for the land development experimentally in the rapid urbanization and industrialization area of China.

3.1.3 The Vague Policy on the Conversion of Right to the Use of Land Owned by Peasant Collective

The sluggish policy of land use about the conversion of right to use of land owned by peasant collective has made this appearance more serious. Sometimes there are some models adapted to the economic demand but disobeying to the state land law. Maybe this inconsistency between policy and market practice would cause a sustainable development in the future

3.2 The Measure and Suggestion

The models for land use development mentioned above may cause the loss of land revenue and potential un-sustainable development of the national economy. It is urgent to take these problems seriously right now. Some measure should be taken to solve these problems as following.

- 1) Revise some articles of the Land Administration Law of China about the conversion of the land owned by the peasant collective;
- 2) Strengthen the land resource control and the implementation of the Land Overall Plan;
- 3) Stress the experiment on the model for a sustainable land use development

3.3 About the Further Research

All the research above is preliminary. Firstly we can learn about the problems which have emerged in many places especially in the rapid urbanization and industrialization area of China, such as Pearl River Delta. We can also know about that the conflict between lack of land resource and demand on the growth of economy has been more and more significant. How to get an intensive, rational sustainable land use development is the key whether we can make a sustainable development amongst society, economy and environment. The further research about this area should be described as following:

- 1) The adjustment and assembly of land resource ;
- 2) The possibility and methods on the marketing conversion of lands owned by the peasant collective economic organization;
- 3) The model for the sustainable land use development in the rapid urbanization area.

Acknowledgements

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