

## **Evaluation of Plan Implementation in the Transitional China: A Case of Guangzhou City Master Plan**

### **Introduction**

Failure to implement plans has long been considered a significant barrier to effective planning (Berke *et al*, 2006). Calkins (1979) names the lack of plan implementation as “new plan syndrome”: Plans are continuously redone or updated without regard to the implementation status of the originally prepared plan. The lack of an understanding of the degree to which plans are implemented and of the determinants of effective implementation has hindered planners from making better plans.

Evaluation of plan implementation is very complex. Firstly, the methodological issues have to be considered. Plans are made to seek to guide the future physical development of cities. Many objectives set up in the plan such as social, economic and ecological development goals of a city, however, are very difficult to be measured quantitatively. Secondly, the hypothesis that plans should be implemented remains controversial. Is “good plan” implemented better than “weak plan”? In other words, is the degree to which a plan is implemented related to its quality (Laurian *et al*, 2004)? Thirdly, the timing of impacts of plan is important if the impact is to be fairly measured, and long term impact may not materialize for many years. Finally, in what forms can plan implementation be evaluated? Should the evaluation focus on the physical plans of communities (traditional core of urban planning) or object-oriented plans? All of these inquiries have made the evaluation standard of a plan ambiguous and consensus difficult to achieve.

In the fast-growing cities, the evaluation of plan implementation is even more difficult. Substantial flexibility in planning is needed to accommodate rapidly changing urban landscape, and the frequent adjustment of plans makes the evaluation hard to proceed. The rapidly changing urban situation, the unique trajectory of urban development, and the backcloth of globalization have opened an arena for Chinese planners to apply various urban planning theories and test their effects. On the one hand, plans have proved to be a vital instrument of urban policy and a catalyst for urban change. Physical plans put forth graphic images of the future that can rally stakeholders to act (Nueman, 1998). On the other hand, due to the lack of financial and political considerations, traditional physical planning was not adequate to cope with the rapid development of a transitional economy. According to the World Bank (1993: 98), “...new or amended master plans prove only that the Design Institutes in charge, reporting to the local Urban Planning Bureaux, continue to be dominated by architect-planners with little access to ‘feedback’ based on systematic monitoring of relevant small-area demographic and economic indicators, and these agencies still show little apparent concern about the economic cost or consequences of the actions outlined in the

plans...” therefore, the lack of *ex post* evaluation of physical plans has cost Chinese planners many opportunities to improve and reform traditional planning in China.

In the last decade there has been burgeoning literature on changes in the traditional urban planning approach of China (World Bank, 1993; Xu and Ng, 1998; Zhu, 2000; Wu, 2002). However, there have been few publications that focus on the evaluation of the role of urban planning in facilitating city development. In order to help bridge this gap, this research focuses on the following questions, taking Guangzhou city master plan as a case study:

- (1) To what extent and how have plans impacted on urban development in Chinese cities?
- (2) What are factors affecting plan implementation in the fast-growing Chinese cities?

Following this introduction, the second section of this paper discusses the literature on plan implementation. The third section examines the urban planning and city development in China since the economic reform. The fourth section presents an empirical evaluation of the implementation of Guangzhou city master plan. This paper concludes with the summary and recommendations for future research.

### **A review of literature on evaluation of plan implementation**

While there is a prolific body of research on the evaluation on policy implementation, there has been a curious lack of parallel inquiry into evaluation in the planning field (Talen, 1996). Although some work has attempted to link policy-implementation theory to planning practice, planners have not yet developed an equivalent ability to link plans and plan implementation practices to subsequent impacts (Berke *et al.*, 2006). Given the lack of methods to empirically evaluate plan implementation, many plans are impressionistically rather than empirically assessed (Laurian *et al.*, 2004). As a consequence, planners know very little about the effects of plan on the city development process. Although measuring the effect of plans on urban development is a formidable empirical challenge, and comparisons between local institutions and across metropolitan areas are frustrated by the sheer variety of local practices, a fuller understanding of the relationship between planning tools and markets should enable policy makers both to better appreciate the likely impacts of planning tools and to tailor them to achieve desired outcomes (Adams *et al.*, 2005).

Modelling the effects of planning has been relatively little researched, partly because their quantification is very difficult. Silver & Goode (1990) and McGough & Tsolacos (1994) adopted macroeconomic models to analyse national or regional data, but planning variable is absent. Recently, Bramley & Leishman (2005) adopt panel data to explore the impact of national and regional policies on local housing market, and Henneberry *et al* (2005) use the cross-sectional data to estimate the impact of planning on commercial property markets in England. US studies usually employ hedonic pricing model to examine the effects of zoning and growth controls (Podogzinski and Sass, 1991; Kline and Alig, 1999).

There are usually two types of evaluation approaches to assess the impact of plans:

non-quantitative and quantitative methods. The non-quantitative method is frequently used; however, the evaluation criteria are subjective and vague. The quantitative approach is seldom applied due to methodological and data difficulties. Nevertheless, it has been proved to provide solid support to the assessment of the role of plan in implementation. Since the late 1970s, several categories of quantitative approaches have been developed with the advancing computer technology. For example, Alterman and Hill (1978) use grid overlays to quantify “accordance and deviations” between land use plans and actual land use. Regression analysis is used to test the explanatory strength of political and other factors that could affect implementation. Calkins (1979) applies “planning monitor” to measure the extent to which the goals and objectives of the plan are met and to explain any differences between planned and actual change. This is accomplished using various ratios that produce effectiveness measures, such as the ratio between actual occurrence and anticipated occurrence as a measure of forecasting effectiveness. Calkins (1979) also includes effectiveness measure, of spatial objectives in which planned and actual inventory values for a number of sub regions are calculated. Using bivariate statistical measures, the differences between planned and actual spatial distributions are quantified. Unfortunately, no empirical results obtained from this method have been reported in the planning literature. Alexander and Faludi (1989) develop a model, plan/programme-implementation-process (PPIP), and give five criteria for comprehensive evaluation: conformity, rational process, optimality *ex ante*, optimality *ex post*, and utilisation. Moreover, a proposed framework including a series of evaluation questions is provided to avoid the extremes of policy and plan evaluation implied in the traditional model with its standard of conformity and the ‘decision-centred’ model with its standard of utilisation. However, no empirical studies were provided for this type of evaluation.

The more recent approach of plan evaluation demonstrated by Berke et al (2006) represents another attempt to assess the impacts of plan in the implementation quantitatively. Berke et al (2006) use a sample of plans, permits, and district-council planning agencies in New Zealand, and examine two conceptions of success in plan implementation (conformance and performance), the effects of the implementation practices of planning agencies, and the capacity of agencies and permit applicants to bring about success.

Based on the evaluation outcome, a question appears, that is, is a plan with high implementation conformance good one? Another key point is that, if implementation is defined and measured in terms of conformance, plans and planners have an important influence on implementation success. Alternatively, if implementation is defined and measured in terms of performance, plans and planners are less influential in implementation. These lessons have broad implications for the theory and practice of plan implementation. Alexander and Faludi (1989) argue that plans not implemented do not always indicate failure, and on the other hand, plans do not cease to be a criterion of success. They hold the middle ground where implementation is still important but where, as long as outcomes are beneficial, departures from plans are viewed with equanimity.

Identifying the factors affecting implementation is as important as plan implementation. Laurian *et al* (2004) categorize the factors of plan implementation into two types: internal

factors to the plan (e.g. its quality) and external factors to the plan (e.g. the characteristics of the planning agency and of local developers). Key factors of implementation are: the quality of the plan; the capacity and commitment of land developers to implement plans; the capacity and commitment of the staff and leadership of planning agencies to implement plans; and the interactions between developers and agencies. Therefore, while analyzing the effects of plan, we cannot simply conclude that a plan with high level of implementation is a good one. Only the combination of quantitative analysis and qualitative analysis can help achieve better understanding of the role of plan in city development.

The research on plan implementation is very rare in China, partly due to the complex nature of Chinese urban planning system. Among the few studies, Sun and Deng (1997) conduct a survey on development proposals approved in Shanghai city in the time period from 1980 to 1990, and compare the conformance and deviation between plans and actual development (approved development proposal). Then the factors affecting plan implementation, such as the planning control framework and social and economic changes, are analyzed. Pu (2005) adopts an approach similar to that of Alterman and Hill, and uses grid overlay to quantify “accordances and deviations” between city master plan of Tianjin city (the 1984/1995 and 2002 versions) and actual land use in different years. Then he conducts questionnaire survey and identify various factors related to plan implementation.

## **Urban Planning Framework in China**

The 1990 City Planning Act introduced a two-tier planning system to China: city master plan and site development control plan. Medium and large size cities must prepare district plans based on the master plan.

### **1. City Master Plan**

A city master plan is prepared by the planning department, and it forecasts the size of city built-up area and population over the next 20 years<sup>1</sup>, designates areas for various types of land uses, such as residential, commercial, industrial and farmland within the city planning boundary designated by the municipal government, and arranges trunk infrastructure and citywide social amenities. A city master plan has a significant impact on the real estate market particularly because the arrangement of infrastructure facilities can change land values of certain areas. The formulation of a city master plan, however, is very physically orientated, and seldom takes social and financial factors into account. According to the World Bank (1993: 98), “...new or amended master plans prove only that the Design Institutes in charge, reporting to the local Urban Planning Bureaux, continue to be dominated by architect-planners with little access to ‘feedback’ based on systematic monitoring of relevant small-area demographic and economic indicators, and these agencies still show little apparent concern about the economic cost or consequences of the actions outlined in the plans...” Moreover, the examination and approval of a city master plan usually take nearly a decade<sup>2</sup>. When the plan is approved, it is almost a one-decade-old legally binding document and not adaptable to current land use and density issues. The existing master plan has no

phasing related to the implementation of its policies, and it is more like a physical design instead of a comprehensive plan. Due to its lack of financial considerations, the implementation of a city master plan has proved problematic. In practice, the economy operates with few constraints imposed by city master plans. For instance, the open space designated in the master plan is often eroded by construction, and the land use type of some areas is often changed to accommodate new investment.

Under the 1990 Act, cities with populations of more than 200,000 are required to prepare district plans, which should be consistent with the master plan. District plans are prepared by the municipal government and specify purposes for land use and infrastructure facilities on a more detailed scale.

## 2. Site Development Control Plan

Theoretically, the approved city master plan and district plan set up the framework of the site development plan. The site development control plan is prepared by either the municipal or district government, and its framework borrows some ideas from the American zoning system, but the difference being that it is not a statutory plan. The site development control plan mainly identifies eight planning parameters plot by plot:

- (1) Permitted land use type
- (2) Maximum plot ratio
- (3) Maximum building height
- (4) Maximum lot coverage ratio (Footprint area divided by the lot size)
- (5) Minimum open space ratio
- (6) The location of the entrance
- (7) Minimum car parking standard
- (8) Public facilities contribution.

The site development control plan is essential in defining development rights of a piece of land, and therefore forms the basis of planning management. The planning parameters stipulated by the site development control plan are attached to the Land Use Planning Permit. Among these parameters, permitted land use type and plot ratio are the most important factors of determining land value.

### **Evaluation of plan implementation: a case study of Guangzhou city master plan**

Guangzhou is selected as a case study of plan implementation. Guangzhou is the centre of the Pearl River Delta, one of the most prosperous economic zones in China, and it has the third biggest urban economy in China. It is the “Southern Gateway” of China, and one of the fastest growing cities in the country. It has been considered to be ‘one step ahead’ of the rest of China in economic reforms and development because of its proximity to Hong Kong (Vogel, 1989; Figure 7-2).

Guangzhou stretches over 7,434 square kilometers and population reached 10 million in

2004. Guangzhou has been growing very fast since the economic reform, in terms of both economic performance and built-up area. From 1980 to 2004, the average annual GDP growth rate reached 14.2 percent. Meanwhile, the central built-up area more than doubled (Table 7-1).



Figure 7-2 The Location of Guangzhou in the Pearl River Delta

Source: Wu, F. "Polycentric Urban Development and Land Use Change in a Transitional Economy: the Case of Guangzhou, PRC", *Environment and Planning*, V.30, 1077-1100

**Table 7-1** City expansion of Guangzhou since 1980

Year	1980	2000	2004
Built-up area (km <sup>2</sup> )	136	298	350.8
Population (Million)	5	9.9	10.2

Source: Guangzhou Urban Planning Bureau

## 1. Research area

Since 1954, the Guangzhou Municipal Government has been making master plans, and master plan has been amended periodically to accommodate changes of city development. However, before the 1990s, the computer technology was not developed enough to support the plan-making in China, and all maps were drawn by hand. Constrained by the unavailability of precise data of the earlier editions of city master plan, this research selects the most recent edition, 2001 master plan of Guangzhou city, as a case study and examines to what extent it has impacted city growth. The 2001 master plan was made to forecast the city growth until

2010, and guides the construction of infrastructures and arrangement of land use.

The research area focuses on the built-up area of the city, namely, the seven districts of Guangzhou city, Baiyun district, Luogang district, Yuexiu district, Liwan district, Tianhe district, Haizhu district and Huangpu district. Yuexiu district and Liwan district are the historic city center, and Tianhe district is the new city center. Haizhu district is located in the south of the city, and Baiyun district and Huangpu district are the suburban areas of the city, located in the north and east edges of the city respectively. Luogang district is an economic development area whose main function is to develop the manufacturing and hi-tech industries.

## 2. Research method

Land use is the core of city master plan, and this research focuses on evaluation of the implementation of land use plan. Maps of the 2001 Present Land Use (PLU), the 2001 Land Use Plan (LUP), and the 2007 Present Land Use (PLU), are compared to examine the level of conformance between land use plans and actual land use.

### (1) Index of plan implementation

In China, the land use plan at the master plan level involves more than 15 types of land use, and it is unnecessary to examine the conformance of every type of land use. For instance, the uses of water area and collective land are seldom changed, and therefore the evaluation of their plans are not the focus of planners. The evaluation of plan implementation focuses on five major types of land use: residential, commercial and office, public facilities, industrial and open space, which are critical for city development and environment.

For every type of land use, three indices are defined:

- Type of accordance

If the use of a piece of land in 2001 PLU, 2001 LUP, and 2007 PLU is consistent, it is consistent with the plan.

If the use of a piece of land in 2001 LUP and 2007 PLU is consistent, but different from the use in 2001 PLU, then the plan is implemented.

- Type of unfulfilment

If the use of a piece of land in 2001 PLU and 2007 PLU is consistent, but different from the use in 2001 LUP, which means that the plan might or might not be implemented in the future. This is defined as "type of unfulfilment".

- Type of deviation

If the use of a piece of land in 2001 PLU, 2001 LUP and 2007 PLU is different, it is clearly deviated from the plan.

If the use of a piece of land in 2001 PLU and 2001 LUP is consistent, but different from the use in 2007 PLU, and it is also deviated from the plan.

### (2) Data processing

The data processing has been shown in Figure 7-3.

The overlay process needs the raster data of 2001 PLU, 2001 LUP and 2007 PLU. The

2007 PLU is a Mapinfo document, and therefore includes data with spatial attributes. The 2001 PLU and 2001 LUP maps, however, are JPG documents, and do not include the data with spatial attributes, which requires data conversion.

- Image registration

In order to conduct the overlay of three land use maps, the JPG documents of 2001 PLU and 2001 LUP have to be processed under the same spatial reference frame as that of the 2007 LUP. The image registration is carried out by the Erdas software, and the polynomial method is applied. Totally there are 21 reference points, the control points error is less than 2 meter, and the size of resample and cell is set as 5 meter.

- Data clipping

The purpose of data clipping is to make sure that the calculation area of three maps is consistent.

- JPG image classification

In the JPG documents, different colors represent different land use types. The spatial modeler maker of Erdas is applied to categorize the colors in the JPG map, and different value is granted to different land use types.

- Conversion of vector data into raster data

The vector data is converted into the raster data based on granted values of different land use types.

- Raster Calculation and Statistics by ArcGIS.

After obtaining the raster data, we calculate the areas and percentage of unfulfillment, accordance and deviation of every type of land use by applying grid overlays of ArcGIS.

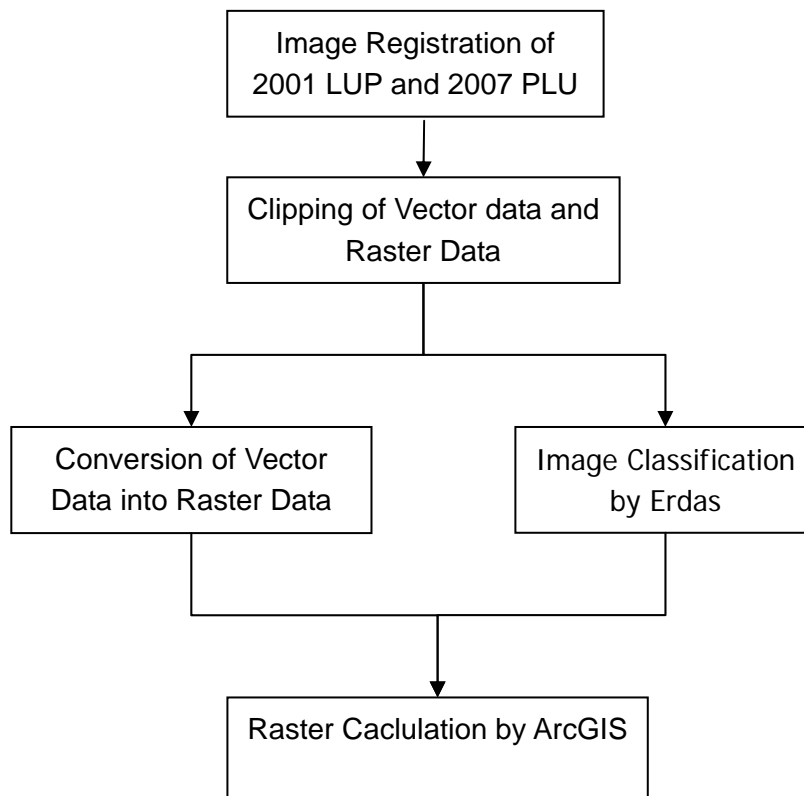


Figure 7-3 Data preparation and processing



### 3. Results

Based on the overlay and calculation, we obtain the results of evaluation of the 2001 LUP, which is revealed in the Table 7-2 and Figure 7-4 to 7-8.

Table 7-2 Overlay results of the 2001 LUP and 2007 PLU

Land Use Type	Type of unfulfilment	Type of accordance	Type of deviation
Residential land	18.62%	31.52%	49.87%
Commercial and office	23.89%	19.69%	56.42%
Land for public facilities	13.53%	43.66%	42.80%
Industrial land	22.00%	30.67%	47.32%
Land for open space	0.70%	88.39%	10.92%

- Analysis of residential land plan (Figure 7-4)

The overlay shows that around 50% of residential land development deviates from the 2001 LUP (Figure 7-4). Among all deviation cases, 71.8% happen in the Baiyun district, 6.9% happen in the Huangpu district, and this reveals that the implementation of residential land plan is very weak in the suburban area due to its less stringent planning control compared with that in the city center.

There is 18.62% of residential area which has not been developed according to the land use plan, and majority of them are located in the Baiyun district, implies that the residential land development is slower in the Baiyun district than in other districts.

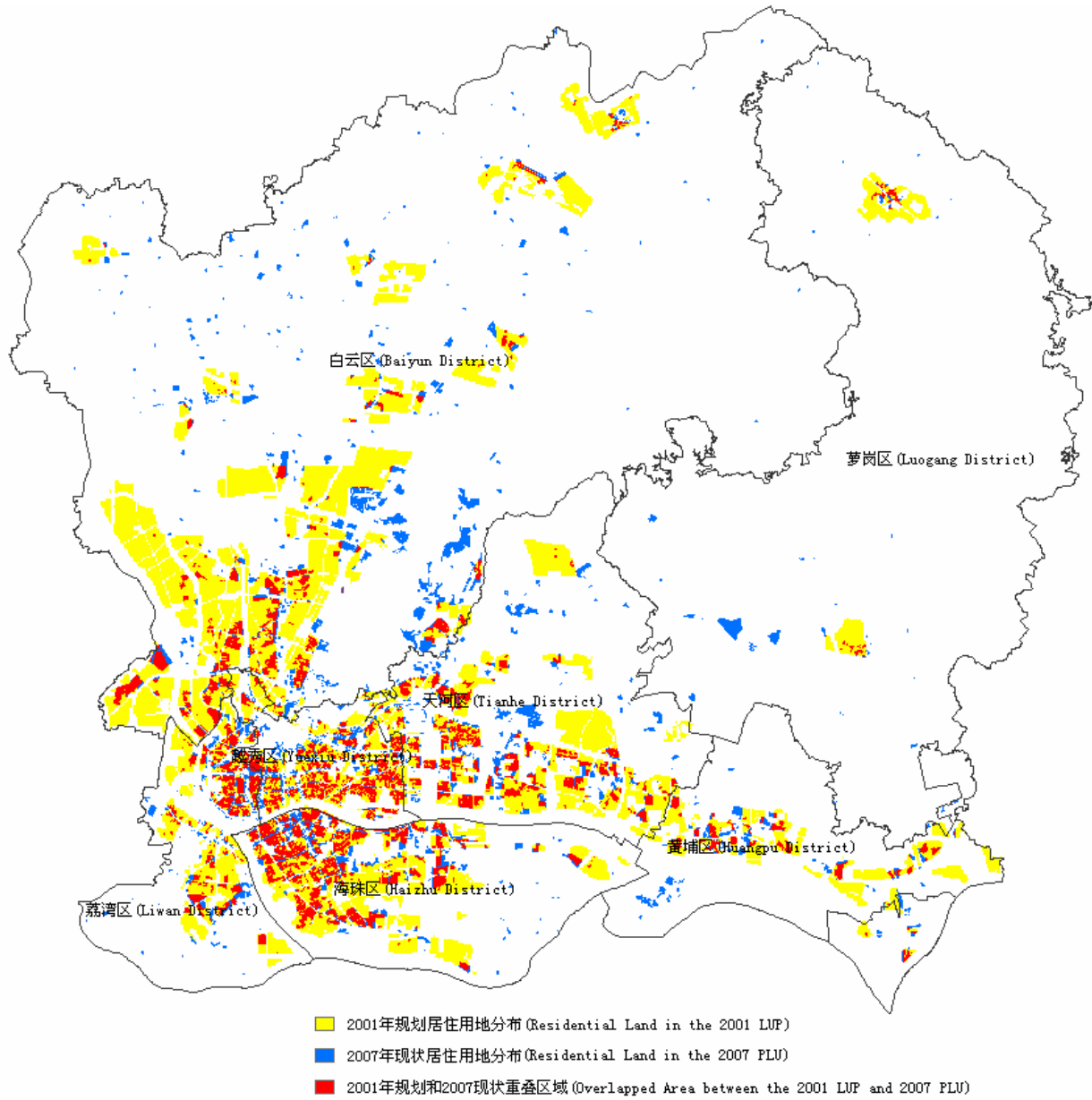


Figure 7-4 Overlay Result of Residential Land

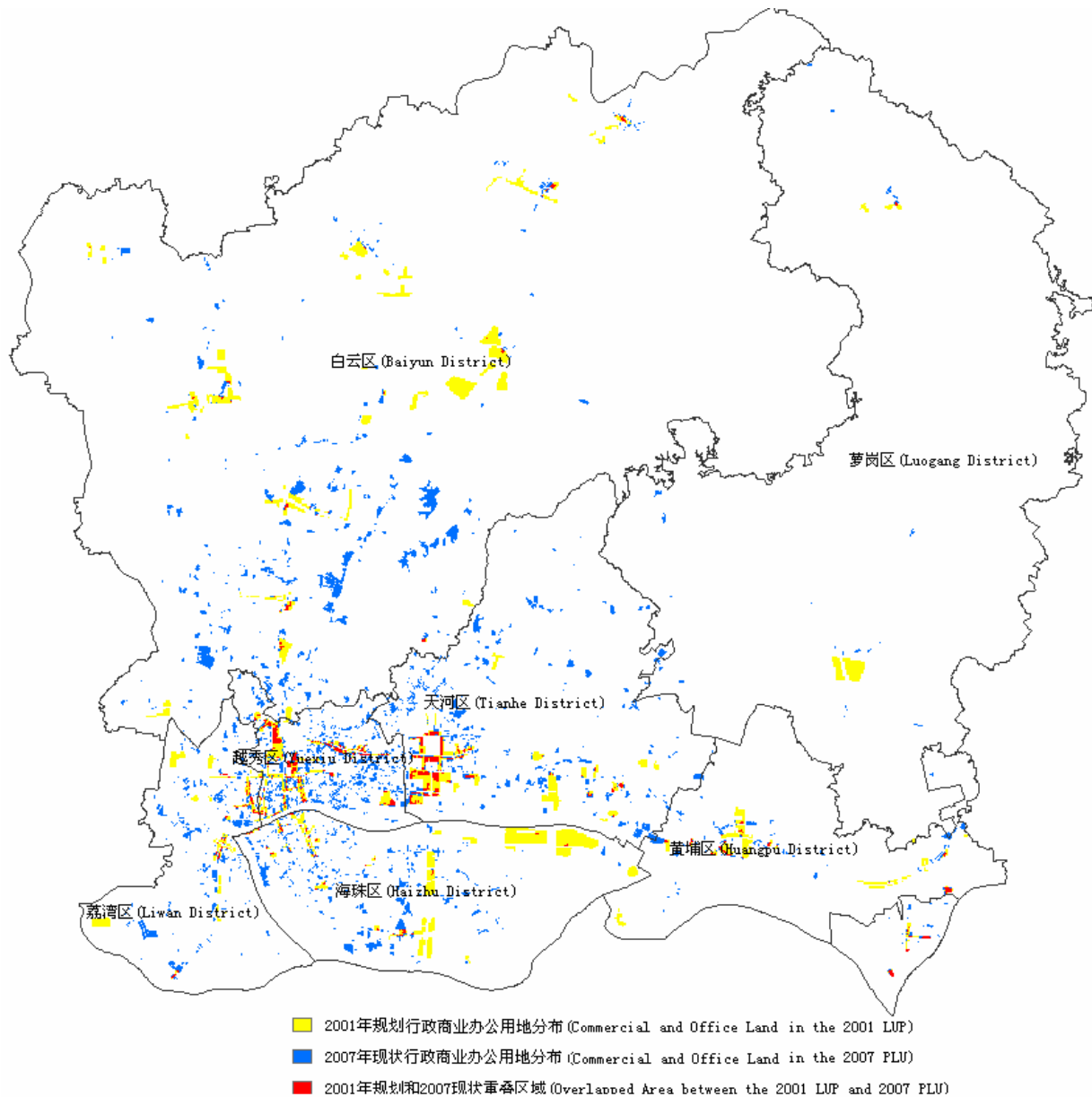


Figure 7-5 Overlay Result of Commercial and Office Land

- Analysis of commercial and office land plan (Figure 7-5)

Commercial and office land plan has shown the least level of accordance, 19.69%, which implies that the 2001 LUP has very limited understanding of the commercial and office land market. In the deviation cases, 49% occur in the Baiyun district, 16.2% occur in the Tianhe district. In general, deviation happens more in the suburban areas than in the city center.

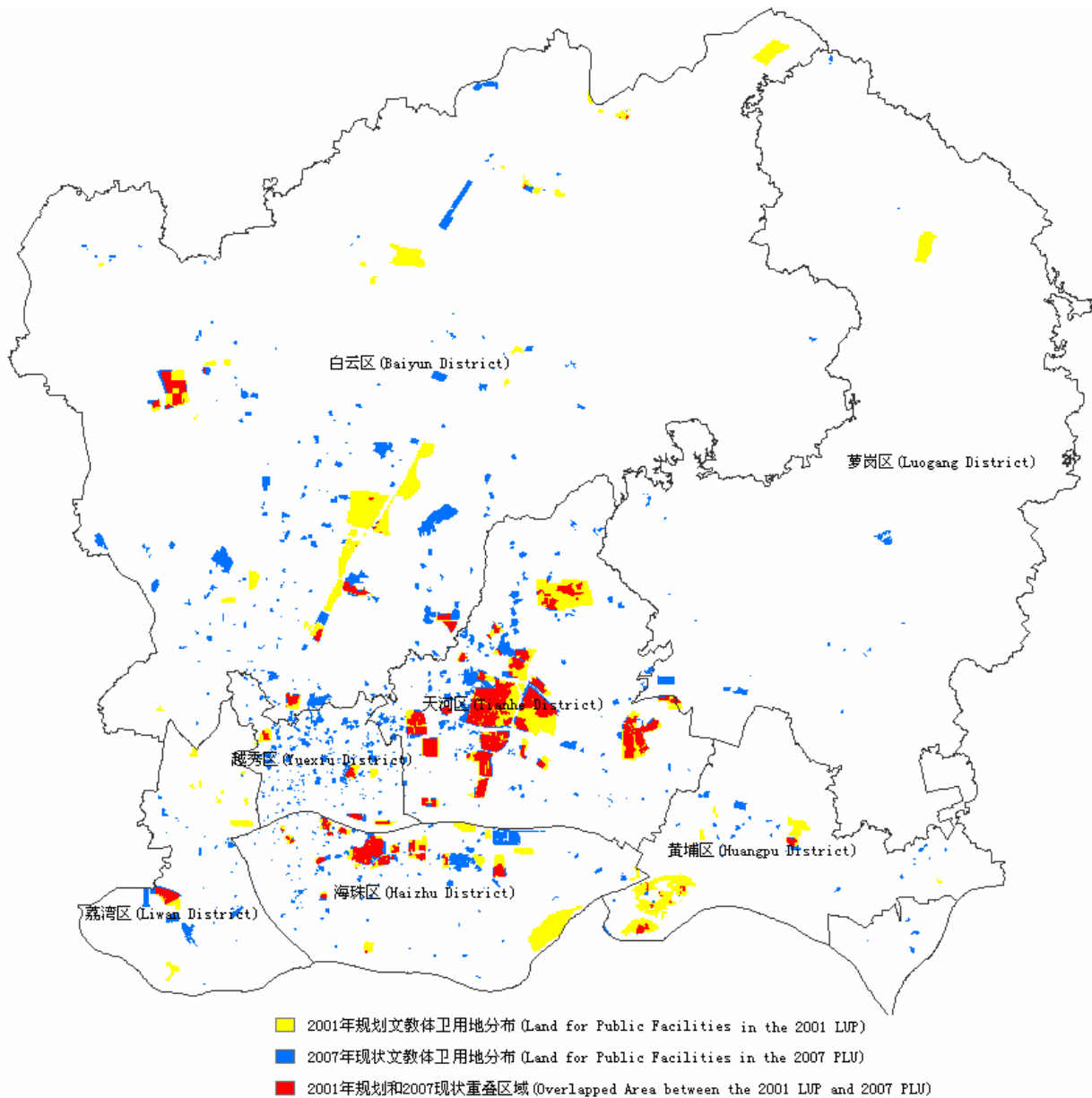


Figure 7-6 Overlay Result of Land for Public Facilities

● Analysis of land for public facilities (Figure 7-6)

Interestingly, we found that the land for public facilities has the relatively high level of accordance of plan (43.66%), although the deviation (42.80%) is equally noteworthy. The accordance cases mainly occur in the Tianhe district (64.4%), and the deviation cases mainly occur in the Baiyun district (58.9%). The relatively high accordance of public facilities land reveals that the land use plan has to some extent guided the spatial layout of public facilities. Meanwhile, only 13.53% of land for public facilities has not developed in accordance with the plan, which is acceptable since there is still three years away from the end of the planning term, 2010.

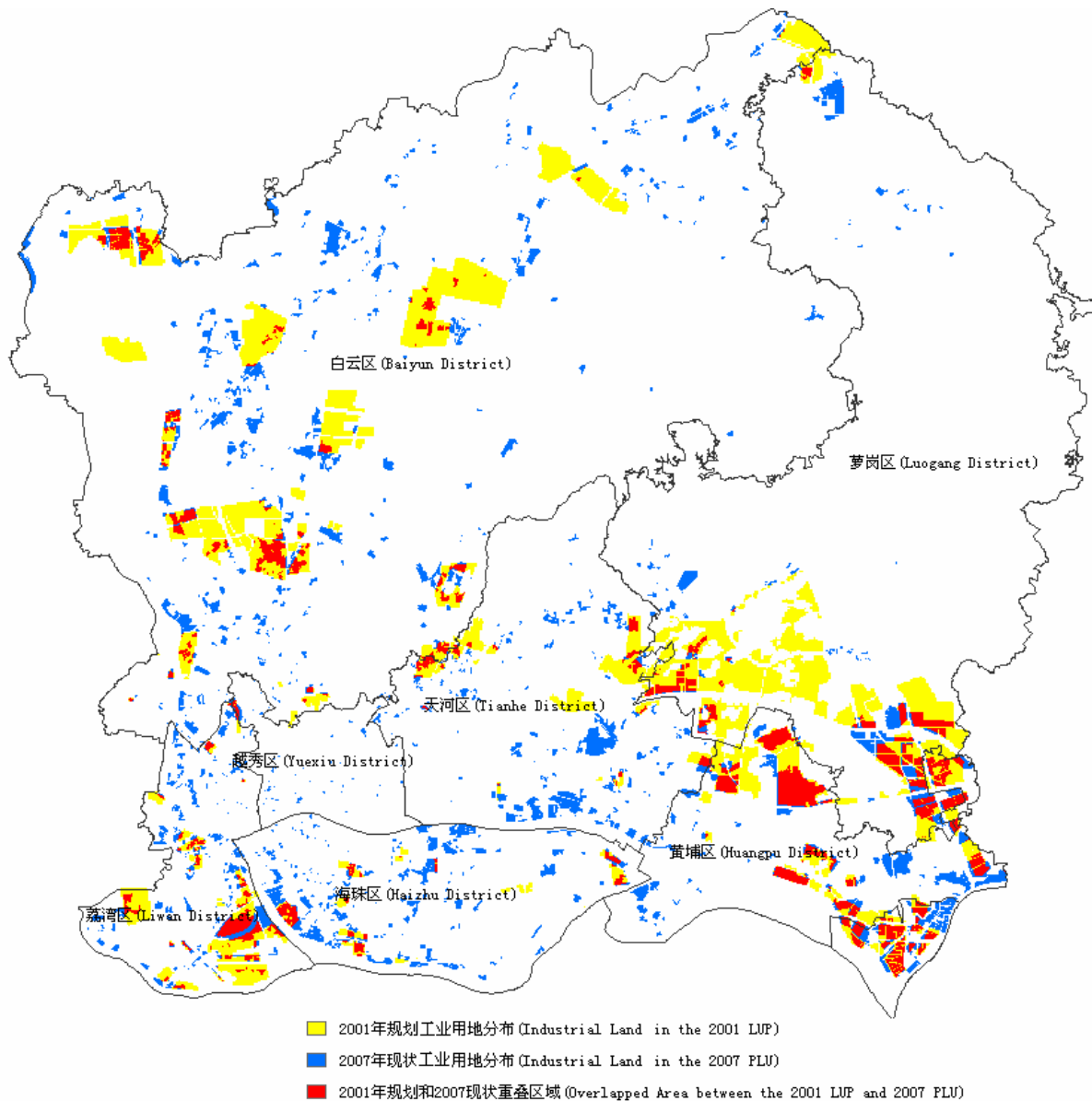


Figure 7-7 Overlay Result of Industrial Land

● Analysis of industrial land (Figure 7-7)

There are 47.32% of industrial land development deviating from the land use plan, 30.67% of industrial land has not been developed. The deviation mainly occurs in the Tianhe district, Haizhu district, and Baiyun district. There is relatively high level of accordance in the Yuexiu and Liwan district because the industrial development is rare in the old city. In the Luogang district, the major industrial area of the city, the deviation rate reaches as high as 63.11%, and only 28.2% of land is consistent with the LUP, implying that the actual industrial land development seldom follows the plan.

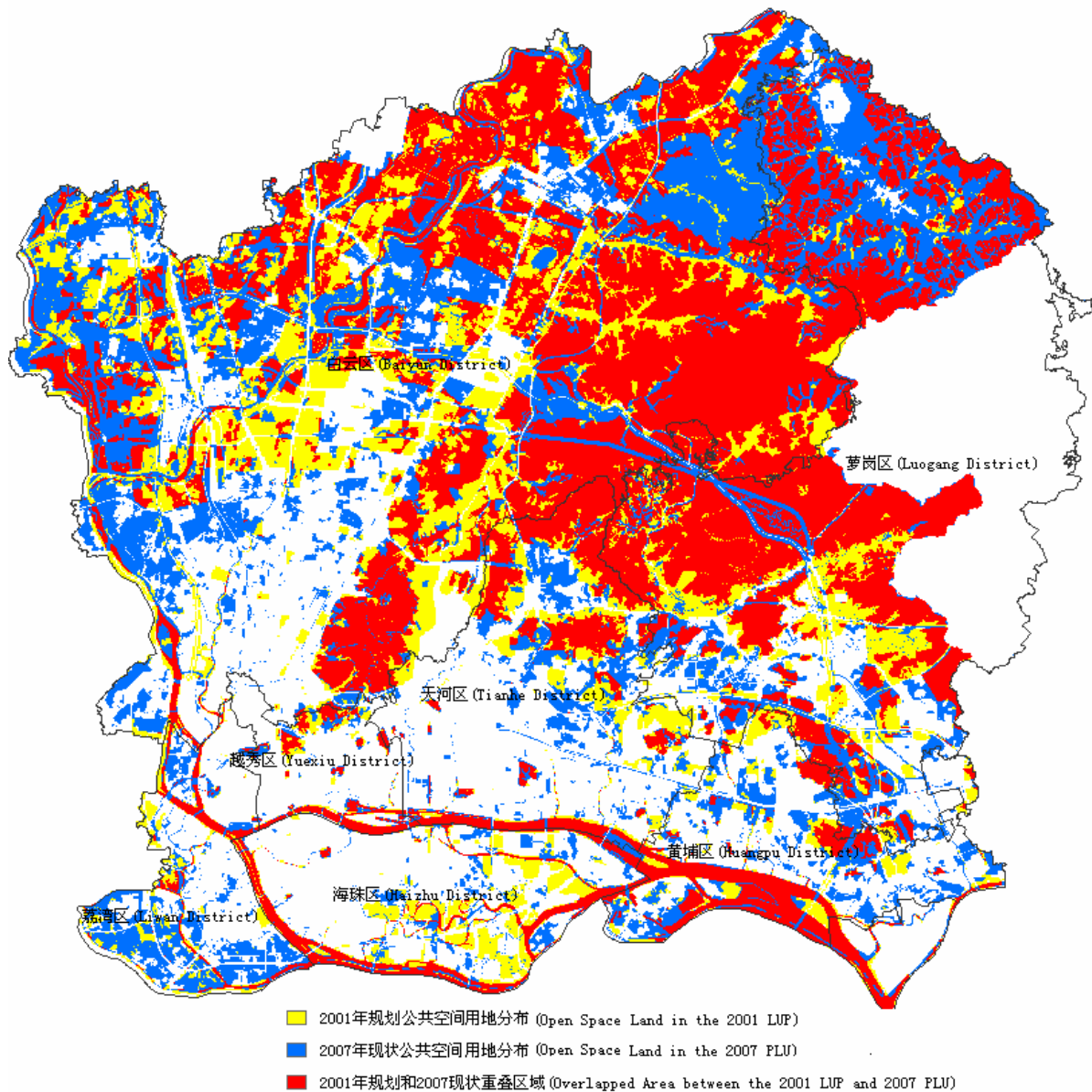


Figure 7-8 Overlay Result of Land for Open Space

● Analysis of land for open space (Figure 7-8)

There is 88.39% of open space land in accordance with the land use plan, showing that the control for open space is successful. The 78.30 km<sup>2</sup> of open space land deviating from the LUP mainly goes to residential land, commercial land and industrial land.

In general, except the land for open space, the accordance of the LUP is low, ranging from 19.66% to 43.66%, depending on different types of land use, and the deviation from the LUP is as high as around 50%. Therefore, the city master plan has shown limited understanding and guidance for city development.

#### 4. Analysis of factors affecting implementation

In addition to the evaluation of plan implementation, this study should be able to identify what factors have affected the implementation of plan. Alterman and Hill (1978) identify implementation factors as three broad categories: political-institutional factors, attributes of the plan, and urban system factors. They can also be applied in the evaluation of plan implementation in China.

##### (1) Political-institutional factors

Political-institutional structure has significant influence on the effectuation process (Walker, 1941). In China, local authorities have wide discretion in deciding whether planning permission can be granted and what planning parameters can be imposed, even though these granting parameters are inconsistent with the approved plan. Thus it is not unusual that the plan is frequently violated when planning permission is granted.

Planning certainty can be obtained when the same decision would be given to similar development applications cases (Tang *et al.*, 2000). Planning control decisions in China, however, have been made with regard to ambiguous criteria. The approved plan can be a guideline for planning parameters decisions of a specific piece of land, but not always. The decision of planning parameters is subject to wide discretion of planning officers. The developer frequently bargains with the planning officer to obtain favorable planning parameters, usually for higher density, more floor space or less public facilities contribution. All decisions are made behind closed doors; therefore decision-making of development control is basically a black-box process. With the lack of internalizing the externalities due to planning parameter changes, this planning control system has invited rent seeking and caused some uncertainty in the land market (Zhu, 2005). Frequent discrepancies between the plan and actual development therefore lead to the substantial deviation from the LUP.

##### (2) Attributes of the plan

As above-mentioned, the making of the LUP is usually the job of architect-planners, and does not have financial considerations. In reality, it has proved to be a map full of different colours and is a legacy of the planned economy. Under the planned economy, the city master plan could guide the city growth well since there was only a single investor, the government. The city master plan was made under the guidance of social and economic planning, and was the major factor determining city construction. Since the opening reform in the late 1970s, market elements have been gradually introduced into city development. Various investors, such as overseas and domestic developers, bankers, and organizations, have involved in the city development process, and their interests and investment have significantly influenced the city growth. Nevertheless, the preparation of a city master plan, is very design-based, and physical and environmental amenity factors remain the key criteria for planning decision-making, and social and economic effects have only been given intuitive considerations, rather than systematic analysis. Planners' education in urban planning is largely affected by the former Soviet Union system, and they are trained to operate under the planned economy. Therefore, it is not difficult to understand that under such situations, the

deviation from the LUP might be the reaction of market to rigid land use plan, and nonconformity of outcomes or non-implementation of plans are not necessarily failures.

### (3) Urban system factors

Chinese cities have been experiencing the unprecedented fast-growing period, and the fast-evolving reforms have posed both opportunities and challenges. Under such situations it is very difficult to make projections for the future of the city, and thus flexibility is more meaningful for plan implementation than rigidity. Moreover, as market forces, pressures of population growth and rise in standard in living would increase the likelihood of deviation from the land while trends of decline or stability would tend to decrease it (Alterman and Hill, 1978).

## **Conclusions and recommendations for further research**

The issue of plan implementation is complex, not only because this concept is debatable, but also because the methodological problems with evaluating implementation success are substantial. However, they are not insurmountable. Learning from experience can only be accumulated and transformed into knowledge through systematic evaluation, generalization, and development of new theories and norms of practice (Alexander and Faludi, 1989).

The criteria adopted in this case study are accordance, deviation, and unfulfillment between the LUP and PLU through grid overlay, and the implied hypothesis of this evaluation is that the original plan is rational, and therefore deviation from the plan is not good. However, this is not necessarily the truth. The other approach proposed is policy evaluation, but this kind of evaluation may be very broad and beyond the scope of this study. Therefore, this study tries to combine the quantitative and qualitative analysis and outline a picture to what extent the land use plan has impacted city growth and what are the factors explaining plan implementation. The degree of accordance with the master plan in this case study has been found to be very low (ranging from 19.69 to 43.66%, depending on different types of use) except the land for open space, and this degree of implementation may be regarded as an indication that the Guangzhou land use plan has limited impacts on city development. This finding is not surprising since the traditional, rigid planning approach of the city master plan has been the target of extensive criticism.

There has been substantial deviation from the land use plan in Guangzhou, and these deviations can be understood in the context of rapid population and economic growth. How well has the plan stood up to market pressures? The overlay result reveals that the plan for residential, commercial and office, land for public facilities, and industrial land has low level of accordance, implying that the market pressures outweigh the proposals in the original land use plan. In fact, the conventional city master plan has incurred substantial criticism in China (World Bank, 1993; Xu and NG, 1998): firstly, it lacks financial consideration and does not conduct cost-benefit analysis; secondly, the land use arrangement is too detailed to fit for the needs of a macro-level plan, and thus leading to rigidity and lack of flexibility; finally, policy guidance is absent in the traditional master plan. Therefore, the reform of making of city master plan is necessary in China.



Because the implementation of city master plan involves many macro-level factors, such as social and economic changes, politicians' wills, it is very difficult to quantify the indicators affecting plan implementation. Alterman and Hill (1978) use regression to evaluate the impacts of different factors, but the selected case is a detailed plan. Alexander and Faludi (1989) introduce an evaluation framework that provides a series of questions to identify what is "good" planning, but for a city master plan, these questions seem simplistic for evaluation. Therefore, the evaluation of the implementation of a city master plan requires further and more in-depth research. Planners need to develop better theories and methods of planning based on a keener understanding of the realities of planning practice.

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<sup>1</sup> Sometimes the plan term is not necessarily 20 years, but shorter than 20 years, particularly when the plan is amended several times, and the end of plan term remains unchanged. For example, the end of planning term of both 1991 version and 2001 version is 2010.

<sup>2</sup> According to the 1990 City Planning Act, the master plans of all provincial capital cities and cities with more than one million of population have to be approved by the city, province congresses and State Council.

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